CPSC GUIDELINES FOR DETERMINING AGE APPROPRIATENESS OF TOYS

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INTRODUCTION

The U.S. Consumer Product Safety Commission (CPSC) is an independent federal regulatory agency established in 1973 by the Consumer Product Safety Act (CPSA). The Commission works to protect the public against unreasonable risks of injury and death associated with consumer products. Congress passed the Consumer Product Safety Improvement Act (CPSIA) of 2008, which reauthorized the CPSA and gave CPSC new regulatory and enforcement tools. The CPSIA defined what constitutes a "children's product" under the CPSA, and a "children's toy," or "child care article" under section 108 of the CPSIA. The CPSIA also adopted the *ASTM F963 Standard Consumer Safety Specification for Toy Safety* as a mandatory standard. As part of its responsibilities, CPSC also administers the Federal Hazardous Substances Act (FHSA), under which it has issued certain regulations regarding toys and other children's products. One major regulation issued under the FHSA is the Small Parts Regulation, which bans any toy or other article intended for use by children under 3 years of age if it presents a choking, aspiration, or ingestion hazard because of small parts. In addition, the Child Safety Protection Act (CSPA) requires the labeling of certain toys that pose a choking hazard to small children, and the Labeling of Hazardous Art Materials Act (LHAMA) requires mandatory labeling for all art materials determined to have a potential chronic hazard for health. To determine the applicability of these laws and regulations, CPSC staff members often perform age determinations on toy samples. These determinations involve the staff examining a sample product to determine the age group for whom the product is commonly recognized. The results of these age determinations directly impact the type and severity of tests the sample may subsequently undergo to identify potential hazards.

Small Parts Regulation[2]

In 1979, the Commission issued a regulation under provisions of the FHSA to ban certain toys intended for use by children under 3 years of age if they present a choking, aspiration, or ingestion hazard because of small parts. This regulation, known as the Small Parts Regulation, is published in the *Code of Federal Regulations*, Title 16, sections 1500.18(a)(9), 1500.50–52, and

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[2] This abbreviated description of the Small Parts Regulation does not replace or supersede any requirements published in 16 CFR § 1500.18(a)(9), 1500.50–52, and Part 1501.

part 1501. Introduction or delivery for introduction into interstate commerce of a banned item is a prohibited act under Section 4 of the FHSA and subjects the firm to the penalties described in Section 5 of the FHSA. The regulation does not apply to toys that are solely intended for use by children 3 years of age and older; nor does it apply to toys that children under 3 years of age might have access to simply because of the toys' presence in the household. For a detailed list of toys covered by and exempted from this regulation, see 16 CFR part 1501.

The Small Parts Regulation specifies the equipment and test method used to determine whether a toy presents a choking, aspiration, or ingestion hazard because the product itself, or any part that could be detached or broken off during normal or reasonably foreseeable use and abuse, is a small part (See 16 CFR section 1501.4 for further details). If the toy being tested fits entirely within the cylinder, it is considered a small part. If it does not, it is subjected to use and abuse test procedures.

Use and Abuse Testing

CPSC established test procedures to simulate normal or reasonably foreseeable use, damage, or abuse to which toys and other articles intended for use by children may be subjected. These test procedures are found in the *Code of Federal Regulations*, 16 CFR sections 1500.50–53, and vary based on the age of the children for whom the product is intended. Any toy that has undergone use and abuse testing that results in detached parts that fit entirely within the small parts test cylinder is banned.

The five use and abuse tests specified in the regulation are impact, torque, tension, flexure, and compression. The table below lists the criteria for each test, depending on the age of the child for whom the toy is intended. Except for the tension test, each test method shall be applied to a previously untested sample. The tension test shall be applied to the same sample used in the torque test. Note that the table below is provided for convenience and may not necessarily reflect the latest version of the CFR.

	Impact	Flexure	Torque	Tension	Compression
18 Months of Age or Less (16 CFR § 1500.51)	10 drops from 4.5 ft ± 0.5 in	120° Arc 30 Cycles 10 lb ± 0.5 lb	2 lbf-in ± 0.2 lbf-in	10 lb ± 0.5 lb	20 lb ± 0.5 lb
Over 18 but Not Over 36 Months of Age (16 CFR § 1500.52)	4 drops from 3 ft ± 0.5 in	120° Arc 30 Cycles 15 lb ± 0.5 lb	3 lbf-in ± 0.2 lbf-in	15 lb ± 0.5 lb	25 lb ± 0.5 lb
Over 36 but Not Over 96 Months of Age (16 CFR § 1500.53)	4 drops from 3 ft ± 0.5 in	120° Arc 30 Cycles 15 lb ± 0.5 lb	4 lbf-in ± 0.2 lbf-in	15 lb ± 0.5 lb	30 lb ± 0.5 lb

Age Labeling and Determinations

Age labeling provides parents and other consumers guidance on selecting proper toys for children. CPSC staff, therefore, encourages age labeling. However, age labeling must be accurate. It is to the manufacturer's or importer's advantage to determine accurately the appropriate age category for their toys, as it is to label, promote, and market those toys to that age group. Such accuracy leads to consumer trust in the age labeling of toys. In a recent survey, a majority of parents (73%) said they "always" or "often" read the manufacturers' suggested age on toys. Most parents (62%) consider the suggested age as only "somewhat accurate," and only 22% of parents consider the age accurate or extremely accurate.

If a toy being tested for small parts is not clearly and conspicuously age labeled, or is inappropriately age labeled, CPSC staff performs the most stringent test from the two age groups for children under 3 years of age. The staff subjects toys that are appropriately age-labeled for children of ages spanning more than one age group to the most stringent tests specified for the age groups involved. For example, if a toy is intended for children 12 to 24 months of age, CPSC staff subjects it to the most stringent use and abuse tests for the 0 through 18 month and 19 through 36 month age groups. If CPSC staff determines that a toy is intended for children under 3 years of age, the toy is subjected to the Small Parts Regulation, regardless of its age labeling.

For a firm to know whether the Small Parts Regulation applies to a particular toy, the firm must determine the age of the child for whom the toy is intended. For the Small Parts Regulation, the relevant factors to be considered in determining which toys are intended for use by children under 3 years (36 months) of age are the manufacturer's stated intent—such as on a label—if it is a reasonable one; the toy's advertising, promotion, and marketing; and whether the toy is commonly recognized as being intended for children under 3 years of age (see 16 CFR section 1501.2(b)). CPSC staff performs age determinations, in which the various characteristics of a toy are matched to the characteristics of children in a particular age group, to determine whether a toy is commonly recognized as being intended for children under 3 years of age. For example, children from 12 through 18 months of age enjoy toys with bright colors, especially yellows and reds, and toys with high contrast and patterns. Therefore, toys with characteristics like these may be considered to be intended for children of this age. As specified in the Small Parts Regulation, the staff also considers how the toy is labeled, marketed, advertised, and promoted. Although small parts that present a hazard are clearly inappropriate for children under 3 years of age, the mere presence of small parts does not establish the age of the child for whom a toy is commonly intended, and it does not preclude the possibility that CPSC staff would determine that the toy is intended for children under the age of 3. Rather, the consideration is whether parents and others would purchase the toy for children under 3 years of age, based on the toy's characteristics and the characteristics of children of this age.

Classification of Products Under CPSIA

For a firm to know what testing and documentation are required for its product, the firm first must determine the age of the child for whom the product is intended and determine what category the product falls into: children's product, children's toy, or child care article. If a product is designed and intended for adults, or for a mixed audience of children, teens, and adults, the firm is likely to classify the product as a general use item. Many standards, testing, and documentation requirements do not apply to products classified for general use. At the CPSC, staff performs age determinations to establish both the most appropriate age group and to assign a product category to decide what standards, testing, and documentation apply.

Section 3(a)(2) of the CPSA, as amended by the CPSIA, defines the term "children's product" to mean a consumer product designed or intended primarily for children 12 years of age or younger. To determine whether consumer products are children's products, a firm must consider four statutory factors stated in section 3(a)(2) of the CPSA. The first three statutory factors are identical to what is found in the Small Parts Regulation: stated intent; marketing, advertising, and promotion; and common recognition. A firm must also consider a fourth statutory factor, the *Age Determination Guidelines* issued by Commission staff in September 2002, and any successor to such guidelines, to determine whether a product is for children 12 years or younger. Additionally, a firm can find guidance regarding what is a children's product in the Commission's interpretative rule at 16 C.F.R. part 1200. This interpretive rule discusses in greater detail the factors to consider when determining whether a product is a children's product or a general use (*e.g.*, presence of juvenile decals, product use involves physical contact by the child).

Some children's products may be "children's toys" as defined under the CPSIA. Under Section 108(b)(3)(e)(1)(B) of the CPSIA, the term ''children's toy'' means a consumer product designed or intended by the manufacturer for a child 12 years of age or younger for use by the child when the child plays. A firm must determine if a children's product is used primarily within the context of play or it is for children to use functionally. A firm applies similar statutory factors as those used to make determinations of children's products under section 3(a)(2) of the CPSA to determine if classification as a children's toy is appropriate under the factors listed in section 108(g)(2) of the CPSIA. Section 106 of the CPSIA, made ASTM F963 *Standard Consumer Safety Specification for Toy Safety* a mandatory standard. ASTM F963 defines "children's toys" as toys that are primarily designed and intended for children 14 years of age and younger.

Under section 108(b)(3)(e)(1)(C) of the CPSIA, children's products may be classified as child care articles. The term ''child care article'' means a consumer product designed or intended by the manufacturer to facilitate sleep or the feeding of children age 3 and younger, or to help such children with sucking or teething. The same statutory factors used to make determinations of children's toys under section 108 are used to evaluate and classify child care articles.

Age Determination Guidelines

Until now, the primary reference CPSC Division of Human Factors (ESHF) staff used when performing age determinations on toys was the *Age Determination Guidelines: Relating Children's Ages to Toy Characteristics and Play Behavior*, written in 2002. Since 2002, many toys discussed in that document evolved, and new types of toys have been introduced into the market. In addition, consumers' purchasing behavior and children's access to toys may have changed.

This document, *Guidelines for Determining Age Appropriateness of Toys*, revises the 2002 Guidelines. This new Guidelines document is the outcome of a project based on an interagency agreement (IAG; #CPSC-I-14-0016) between the U.S. Consumer Product Safety Commission (CPSC) and Child and Family Research (NICHD/CFR) within the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development. NICHD/CFR staff members conducted a literature review and formulated a research project that could rigorously evaluate the age appropriateness of toys through child play observations and parent surveys. The research project team worked with 243 children ages 1-8 years and their parents, who were evenly distributed between the following four age brackets: 1-1.5 years (12-18 months); 1.6-2 years (19-35 months); 3-5 years (36-71 months); and 6-8 years (72-107 months). Each child played with toys that were hypothesized for their age group, as well as toys designed for one age group younger and one age group older than their age group. The toys represented products that were both new to the market, as well as classic toys that were selected from a variety of categories, including building, arts and crafts, and games, and puzzles. After children played with the toys, researchers watched videos of the play sessions and kept track of whether the child used the toy as intended, were partially able to use the toy, or were not able to use the toy as intended. An example of this would be playing with a puzzle. If the child was able to insert a piece into a well, they were able to use the toy as intended. If the child was trying to fit a piece into a well, but did not turn the puzzle piece the correct way, then the child partially used the toy. If the child took the pieces and threw them around like a ball, the child was not using the toy as intended. Comparisons were made between children's play with toys that were age appropriate, versus toys for children who were older and younger; and the research project team used this information to determine an appropriate age for each toy. The team also collected parent surveys

to gain more information about where parents obtain toys for their children and what they consider before giving toys to their children (*e.g*., the educational value, popularity, and safety of the toy). The team used the information garnered from this research to revise the 2002 version of the *Guidelines*. The *Guidelines for Determining Age Appropriateness of Toys* should be viewed as a working document that requires updates over time to ensure continued accuracy and usefulness.

Children's development involves not only physical and cognitive development, but also emotional and social development. All four domains must be addressed to create play opportunities and environments in which children will thrive. Children's cognitive development, which includes creativity, discovery, language skills, verbal judgment and reasoning, symbolic thought, problem-solving skills, and the ability to focus and control behavior, are all heavily influenced by children's play experiences. Children's emotional development, which is also shaped by their play, includes feelings of happiness, feelings of power over the environment, emotional awareness, sensitivity to others, emotional strength and stability, spontaneity, humor, and feelings about self. Social learning occurs largely during children's play interactions, as children learn to play in larger and larger groups, and as they begin to learn about appropriate behaviors within certain contexts. Considering the physical, cognitive, emotional, and social development of children permits adults to address the well-being of the whole child, as adults design, manufacture, package, sell, or purchase play items, such as toys.

Format of the Guidelines

The primary content of the *Guidelines for Determining Age Appropriateness of Toys* is organized into four levels, each representing an increasing level of detail. These levels are play categories, toy subcategories, age groups, and toy characteristics.

Play Categories

The play category level is organized into seven main groups that serve as the primary structure of the Guidelines. The main groups apply to the various play behaviors in which children engage and how they use toys during play. The main play categories are: (1) Exploratory and Practice Play, (2) Building Play, (3) Pretend & Role Play, (4) Game & Activity Play, (5) Sports, Recreational, & Outdoor Play, (6) Media Play, and (7) Educational & Academic Play. These

seven categories provide the largest organizational strategy for the Guidelines, and essentially represent the "chapters" of the document, as can be seen in the *Contents*. As discussed below, these are apportioned into subcategories of toys to permit more specific discussions of the various types of toys within each play category. Additionally, a topic of Technology Play with two subcategories is included at the end, beginning on page (242), reflecting that today children are digital natives, with technology present in their lives from infancy through adolescence. In 2013, it was estimated that children between the ages of 0-8 spend more than 2 hours each day with television, DVDs, computers, video games, and mobile devices. It is through these devices that children are able to consume games, music, programming, as well as fully use features of toys that are compatible with these devices. Many of the same factors from traditional toys and games relate similarly to age appropriateness of technology play, although there are specific issues to consider, which have been explained in that section. Because technology is rapidly evolving, we recommend that this section be updated frequently as new technologies enter the market, and we plan to do so over time.

Toy Subcategories

Each play category is divided into two to five toy subcategories. These subcategories correspond to general types or groups of toys that children use when participating in that play type, and represent the major sections of the *Age Determination Guidelines*, as is evident from the *Contents* and the *Toy Subcategory Index*. The table below lists the seven main categories, the 21 subcategories, and examples of toys that are common to each subcategory.

Play Category	Toy Subcategory	Examples of Toys
Exploratory and Practice Play	Mirrors, Mobiles, & Manipulatives	Rattles, squeeze toys
	Push & Pull Toys	Mounted/hand held
Building Play	Blocks	Wood/foam/cardboard blocks
	Interlocking Building Materials	Brick-connecting blocks, model kits
Pretend & Role Play	Dolls & Stuffed Toys	Dolls, stuffed animals, action figures
	Play Scenes & Puppets	Doll houses, pop-up tents
	Dress-Up Materials	Costumes, jewelry
	Small Vehicle Toys	Cars, trucks, trains, planes
	Tools & Props	Cell phones, kitchen sets
Game & Activity Play	Puzzles	Outline, jigsaw, 3-D
	Card, Floor, Board, & Table Games	Wood, cardboard
Sports, Recreational, & Outdoor Play	Ride-On Toys	Tricycles, wagons, bicycles, scooters, motorized cars, skates
	Recreational Equipment	Hoops, tents
	Sports Equipment	Football, baseball, tennis, golf
Media Play	Arts & Crafts	Paints, paper, glitter, scissors
	Musical Instruments	Keyboards, tambourines, drums
Educational & Academic Play	Books	Paper, hard, coloring, vinyl
	Learning Toys	Press & guess
Technology Play	Smart Toys & Educational Software	Computer-chip based
	Audiovisual Equipment	Tapes, CDs, VHS, DVDs
	Computer & Video Games	Handheld, desktop, laptop

Age Groups

The information presented in each subcategory is distributed among the following ten age groups:

Birth Through 3 Months	2 Years
4 Through 7 Months	3 Years
8 Through 11 Months	4 Through 5 Years
12 Through 18 Months	6 Through 8 Years
19 Through 23 Months	9 Through 12 Years

These age groups are partly based on those in the original Guidelines, but are also modeled after developmental psychology, anatomy, and early childhood literature, particularly from the work of researcher Jean Piaget. The age group names were selected to avoid misinterpretation and the perception of overlap, which can sometimes occur when using the word "to" in age ranges, as in "4 to 8 Months." Hence, "4 Through 7 Months" includes 4-, 5-, 6-, and 7-month-olds. The first 4

years of childhood contain seven of the 10 age groups, and the first year contains three of those groups. This is due to the rapid progression of motor, speech, and cognitive abilities during the first few years. According to early childhood experts, development is most rapid between birth and 2 years of age; body proportions change drastically, as does the ability to control the body. Because this period of life includes dramatic variation in performance in a relatively short time, considerable space has been dedicated to reviewing this period extensively and comprehensively.

As discussed below, toy characteristics and play behaviors are described for each age group first in narrative (text) form and then in chart form. The charts range from two to six pages in length each. If the discussion for a subcategory spans from birth through 12 years of age, the first two-page chart covers information related to children from birth through 11 months of age (the first year), the second chart covers 1- and 2-year-olds, and the third chart covers 3- through 12-year-olds.

Toy Characteristics

Each toy subcategory describes appropriate and appealing toy characteristics based on the physical, cognitive, social, and emotional levels and abilities of children as they progress through the 10 age groups described earlier. Cognitive abilities, motor skills, visual preferences, and social interests are among the topics described for each age group. This information, as well as examples of representative toys, is presented first in narrative (text) form and then in chart form. Arrows within the charts indicate that the feature in question is also characteristic of older age groups.

   In the introductory narrative for each subcategory, a bulleted list of primary toy characteristics appears. "Primary characteristics" are defined as those that should be given primary emphasis or importance when performing age determinations for a given subcategory of toys because they are likely to have the greatest influence on the toy appropriateness. The order in which these characteristics are presented does not necessarily indicate their importance or priority because this will often change as children learn and develop. These characteristics are identified in the charts using asterisks. Secondary toy characteristics are also discussed within the text and charts

for each subcategory. Secondary characteristics act in concert with the primary characteristics to help explain how each age group relates differently to the given subcategory of toys.

In general, the 14 characteristics of toys described in these Guidelines have the potential to appeal to toy consumers, and they should be used to analyze toys and aid in determining age appropriateness. However, this list of toy characteristics is flexible, and other characteristics should be considered when necessary. These toy characteristics include: size, shape, number of parts, interlocking versus loose parts, materials, motor skills required, color/contrast, cause and effect, sensory elements, level of realism/detail, licensed theme, classic, robotic/smart features, and educational. These terms are used where appropriate within the age group discussions for each subcategory. Their definitions are in the following chart, listed in the same order as they appear in the charts.

Characteristic(s)	Definition
Size of Parts	The dimensions of a toy or parts of toys. The size of a toy is related to the age of children for which the toy is appropriate. Undeveloped fine motor skills, such as those of younger children, encourage larger toys and parts, while more advanced skills and the desire for challenge in older children encourages smaller and more complicated toys and parts. In addition, ride-on and similar toys will be sized or scaled to the size of the child.
Shape of Parts	The shape of a toy is related to the age of children for which the toy is appropriate. Undeveloped fine motor skills, such as those of younger children, encourage rounded toys and parts.
Number of Parts	The quantity of elements included within the toy as a whole. Differences in children's ages and developmental levels affect their reception of and interaction with toys that have single or multiple parts.
Interlocking/Loose Parts	Whether a toy includes more than one piece, and how those pieces interact. This characteristic largely pertains to building toys, such as blocks and model kits, which include more than one piece that may (interlocking) or may not (loose parts) be connected. Toys with loose versus interlocking parts have different levels of appeal among children of various ages, motor skills, and cognitive abilities.
Materials	The substances from which the toy or parts of the toy are constructed (*e.g.*, wood, plastic, vinyl, and foam). This also describes suitable characteristics of these materials since some materials (*e.g.*, metal) are more appropriate for older children than for younger children.

Characteristic(s)	Definition
Motor Skills Required	The specific levels of fine- and gross motor skills that are typically required for a child to successfully interact with a toy. Fine motor skills pertain to the ability to control the hands and fingers, including hand/eye coordination. Gross motor skills apply to the large muscle coordination necessary for using a toy. The amount of fine- and gross motor skill required by a toy can play a large role in determining the appropriate age range for a toy.
Color/Contrast	The colors or contrasts used in the toy. The purpose of toy color is predominantly for appeal and marketing. While some research studies indicate that infants prefer reds to blues and patterns to solids, no literature suggested that such preferences are developmentally based among toddlers, preschoolers, or children in the late early childhood years. Culture factor plays a large role in color appeal.
Cause & Effect	The attributes of toys that respond in some way to children's actions, either through lights, sounds, movement, or change in property. The cause and effect can range from very simple to highly complex and is directly related to the level of cognitive or motor skills required from a child.
Sensory Elements	Those characteristics of toys that appeal to any of the five senses. These elements were considered on the basis of lights, sounds, texture, smell, and taste. Stimulation of the five senses provides different responses from children at different ages. Color/contrast is identified as a separate characteristic of appeal, so it was not considered as a visual sensory element.
Level of Realism/Detail	The visual design of toys and their intended use. Level of realism is described in two ways: cartoonish versus real appearance and child versus adult qualities. Cartoonish/Real details pertain to the visual presentation of a toy. Level of maturity, cognitive ability, and motor skills are considered for the child/adult determination. The combination of these realism perspectives (cartoonish vs. real and child vs. adult) works together to affect the appeal and appropriateness of toys.
Licensed Theme	Toys with ties to outside influences—primarily media—contain a licensed theme. Television shows, movies, books, and sports figures are the main sources of licensed toys. Licensed character images try to connect the emotional feelings associated with the media to the toy product. The appeal of the licensed product varies depending on the age of the child and the child's exposure to the media associated with the product.
Classic	Toys that maintain appeal with consumers over generations. Purchasing decisions made by adults are affected by the classic status of particular toys.
Robotic/Smart Features	Toys powered by remote controls (attached or not) or computer chips. Robotic/smart toys have the ability to respond in an interactive fashion with the user. Appropriateness is evaluated in terms of ease of use, remote response, and the level of cognitive sophistication required to use the toy as intended.
Educational	Toys designed and marketed specifically for academic gains. The appropriateness of these toys depends on the level of cognitive ability necessary to engage in an intended educational way, and the type of material, size, and number of parts.

Using the Guidelines

A *Toy Subcategory Index* appears immediately after the *Contents*. This index provides page numbers for the 21 toy subcategories listed in alphabetical order, and it is intended as a quick look-up directory for those who have become familiar with the subcategories and do not want to scan through the entire *Contents* to find the appropriate page number. The *Toy Index*, starting on page 306, provides another easy way to find and retrieve information on specific toys within the document. It indicates the subcategory under which each toy is classified and the page on which the toy subcategory discussion begins. It is especially useful for toys for which the reader is unable to determine the appropriate subcategory, or for toys that are likely to fall into multiple subcategories. *Children's Basic Abilities and Preferences* is a good starting point for distinguishing typical differences among age groups of children for assessing toy appropriateness. Readers will find it useful for assessing toys that are not specifically addressed in the new Guidelines or that do not seem to fit neatly into a particular subcategory.

As discussed, each toy subcategory presents the relevant information in both narrative and chart form. Although the format of the charts does provide a convenient way of comparing information among different age groups, the user should always refer to the narratives to understand fully the relationship between the toy characteristics and the play behavior associated with each age group. The primary toy characteristics for each subcategory are bullet listed in the introductory text and are identified with asterisks in the charts. These characteristics should be given primary emphasis when performing age determinations for that subcategory of toys, because they are likely to have the greatest influence on the toy appropriateness. However, other characteristics discussed within the text and charts should also be considered when conducting an assessment. In addition, the results of more recent or highly focused scientific research on children's abilities and preferences—especially for specific toys and toy types—may supersede what is stated in these Guidelines.

Although age grading has safety implications, these Guidelines are not intended to address specific safety requirements. The reader should refer to the *Code of Federal Regulations*, title 16, parts 1117 and 1500–1513, for federal regulations associated with toys and children's products.

Additional safety information and requirements for toys can be found in ASTM F 963, *Standard Consumer Safety Specification on Toy Safety*, published by ASTM International.

CHILDREN'S BASIC ABILITIES AND PREFERENCES

This section is intended to serve as a handy reference guide and starting point for understanding and distinguishing children's basic abilities and preferences as they grow. These abilities and preferences play an important role in attracting and motivating children to interact with toys. Developing physically, for example, changes the ways in which children are able to coordinate their gross motor skills. Increased mobility opens up new ways to use toys. A higher level of fine motor skill permits greater manipulation of objects. Ultimately, such knowledge helps to identify and distinguish the characteristics of toys that are appealing to children at a given age. Although information of this sort is noted throughout the Guidelines in relation to a specific subcategory of toys, this section summarizes typical play behaviors regardless of the toy used, and it identifies appropriate and appealing toy characteristics that are generally consistent among all subcategories of toys. With this information, it will be easier for the reader to make an age determination for a given toy, even if that toy is not specifically addressed within the Guidelines.

Birth Through 3 Months

Object play is limited during this period because learning occurs mostly through the reflexive actions of the child, such as spontaneous kicking or arm movements. They are manipulating objects so that they may explore them, repetitively. Initially, they explore with their eyes and ears only. Newborns can focus best at about 8 inches from their faces, but this increases over time, and they may be able to see objects several feet away by the end of this period. Play objects should fit within their visual field at these distances. They are attracted to bright and vibrant colors, especially yellows and reds, and to objects with high-contrast patterns, like black and white spirals. These children prefer the human face to all other patterns, and will watch faces intently. They will turn their heads in the direction of a sound, and are more attracted to objects that emit a gentle, soothing sound and that move slowly, than to objects that remain still or are too loud, too sudden, or otherwise extreme. Much of children's play at this age involves watching and exploring their own body. They have a reflexive grasp, which only allows them to explore objects briefly; and at 3 months, they begin to swipe or reach toward a dangling object to grasp it. Any object grasped is likely to be mouthed and to be handled with jerky, unpredictable motions. Therefore, soft, lightweight, washable, easy-to-grip objects with rounded corners are

best. The preference for soft-material toys is greatest for 3-month-olds and declines as children reach their first birthday. They start to learn and enjoy toys for which simple actions produce a clear, direct effect; for example, toys that light up, move, or create sound as a result of simple kicking or shaking. Brightly colored and patterned toys that make gentle sounds are both appealing and appropriate for these children.

4 Through 7 Months

Children now actively engage with their environments in systematic ways. Distance vision is more mature, and these children can track moving objects with smooth, efficient eye movements. Bright colors, high contrasts, and complex patterns continue to be appealing. These children learn to differentiate among objects, as evidenced by their ability to group visual stimuli into categories. By 5 months of age, children can roll onto their backs and push up onto their hands and knees. They have mastered the ability to grasp and manipulate a dangling object by 6 months, and they begin to engage in more active play by reaching, grasping, tugging, pushing, patting, shaking, and squeezing objects. At 6 to 7 months, children are sitting independently, which provides them with greater visual capacities for grasping objects or bringing objects to midline for exploration. They can manipulate objects more readily, although their fine motor coordination is still rudimentary. Objects are grasped using a claw-like grip or raking motion, rather than a pincer grasp (*i.e*., using the thumb and index finger). They can transfer an object from hand to hand, and begin to use both hands independently; for example, one hand may hold an object, while the other hand manipulates it. These children continue to mouth objects, so suitable toys are washable.

Near the end of this period, children develop the ability to recognize oft-repeated words, and some are beginning to crawl and stand with support. At this time, they are also beginning to understand object permanence—that an object that is hidden or partially hidden did not actually disappear, but still exists somewhere. Soft, lightweight, rounded, and textured toys that make gentle sounds are appropriate. Handheld toys, should be sized so these children can easily grasp and manipulate them.

8 Through 11 Months

Much of the play during this period focuses on developing gross motor skills as these children exhibit more outwardly oriented movements and become increasingly mobile. They can crawl forward and backward, pull themselves into a standing position, walk with support (for example, along furniture), stand momentarily without support, and complete a couple of unassisted steps. They also begin to climb. These children explore objects in many different ways, such as through grasping, shaking, squeezing, throwing, dropping, passing from hand to hand, and banging. Although they can hold two objects and bang them together, they cannot coordinate the movements of both to use them together. However, when given one object, children in this age span can use both of their hands at the same time, with each hand performing a different, but complementary, action on the object. Usually, one hand is in a supporting or stabilizing role, while the other manipulates or explores the object. They begin to develop a pincer grasp, which is used to pick up small objects between the thumb and fingers. Patterns of exploratory play begin that suggest children near the older end of this age group can make inferences about novel objects. For example, these children may infer what functions may operate beneath the surface of an object. They spend more time manipulating objects that can make noises and be made into different shapes than those that are rigid or noiseless. They explore objects from every angle, and this often involves mouthing. Therefore, suitable toys are washable.

Many children in this age group begin to use items in typical relational patterns; for example, they enjoy dumping items out of a container, putting them back in, and then repeating the process. They repeat pleasurable actions often, and start to show an interest in marking on paper. Basic memory skills are developing, and object permanence becomes more entrenched. When a toy is hidden or not within view, these children know the toy still exists and did not simply disappear. Children of this age can understand simple words related to their immediate context, and need repetition and reinforcement of the words they hear. At the end of this period, these children begin to imitate gestures and the use of products. Sensory toys are highly appealing because these children are beginning to understand simple cause-and-effect relationships. Bright colors, especially yellows and reds, continue their appeal for this age group, as do high contrasts and complex patterns. Pictures that represent familiar objects are also highly appealing. Suitable toys are soft, sturdy, have rounded edges, and are easily grasped or manipulated by the child.

12 Through 18 Months

Increasingly, these children can walk without support. However, they are still unsteady on their feet, and their walking resembles toddling more than mature heel-to-toe walking. Now they want to explore everything; however, their curiosity far outweighs their judgment for predicting outcomes or foreseeing dangers. They are trying out a variety of basic gross and fine motor skills, and are gaining confidence as climbers. They can sing to themselves and will move their bodies to music. Being more mobile, they can self-select toys that were once outside their reach. They find basic grasping easier, and can manipulate toys that require simple twisting, turning, sliding, and cranking. Through trial and error, they continue to explore cause-and-effect relationships like dumping and filling activities and stacking and knocking over objects. Children at this age display a preference for toys that have greater manipulability and sound potential. They enjoy a variety of actions with objects, such as pressing, pushing, pulling, rolling, pounding, beating, shaking, clanging, fitting (for example, inserting a round peg into a round hole), marking, scribbling, carrying, and poking their fingers into objects. They delight in the many effects their actions cause, and enjoy toys that take advantage of this. Children of this age can recognize the names of familiar people, objects, pictures, and body parts. Long-term memory and the development of simple vocabulary using one-word utterances now provide the foundation for make-believe or pretend play. However, these children do not make clear symbolic connections until about 18 months of age. These children often imitate common actions they see—such as talking on the phone, "drinking" from a bottle or cup, stirring a spoon inside a bowl, hugging a stuffed animal, or putting on a hat—but only in brief, sporadic episodes. By 1 year, children are typically able to show appreciation of sociocultural uses of objects and attend to cause-and-effect relations, which emerges between 13 and 20 months. For example, the child may start to pretend to eat something from a plate. Between 13 and 20 months, they develop greatly in their ability to engage in symbolic play. They can defer imitating something for up to a week, and can also do so across a change in context (for example, from daycare to home). Simple toys that encourage pretend play, such as dress-up materials, dolls, stuffed animals, and small vehicle toys, are appropriate. Simple remote controls with age appropriate features are also usable.

19 Through 23 Months

Children in this age group are more confident and stable at walking, and are exploring other skills, such as balancing, jumping, and running. They can pull a toy behind them while walking, climb onto and off of furniture without assistance, walk up and down stairs with assistance, and—by the end of this period—may be able to kick a ball. They can now pick up and manipulate much smaller objects due to their more developed pincer grasp. They like to sort objects, often grouping them into two categories, and can now fit together simple objects. Children in this age group can match angles, which allows them to fit a square peg into a square hole. They can also start to use very simple coupling mechanisms like magnets, large hooks, and hook-and-loop or touch fasteners. At 19 months, children can now engage in true building play.

Representational and symbolic thinking emerges during this timeframe, and children understand that some toys represent other objects. The child's depiction of representational art, however, is still in its infancy and may seem nonrepresentational to adults. Most of their artistic forays take the form of gestures, or a series of dots may represent, for example, a rabbit hopping. They can use simple phrases, a few active verbs, and directional words, such as "up," "down," and "in." Social play also emerges because children of this age can now communicate with and play alongside each other. These children can role-play a variety of commonly observed actions, such as sleeping and make dolls or stuffed animals assume roles, such as play partners. When playing pretend with children, parents are usually sensitive to the needs of their children, suggesting play at the same or slightly higher level of complexity than their children would normally play. Although they still use trial and error, these children can mentally consider solutions to problems before taking any action. This means they can remember and work with mental representations of familiar objects, pictures, letters, and numbers as they ponder appropriate actions. They are more goal-oriented, and object permanence is more advanced. These children can help dress or undress themselves. Toys with low-to-moderate cause-and-effect features—such as those with push buttons or pull cords that cause actions or sounds—are appealing to these children.

2 Years

Now that pretend play is established, 2-year-olds can perform social roles like mommy, daddy, or baby. Role taking becomes a bigger part of social pretend play, and their pretend play becomes more elaborate as they use a variety of objects to carry out longer episodes. At this age, children need the object to resemble the real item to some degree, so they might use a cloth rather than a shoe to represent a pillow. They understand that pictures can depict pretend objects, and scribbles gradually become more representational pictures during this period, although they are still more interested in the process than the product. They become increasingly interested in color variations and using simple art materials. Children at this age begin to show an interest in television and television characters. They are drawn to familiar cartoon characters from television shows that they can incorporate into their play themes. They often want to know "why," and can start to use simple learning or educational toys. They understand the purpose of numbers in counting objects.

Children have increasing control over basic gross and fine motor skills. Interest in gross motor activity increases with newly found physical strength and basic coordination, and children this age especially enjoy balancing, climbing, running, jumping, throwing, catching, playing with sand, or pushing and pulling wheeled objects. They learn these skills separately during this period, and with each passing year, they gradually combine them with other skills as coordinated movement. They can perform somersaults, and like to dance, twirl, and gallop to music. Although their control is still uncertain, they can kick and throw a ball. They can manage simple screwing actions, and can use simple one- or two-turn wind-up mechanisms, provided they are of low tension. Smaller buttons or snaps may be difficult for these children to manipulate, but they can use large hooks, buttons, and buckles. They prefer more realistic toys, so colors other than bright primary colors (for example, pastels) become attractive. However, these toys do not need to be elaborately detailed.

3 Years

These children like to use replica objects as actors in a story. A doll, for example, might be prepared to attend a birthday party with her doll friends, and they will drive in a car, eat food,

and play chase, or dance at the party. Realistic props enhance pretend play at this age, but these children also start to use objects that are unlike the real item, so they might use a shoe to represent a pillow. They show greater interest in structured games. Television characters, especially gentle, cartoonish characters are important at this age because children use these characters as safe playmates.

These children progress considerably in their gross motor skills. They can tiptoe and balance on one foot, hop, climb, and slide on play structures with ease, kick or catch a large ball thrown from a short distance, and throw and aim at short distances. Children in this age group still spend a substantial amount of their time in object-oriented play. They now have the fine motor skills to take on the challenge of more complex building play, combining smaller pieces, and engaging in a variety of art activities that require fine motor skill.

4 Through 5 Years

Drama and pretend play, also known as symbolic play, are at their zenith. These children like to invent complex and dramatic make-believe scenarios. They can build upon each other's play themes, create and coordinate several roles in an elaborate scenario, and understand story lines better. Many of these children still have difficulty understanding the differences between fantasy and reality. For example, children of this age may believe that monsters are real. They enjoy stepping into roles of power, like a parent, doctor, policeman, lion, or superhero, which helps them to understand these roles better, to make the situations less scary, or to fulfill wishes and express a broad range of emotions. Toys that are based on popular media platforms let children share roles with other viewers of the same program to create a ready-made play script. As their cognitive and fine motor skills improve, they begin to desire objects with more realistic detail; yet, they still are not very concerned about mirroring reality.

These children further master gross and fine motor skills. They enjoy frequent trips outside to run, climb, hop, skip, and chase. Their fine motor skills are much improved over 3-year-olds, allowing them to engage with art materials requiring more precision. Interactive toys are still appealing at this age, although the challenge of non-predictable and random responses from the toy is more appealing and will consume the child's time for longer.

6 Through 8 Years

These children continue their interest in physical play outdoors, seeking to master more specialized physical skills. They are much stronger, have greater endurance, and are ready for more challenges. Their play includes more rough-and-tumble or risk-taking behaviors. They focus more on playing their games and activities by spontaneous or set rules, either of which can be complex. Children in this age group engage in sports of all kinds and common outdoor games. They often want to focus on and develop specific skills, and are adept at a variety of activities requiring great dexterity, such as complex hand games, building, or crafts. They can make small, controlled marks or movements while drawing or writing.

They pay much more attention to detail, which facilitates a desire for collecting. At this stage, they start using logic more often to solve problems, organize, or choose from a variety of alternatives. Their appreciation for simple jokes and riddles grows during this period. Licensed characters based on action superhero themes or friendship themes are very popular early on with this age group.

9 Through 12 Years

Children during this period continue to develop their skills at many of the sports, games, and activities from their early elementary years; however, some games become predictable and boring. Therefore, they are looking for a new range of activities to challenge their more advanced motor skills and thinking. Instead of finished products, they often prefer raw materials for creating their own unique products. These children enjoy a variety of activities at a more complex, exacting level of performance, such as arts and crafts, theater, advanced science projects, and generating computer graphics. They are beginning a stage where they seek to clarify and express more complex concepts, moving from the concrete to the abstract and applying general principles to the particular. Around age 9, they begin to shift their interests away from cartoon characters to more real life characters, like professional sports stars and real-life television, music, and movie stars.

Children in this age group like to emulate popular teen characters, sports stars, and musicians by using licensed products in which they are featured. For some children, symbolic play may continue into this age group, although children may prefer to engage in it in private settings so that they are not embarrassed by appearing too immature.

EXPLORATORY AND PRACTICE PLAY

Exploratory and Practice play toys, such as mirrors, mobiles, manipulatives, push toys, and pull toys, help young children learn about themselves, objects, and the world around them. These toys encourage young children to develop their fine and gross motor skills, as well as their basic cognitive and language skills.

Mirrors, Mobiles, & Manipulatives (p. 25)

- Activity gyms
- Bubbles
- Cloth and plush toys
- Gear spinning toys
- Inflatable toys
- Interlocking plastic rings
- Large beads on rings
- Lightweight balls
- Mirrors
- Mobiles
- Multisensory infant toys
- Multi-textured infant toys
- Nesting, sorting, and stacking toys
- Plastic discs on a ring
- Plastic keys on rings
- Play mats
- Pop-up toys
- Rattles
- Rocking toys
- Roly-poly toys
- Sand and water toys
- Squeeze and squeak toys
- Teething toys

Push & Pull Toys (p. 40)

- Pull toys with handles and cords
- Push and pull toys that resemble real life objects
- Push toys with handles
- Push toys without cords or handles

MIRRORS, MOBILES, & MANIPULATIVES

Exploratory and practice mirrors, mobiles, and manipulatives are most useful for young children, who are first learning about the characteristics of objects, the world, and the self. Children of all ages are interested in mirrors, which develop self-awareness and identity. Children watch, feel, grasp, manipulate, mouth, and otherwise explore these toys. Through them, children learn about their senses and how objects and actions affect them. For safety reasons, all these toys should be non-breakable and have rounded edges that cannot cut a child. Toys that can be grasped should be made safe for mouthing.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of mirrors, mobiles, and manipulatives:

- Color/Contrast
- Motor Skills Required
- Cause & Effect
- Size of Parts

The order of these characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of mirrors, mobiles, and manipulatives are appropriate and how children in that age group play with these toys.

Birth Through 3 Months

At this age, children learn mostly through reflexes, such as spontaneous kicking and arm movements. At birth, an infant's focus is best at a distance of about 8 inches from the face. Until about 1 month of age, children merely look, listen, suck, and make grasping movements. They generally perform these actions, many of which seem random, independently of one another. Research demonstrates that children can differentiate red from green, even at birth, and that by 2 months of age, all color receptors in the eye are functioning. By 3 months, children prefer yellow and red to blue and green, and prefer patterns to solids. Now they can see objects several feet

away from their faces. They will also smile at their mirror images. Ages 1 through 3-month-olds begin adapting their reflexes to their environment, including their toys. Their movements become more coordinated and organized; and at 3 months of age, they begin reaching toward and grasping objects. When children can grasp toys, they learn to manipulate them both manually and orally.

Suitable mirrors and manipulative toys for these children fit completely within their visual field, have rounded edges, and are lightweight, but sturdy, if designed to be grasped. Children in this age group prefer brightly colored toys dominated by yellows, reds, and high-contrast patterns; and graspable toys should be washable because children in this age group will mouth them. Cause-and-effect relationships should be simple. For example, a toy that makes sounds when kicked or shaken would be suitable for children in this age group. Sensory elements should not be too loud, too bright, too sudden, or otherwise extreme. Examples of manipulative toys for children in the latter end of this age group include teething toys, rattles, lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multisensory infant toys, activity gyms, play mats, cloth toys, and plush toys. Mirrors and activity gyms should securely attach to the crib or wall, or they should be well balanced enough to remain standing on the floor as the child interacts with them. Mobiles should be designed for hanging directly above the infant so the suspended elements are oriented toward the infant—rather than being angled so their profiles are directed toward the infant—and so each element will fit within the infant's visual field. Mobiles should remain outside an infant's reach because they are meant to be watched, not manipulated by the child. Mobiles that have sensory elements other than movement, such as soft sounds or music, are especially appealing.

4 Through 7 Months

At this age, most children are externally oriented, actively engaging with their environments, and repeating simple actions that involve objects like toys, clothing, and other people. Most children now actively handle toys. They are learning to reach, grasp, push, pull, squeeze, pat, poke, and shake. Mouthing and teething are also very characteristic of this age group, although the time spent mouthing varies among children. They can sit unsupported around 6 months of age, so now playing with water/tub toys is appropriate. Children in this age group are fascinated by faces in

general and are amused by their own face reflected in a mirror. By 6 months of age, they begin to recognize their reflected image as their own. Since children of this age can sit up, they can use small handheld mirrors.

Suitable manipulative toys for children 4 through 7 months of age have characteristics similar to those for younger children. Children can now manipulate objects themselves, so they prefer soft, lightweight toys. Because children in this age group prefer to mouth toys, any toy they grasp will most likely proceed toward their faces. Toys with flaps, spinners, and rattling objects for exploration are of interest to children in this age group. Examples of cognitive and motor manipulative toys for 4- through 7-month-olds include teething toys, rattles, lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multisensory infant toys, manipulative panels, activity gyms, play mats, cloth toys, plush toys, squeeze and squeak toys, plastic discs on a ring, and interlocking plastic rings. The youngest children in this age range may show an interest in mobiles. However, starting at about 5 months of age, when children begin to push up onto their hands and knees, or begin to sit up, mobiles, suspended crib gyms, and similar toys are no longer appropriate because they can pose a strangulation hazard. Mirrors may be attached to a crib or wall. Handheld mirrors should have soft edges and handles that fit into their hands. Other toys intended for holding may have many graspable handles of appropriate size.

8 Through 11 Months

Children 8 through 11 months of age are increasingly mobile, and their behaviors become more outwardly initiated and goal-oriented. Due to an increase in physical and cognitive development, children of this age are beginning to understand simple cause-and-effect relationships. Some children begin to crawl and stand with support by 8 months of age. The motor skill of grasping and shaking, combined with the cognitive skill of understanding cause and effect, make multisensory toys highly appealing for this age group. Children of this age can hold two objects at once, but they are unable to coordinate the different actions of each hand. Because their physical abilities are increasing, but they lack the coordination to completely control their own actions, their potential for getting injured increases. Children in this age group are beginning to show an interest in object displacement, and they practice fine motor skills, such as grasping,

pushing, pulling, squeezing, patting, poking, and shaking. Mouthing and teething are still very characteristic of this age group, although the time spent mouthing varies among children. When a toy is hidden or not within view, children in this age group know the toy still exists and did not simply disappear.

Suitable manipulative and mirror toys for children 8 through 11 months old have characteristics similar to those for younger children. Children of this age also enjoy toys with containers because they like to put things into them and then dump out the contents. Exploratory toys with large dials, levers, and buttons are also of interest. Examples of cognitive and motor manipulative toys for children in this age group include mirrors, teething toys, lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multisensory infant toys, manipulative panels, activity gyms, cloth toys, plush toys, squeeze and squeak toys, sorting toys, stacking toys, simple cause-and-effect toys, such as pop-up toys and roly-poly toys, large beads on rings, and plastic keys on rings. Manipulative panels and simple manipulative toys that are small and light enough for children to lift, hold, and carry are good choices for this age group. Children in this age group enjoy large and low wall-mounted mirrors, which allow them to watch themselves sit, crawl, and begin to walk. However, these mirrors must be sturdy enough to withstand banging. Handheld mirrors should be small, have soft edges, and include an appropriately sized handle. Children of this age are actively engaged with simple stacking and sorting. Appropriate cause-and-effect toys are easily activated with simple, direct movements, with the effect immediately following the cause. When the effect is too long, the child cannot connect it to the cause.

12 Through 18 Months

Children from 12 through 18 months of age are increasingly curious and love to explore; this is made easier by children's increasing walking skill. Because of this, children begin to self-select toys, rather than play with only those items that are within their reach. Although they are becoming more skilled at walking, they are still unsteady on their feet, and they often lose their balance. They are engaged in activities that develop their physical strength. They are developing greater fine motor coordination. They are capable of controlled grasping and releasing, pushing, pulling, squeezing, patting, poking, and shaking, and can twist, turn, slide, and crank toys. Toys

that combine these options are especially appealing—such as a squeezable ball with beads interlaced on elastic. A toy like this can be squeezed, shaken, or used for fine motor practice as the child slowly moves the beads across the elastic. They are even more expansively exploring the world through all their senses: seeing, hearing, touching, tasting, and smelling.

Suitable manipulative and mirror toys for children 12 through 18 months old are of a size and weight that is easy to grasp and carry, rounded, and lightweight, but sturdy. Toys that are brightly colored with high contrast are attractive to children in this age group. Toys with simple cause-and-effect relationships, like part of the toy popping up when a button is pressed, are appealing, but sensory elements should not be too loud, too bright, too sudden, or otherwise extreme. Toys are generally washable, soft, and lightweight, because children in this age group can now manipulate objects themselves. They also are likely to taste any toy they grasp because they prefer to mouth objects. Examples of manipulative toys for 12- through 18-month-olds include lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multisensory toys, mirrors, flaps that can use the pincher grasp motor skill and turn left and right, manipulative panels, activity centers, cloth toys, plush toys, squeeze and squeak toys, sorting toys, stacking toys, pop-up toys, rocking toys, and inflatable toys. Children have the fine motor skills needed to grab onto the beads in a bead maze and guide them through a simple path. Cognitive skills in language development at this age will permit the child to label the beads, if they are in the shape of familiar objects, such as cars, dogs, and ducks. Full-length mirrors are suitable because children in this age group are increasingly self-aware. Appropriate handheld mirrors are small, have soft edges, and have handles that fit into the hand of children in this age group. Children in this age group can now engage more actively with stacking and sorting. They thoroughly enjoy water and sand play and are given many opportunities for exploration through sand, water, and related toys. Adults can blow bubbles for children to watch and to pop. Some children are able to use simple bubble wands, but may be frustrated if they cannot produce bubbles on their own. Sources of frustration can include too frequent dipping of the wand into the bubble container to make the solution too sudsy to produce bubbles, as well as the child's inability to blow into the wand softly enough to produce a bubble. No-spill containers are best to prevent the child from tipping the container over, due to still developing fine motor skills and coordination.

19 Through 23 Months

Representational and symbolic thinking emerges between 19 and 23 months of age. This is also a time of great physical activity as children gain new strengths and skills in their gross motor development. They are becoming more confident and stable in walking, and are exploring other physical skills, such as balancing, jumping, and running. They are becoming more skillful with their fine motor movements. Social play is starting to emerge as children are better able to communicate with each other and begin to play alongside each other.

Suitable manipulative and mirror toys for children 19 through 23 months old have characteristics that are consistent with those for the previous age group. Soft, lightweight toys are preferred, because children like to manipulate objects themselves, and prefer to lift, hold, and carry them. Many children still prefer to mouth objects, and any toy they grasp will most likely be tasted. Examples of manipulative and mirror toys for 19- through 23-month-olds include handheld, wall-mounted, and fun-house mirrors, lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multisensory toys, manipulative panels, gear toys, activity centers, cloth toys, plush toys, squeeze and squeak toys, rocking toys, and inflatable toys. Some gear toys are especially exciting to this age group, if the gears have chunky handles and can be moved freely around a surface (for example, using magnetic gears on a magnetic board). This allows children to use their budding fine motor skills to grasp the gears and create a design of their choosing. Some children may use their cognitive skills to sort the gears into different colors. Mirrors that are handheld should be small and have soft edges with a handle that fits into the hand of children in this age group. Children 19 through 23 months old can stack, sort, and seriate/nest toys with more skill; so nesting, sorting, and stacking toys are also appropriate for this age group. Cognitively, the early math skill of sorting is developing at this age, and children are able to arrange and order nesting cups in a meaningful way. This is different than earlier age groups, which may have used the cups out of order to build or stack. They thoroughly enjoy water and sand play and are often given many opportunities for exploration through sand, water, and related toys, such as sand molds, digging, and pouring toys. Children can blow bubbles, but may still need the help of an adult. Lacing and stringing toys are

also appropriate for children in this age group, but they should have large diameter string with stiff ends.

2 Years

Two-year-olds are very interested in representational and symbolic play. This is also a time of great physical activity as children gain strength and practice gross motor skills. They can walk, run, jump, and balance fairly well. They are becoming more skillful with their fine motor movements, and manual dexterity is improving. Social play is seen commonly as children are more able to communicate with each other and begin to interact with each other in buddy and group play. For this and other reasons, children are beginning to grow beyond cognitive and motor Exploratory and Practice toys. Instead, they are increasingly interested in encapsulated spaces, life-sized role-play toys such as baby dolls (see *Pretend & Role Play: Dolls & Stuffed Toys*), and riding toys such as life-sized wheeled vehicles (see *Sports, Recreational, & Outdoor Play: Ride-On Toys* and *Sports, Recreational, & Outdoor Play: Recreational Equipment*).

Manipulative and mirror toys for 2-year-old children can have a high level of realism, and yet still have the qualities described for the previous age group. Because toys can look more realistic for children at this age, all colors can be used in toys for this age group. Examples of manipulative and mirror toys for 2-year-olds include mirrors, lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multisensory manipulative toys, manipulative panels, activity centers, cloth toys, plush toys, squeeze and squeak toys, nesting toys, sorting toys, stacking toys, inflatable toys, water toys, sand toys, rocking toys, and large lacing and stringing toys. Handheld toys with mirrors should be small and have a handle that fits into the hand of children in this age group. Children 2 years of age enjoy stacking, sorting, nesting, and more complicated activity centers and manipulative panels with knobs and latches, peg boards, and pounding toys. They thoroughly enjoy play and exploration with water and sand. Children in this age group become more successful at blowing bubbles, and enjoy doing so; they are starting to use bubble wands and bubble pipes.

3 Through 5 Years

After the age of 2, most children engage predominantly in symbolic play, which includes dramatic and building play. There are still some exploratory play materials that will continue to appeal to this age group—most notably bubble guns with a trigger (both conventionally shaped and those in the shape of an animal or other design). At any younger age, children do not have the strength or gross motor skills to hold up the gun and press the trigger at the same time. Other children lack the strength to press the trigger altogether. Another exploratory toy that older children enjoy is foam clay to squeeze between their hands. Age 3 is the youngest appropriate age because many younger children interpret the clay as something that can be eaten. Younger children are also tempted to stick clay onto inappropriate objects (clothes, shoes) instead of using it as an exploratory medium in their hands. Other toys, like wooden flaps attached with a ribbon that will fold upon themselves and trickle and cascade downward if held correctly, are beginning to be understood in this age group; at any younger age, children try to stack the flaps on top of each other, as if they were blocks. Liquid clocks are interesting exploratory toys for this age group; at any younger age, children do not know that flipping the clock over produces an effect that they can watch for enjoyment purposes.

For information on balls for older children, please see *Sports, Recreational, & Outdoor Play: Recreational Equipment* and *Sports, Recreational, & Outdoor Play: Sports Equipment*. For information on mirrors for older children, please see *Pretend & Role Play: Dress-Up Materials*.

EXPLORATORY AND PRACTICE PLAY: **MIRRORS, MOBILES, & MANIPULATIVES**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts*	Fits in visual field Small enough for infant to grasp, if intended to be handled	--→	--→
Shape of Parts	Rounded corners/edges Easy-to-grasp shape, if intended to be handled	--------------------------------→	--------------------------------→
Number of Parts			
Interlocking/Loose Parts			
Materials	Lightweight Soft Washable	--→ --→ --→	--→ --→ --→
Motor Skills Required*	Reaching Grasping Mouthing	--→ --→ --→ Hand-eye coordination Able to sit up unsupported around 6 mo. Palmar grasping; raking grip Can transfer objects from hand to hand	Increased mobility; scooting, crawling, standing, cruising, and initial walking --→ Can grasp & shake Practicing fine motor skills such as grasping, pushing, pulling, squeezing, patting, poking, & shaking Emergence of pincer grasp
Color/Contrast*	Bright, vibrant colors High contrast patterns Facial patterns	--→ --→ --→	--→ --→ --→
Cause & Effect*	Cannot fully understand cause & effect, but can still enjoy it; prefers simple cause-and-effect relationships	--→	Beginning to understand cause-and-effect relationship; simple, clear cause-and-effect relationships are still best

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Sensory Elements	Visual: objects that move slowly Multi-textured Gentle, soothing sounds & voices Not too loud, sudden, or extreme	---→ ---→ ---→	Pictures of familiar objects Bouncing, vibrating, & lighting up ---→ ---→
Level of Realism/Detail			
Licensed Theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Finds multisensory elements very appealing Enjoys music Explores objects manually & orally Learns through reflexes Able to reach & grasp around 3 months At birth, focus is best about 8 inches from face; by end of this period can see several feet away	---→ ---→ ---→ Increasing interest in surroundings Actively handles toys Mouthing & teething Begins pushing onto hands & knees and sitting up around 5 mo. Begins to understand object permanence	---→ ---→ ---→ ---→ ---→ Can hold 2 objects at once but cannot coordinate between them Object permanence is more established Interest in object displacement

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Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Examples of Toys	Mirrors securely attached to a wall or crib	--→	--→
	Mobiles, particularly those with music & movement	Mobiles (prior to 5 mo.)	
	Teething toys	--→	--→
	Rattles	--→	--→
	Lightweight balls (musical, chiming, grasping, special effects, & textured)	--→	--→
	Multi-textured infant toys	--→	--→
	Multisensory infant toys	--→	--→
	Activity gyms	--→	--→
	Play mats	--→	--→
	Cloth & plush toys	--→	--→
	Toys that make sounds when kicked	Handheld mirrors (starting around 6 mo.)	--→
		Squeeze & squeak toys	--→
		Plastic discs on a ring	--→
		Interlocking plastic rings	--→
			Sorting & stacking toys
			Pop-up toys
			Roly-poly toys
			Large beads on rings
			Plastic keys on rings

EXPLORATORY AND PRACTICE PLAY: **MIRRORS, MOBILES, & MANIPULATIVES**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years	3-5 Years
Size of Parts*	Small enough to grasp, carry, & manipulate, if intended to be handled	----------------------------------→	----------------------------------→	----------------------------------→
Shape of Parts	Rounded Easy-to-grasp shape, if intended to be handled	----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→
Number of Parts				
Interlocking/Loose Parts				
Materials	Lightweight (cont'd) Soft (cont'd) Washable (cont'd)	----------------------------------→ ----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→ ----------------------------------→
Motor Skills Required*	Increasingly skilled at walking Working on fine motor movements like controlled grasping & releasing, pushing, pulling, flapping, squeezing, patting, poking, & shaking, twisting, turning, sliding, & cranking	----------------------------------→ ----------------------------------→ New gains in gross motor strength & skills More confident & stable walking Exploration of other physical skills such as balancing, jumping, & running More skilled at fine motor movement	----------------------------------→ ----------------------------------→ Gains in gross motor strength & skill Walk, run, jump, & balance fairly well Fine motor movements & manual dexterity is improving Can move fingers independently of each other	Moderate degree of fine motor dexterity & control ----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→

Color/Contrast*	Bright, vibrant colors (cont'd) High contrast patterns (cont'd) Facial patterns (cont'd)	---→ ---→	All colors, including pastels, but dull colors are less appealing	Rich, vibrant colors Pale or pastel colors
Cause & Effect*	A clear cause-and-effect relationship (cont'd)	--→	----------------------------------→	Moderately complex cause-and-effect functionality (pushing produces sound, lights)
Sensory Elements	Visual: lights, actions Manual Sounds Not too loud, sudden, or extreme (cont'd)	------------------------------------→ ------------------------------------→ ------------------------------------→ ------------------------------------→	------------------------------------→ ------------------------------------→ ------------------------------------→	--→ --→ --→
Level of Realism/Detail				
Licensed theme				
Classic				
Robotic/Smart Features				
Educational				

Relevant Play/Behavior				
	Finds multisensory elements very appealing	---------------------------------→	---------------------------------→	Moderate problem-solving abilities
	Like to explore objects manually & orally (cont'd)	---------------------------------→	---------------------------------→	
	Increasingly curious & loves to explore			
	Beginning to self-select toys	---------------------------------→	---------------------------------→	---→
	Uses all senses to explore the world: seeing, hearing, touching, tasting, & smelling	Can self-select toys ---------------------------------→ Social play alongside each other (parallel play)	---------------------------------→ ---------------------------------→ Social play (buddy & group) Beginning to grow beyond Exploratory and Practice Exploratory and Practice toys Increasingly interested in encapsulated spaces, role-playing, & riding toys	---→ ---→

Examples of Toys	Mirrors that securely attach to a wall (cont'd) Appropriately sized handheld mirrors (cont'd) Lightweight balls (musical, chiming, grasping, special effects, & textured) (cont'd) Multi-textured toys (cont'd) Multisensory toys (cont'd) Manipulative panels (cont'd) Activity centers (cont'd) Cloth & plush toys (cont'd) Squeeze & squeak toys (cont'd) Sorting, & stacking toys (cont'd) Pop-up toys (cont'd) Bead Mazes Inflatable toys Sand & water toys Rocking toys Bubbles (no spill, may need to be blown by an adult)	All examples from the previous age group Lacing & stringing toys Nesting toys Gear toys	All examples from the previous age group	Bubble guns (both conventially shaped and those in the shape of an animal) Foam clay Wooden flaps attached with a riibbon that will fold upon themselves and trickle downwards if held correctly Liquid clocks (For information on mirrors for older children, please see *Pretend & Role Play: Dress-Up Materials*) (For more on balls for older children, please see Sports, Recreational, & Outdoor Play: Recreational Equipment)

* One of the most influential characteristics for these toys.

PUSH & PULL TOYS

Push and pull toys are important for motivating children to crawl or walk. They are often operated with a string or a handle, and almost always travel on wheels of some kind. Most children younger than 6 months cannot sit unsupported, and most are unable to move around until about 7 months of age. Therefore, push and pull toys are generally inappropriate for most children younger than 6 or 7 months. Since toys in this subcategory are most appropriate for the child who is crawling or just beginning to walk, representational push and pull toys are not discussed here. For those types of toys, please see *Pretend & Role Play: Small Vehicle Toys* or *Pretend & Role Play: Tools & Props*.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of push and pull toys:

- Motor Skills Required
- Color/Contrast
- Level of Realism/Detail

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of push and pull toys are appropriate and how a particular age group plays with these toys.

4 Through 7 Months

At this age, most children are externally oriented, actively engaging with their environments, and repeating simple actions that involve objects, including toys, clothing, and other people. Most children now actively handle toys. They are learning to reach, grasp, push, pull, squeeze, pat, poke, and shake. They can sit unsupported around 6 months of age, and some children begin to crawl and stand with support by 8 months of age.

Suitable push toys for 6- and 7-month-olds have rounded edges, are sturdy, and roll steadily and easily along the ground. Children of this age are most interested in push toys that are brightly

colored with high contrast, and these toys should be washable. Appropriate cause-and-effect relationships are simple; for example, a toy may make a noise when the infant pulls it. Sensory elements are not too loud, too bright, too sudden, or otherwise extreme. Realistic detail is not preferred at this age, and children in this age group generally lack the fine motor skills to operate toys that use handles and strings.

8 Through 11 Months

As these children become more mobile, their behaviors become more goal-oriented and objects in their environment attract them. Because of their increase in physical and cognitive development, children around this age are beginning to understand simple cause-and-effect relationships. The motor skill of grasping and shaking, combined with the cognitive skill of understanding cause and effect make multisensory toys highly appealing for this age group. They are practicing fine motor skills, such as grasping, pushing, pulling, squeezing, patting, poking, and shaking. Most children within this age group can sit unsupported or crawl while playing with push and pull toys.

Push and pull toys for children 8 through 11 months old generally have characteristics similar to those for younger children. Cause-and-effect toys should activate by simple, direct movements by the child, and the effect should immediately follow the cause. When the effect is too long, the child is unable to connect the cause and the effect. Realistic detail is not preferred at this age. Handles and strings are still not appropriate for this age group because, although they may have the ability to grasp them, they do not have the coordination to manipulate toys with them.

12 Through 18 Months

Children from 12 through 18 months of age are increasingly curious and love to explore, and their increasing walking skill facilitates such traits. Because of this, children begin to self-select toys rather than play with only those items that are within their reach. Although they are becoming more skilled at walking, they are still unsteady on their feet and often lose their balance. They are often engaged in activities that develop their strength.

In general, push and pull toys for children 12 through 18 months old have characteristics similar to those for younger children. However, children in this age group are also now able to use push toys with high upright handles or rigid rods with large attached handles, especially since they can be used to help stabilize unsteady walkers. Some children at this age may even have advanced enough gross motor skills to walk or run quickly with walkers. They are not yet able to use pull toys with cords if the child must stand to use them because cords do not provide support. Toys of that kind require more advanced walking and better body skills. In addition, they require the child to look over his or her shoulder while walking to fully enjoy them. Small pull toys with short cords that the child can use while remaining seated are suitable though.

19 Through 23 Months

Representational and symbolic thinking emerges between 19 and 23 months. This is also a time of great physical activity as children gain new strengths and skills in their gross motor development. They are becoming more confident and stable in walking and are exploring other physical skills, such as balancing, jumping, and running. In addition, social play is starting to emerge during this period, as children are more able to communicate with each other and begin to play alongside each other.

Push and pull toys for children 19 through 23 months old can have some realistic detail, and may include rigid handles or cords for pushing or pulling. Their advancing walking skills let them use pull toys with cords. Pull toys that weigh enough to slightly resist a child's pull will help prevent the toy from tipping over during use, as will pull toys with broad bases and low centers of gravity.

2 Years

Two-year-olds are very interested in representational and symbolic play. This is also a time of great physical activity as children gain strengths and practice gross motor skills. They can walk, run, jump, and balance fairly well. Social play is seen commonly as children are more able to communicate with each other and begin to interact with each other in buddy and group play.

They are increasingly interested in riding toys, such as wheeled vehicles (see *Sports, Recreational, & Outdoor Play: Recreational Equipment*).

Push and pull toys for 2-year-old children can include realistic details, which means that they can include all colors. These toys are rounded, sturdy, and washable. Suitable cause-and-effect relationships are simple (for example, balls pop when toy is rolled), and sensory elements are not too loud, too bright, too sudden, or otherwise extreme. Toys should be heavy enough so that they are not lifted completely off the ground as children pull them. Those with broad bases and low centers of gravity are more stable and suitable for children in this age group. As children get older and engage in pretend play, push and pull toys can be made to resemble non-toy objects, such as cars, wheelbarrows, and vacuum cleaners. Wheelbarrows require children to be completely stable in standing and walking, since they need to be simultaneously lifted, balanced, pushed, and steered. For more on push and pull toys for pretend play, see *Pretend & Role Play: Small Vehicle Toys*. For more on wheeled vehicles, see *Sports, Recreational, & Outdoor Play: Ride-On Toys*.

EXPLORATORY AND PRACTICE PLAY: **PUSH & PULL TOYS**

Toy Characteristics	4 Through 7 Months	8 Through 11 Months
Size of Parts	Easy to grasp & push (5-7 inches)	--→
Shape of Parts	Rounded corners/edges	--→
Number of Parts	One	--→
Interlocking/Loose Parts		
Materials	Soft Washable	--→ --→
Motor Skills Required*	Reaching Grasping Hand-eye coordination Able to sit up unsupported around 6 mo.	Increased mobility; scooting, crawling, cruising, & walking Can grasp & shake Practicing fine motor skills such as grasping, pushing, pulling, squeezing, patting, poking, & shaking
Color/Contrast*	Bright, vibrant colors High contrast patterns	--→ --→
Cause & Effect	A simple, clear cause-and-effect relationship	--→ Beginning to understand cause-and-effect relationship

Toy Characteristics	4 Through 7 Months	8 Through 11 Months
Sensory Elements	Visual Manual Auditory: gentle, soothing sounds Not too loud, sudden, or extreme	--→ --→ --→ --→
Level of Realism/Detail*	Realistic detail not preferred or necessary	--→
Licensed theme		
Classic		
Robotic/Smart Features		
Educational		
Relevant Play/Behavior	Finds multisensory elements very appealing Enjoy music & sound effects Like to explore objects manually & orally Reflexes more outwardly oriented Actively handles toys Mouthing & teething	--→ --→ --→ --→ --→ --→ Can hold 2 objects at once but cannot coordinate between them
Examples of Toys	Small, rounded push toys (starting around 6 months) Simple cars or animals on wheels/rollers (starting around 6 months)	--→ --→

* One of the most influential characteristics for these toys.

EXPLORATORY AND PRACTICE PLAY: **PUSH & PULL TOYS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts			
Shape of Parts	Rounded corners/edges (cont'd) Broad base Low center of gravity	--→ --→ --→	--→ --→ --→
Number of Parts	Few	--→	--→
Interlocking/Loose Parts			
Materials	Soft (cont'd) Washable (cont'd) Heavy & steady enough to resist tipping	--→ --→ --→	--→ --→ --→
Motor Skills Required*	Increasingly skilled at walking Working on fine motor coordination, including controlled grasping & releasing, pushing, pulling, squeezing, patting, poking, & shaking, twisting, turning, sliding, & cranking	--→ --→ New gains in gross motor strength & skills More confident & stable walking Exploration of other physical skills such as balancing, jumping, & running More skilled at fine motor movement Can pull toys behind	--→ --→ Gains in gross motor strength & skill Walk, run, jump, & balance fairly well Fine motor movements & manual dexterity is improving Can move fingers independently of each other
Color/Contrast*	Bright, vibrant colors (cont'd) High contrast patterns (cont'd)	--→ --→	All colors, including pastels, but dull colors are less appealing

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Cause & Effect	A clear cause-and-effect relationship (cont'd)	--→	--→
Sensory Elements	Visual (cont'd) Manual (cont'd) Auditory: gentle, soothing sounds (cont'd) Not too loud, sudden, or extreme (cont'd)	--→ --→ --→ --→	--------------------------------------→ --------------------------------------→ --------------------------------------→
Level of Realism/Detail*	May be recognizable, but realistic detail not necessary	Somewhat realistic, but simple & not detailed	Clearly represents object intended to represent, but no elaborate details
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Finds multisensory elements very appealing Likes to explore objects manually & orally (cont'd) Increasingly curious & love to explore Beginning to self-select toys Uses all senses to explore the world: seeing, hearing, touching, tasting, & smelling	--------------------------------------→ --------------------------------------→ --------------------------------------→ Self-select toys --------------------------------------→ Social play alongside each other (parallel play)	--→ --→ --→ --→ --→ Social play (buddy & group) Increasingly interested in riding toys

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Examples of Toys	Push toys with handles Pull toys Pull toys with short cords (used while seated)	--→ --→ Pull toys with cords	--→ --→ --→ Push & pull toys that resemble real life objects (see *Pretend & Role Play: Small Vehicle Toys* or *Sports, Recreational, & Outdoor Play: Ride-On Toys*)

* One of the most influential characteristics for these toys.

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BUILDING PLAY

Around 19 months of age, children demonstrate their symbolic understanding of the world through their play, a construct known as representational play. Building play is the use of blocks or other building materials to represent real-world objects, such as castles, bridges, or towers. While children can grasp blocks during infancy, they typically begin the early stages of building play at about 19 months. With each passing year, their structures increase in complexity. Around the age of 6 years, interest in building play shifts from blocks to more complex interlocking materials.

Blocks ()

- Foam cube blocks
- Hollow blocks
- Letter & number blocks
- Magnetic blocks
- Motorized bumble, bounce, and vibrating blocks
- Nesting blocks
- Pillow blocks
- Plastic blocks
- Plastic-coated soft cube blocks
- Problem solving blocks
- Rattle/jingle blocks
- Stacking blocks
- Table blocks
- Talking blocks
- Wooden kindergarten blocks

Interlocking Building Materials ()

- Brick connecting pieces
- Foam puzzle mats
- Gear blocks
- Holes/slats/casing connecting sets
- Model kits
- Nuts & bolts
- Robotic blocks
- Rod and Spool blocks
- Snap-lock beads
- Suction cup blocks
- Wooden log connecting sets

BLOCKS

Building play contributes to learning and development, and increases the competence of the child. Building play can be characterized by the lack of a single organizational format; the materials largely determine the organization of the play. Simply defined, "building play" involves using materials, such as blocks, to build something. True building play generally begins in early childhood around 19 months of age and continues into adulthood. Younger children advance from simply handling objects and materials to actively using them for constructing or building with a preconceived plan in mind. They begin to manipulate objects with the intention of creating something, such as towers or houses. Until the age of 19 months, blocks are used primarily as grasping objects in the environment. Most block sets are appropriate for children 19 months and older, with the materials differing most notably in size and weight.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of blocks:

- Motor Skills Required
- Number of Parts
- Size of Parts
- Materials
- Cause & Effect
- Sensory Elements
- Shape of Parts

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of blocks are appropriate and how a particular age group plays with these toys.

Birth Through 3 Months

At this age, child play is limited to exercising reflexes. During this phase of infancy, children reflexively open their mouths when their cheeks are brushed, so appropriate blocks are too large to fit into their mouths. Before 3 months, most children do not have the physical abilities to grasp

or manipulate objects. During the first months of life, children use visual observation to engage in play. Research studies find that children can differentiate red from green, even at birth, and that by 2 months of age, all color receptors are functioning. By 3 months, children prefer yellow and red over blue and green and highly contrasting patterns over solids. Therefore, bright yellow and red blocks, and those with high visual contrasts and patterns, are more appealing to children in this age group. Blocks made of soft/plush materials (like foam or pillow blocks) or covered in plastic or cloth are appropriate for these children. Blocks with rounded edges may avoid potential eye injury.

4 Through 7 Months

At this age, movements are progressing from involuntary reflexes to outwardly oriented movements. As the child matures, grasping, reaching, shaking and pulling become ways in which to interact with the environment. Grasping is mastered around 6 months, so children can now handle toy blocks. Grasping a block triggers the sucking reflex, so children in this age group will immediately put blocks they can grasp into their mouths. Therefore, blocks should be designed to avoid the possibility of choking. Motor skills are crude at this age, so blocks must be designed so children can easily grasp them (for example, by making them less than 4 inches across). Blocks that are soft or plush make the erratic arm motions of children in this age group safer for their eyes and faces. Visually, this age group's abilities are consistent with younger children, preferring red and yellow and patterns. Since 4- through 7-month-old children use blocks in exploratory play rather than true building play, blocks that are appropriate for this age group include those that are made from soft/plush materials like hollow plastic, vinyl, or foam. Larger blocks (more than 3 inches across) with rounded edges are appropriate for children in this age group, as are blocks that are patterned or colored red or yellow.

8 Through 11 Months

From 8 through 11 months, children's behaviors become more outwardly oriented and their hand-eye coordination is becoming more refined. In addition, this age brings the cognitive ability to understand simple cause-and-effect relationships. This, together with the motor skill of shaking, make sensory blocks highly attractive for this age group. Soft blocks with jingle bells or

rattles inside or blocks that squeak when squeezed are appealing and cognitively stimulating. Also, children at this age enjoy battery-operated blocks that bounce, vibrate, or light up when handled. Developing fine motor skills make squeezing a highly appealing activity. Blocks that can be squeezed (for example, those made from hollow plastic or foam) aid in this development, and those between 3 and 5 inches permit easy grasping and carrying. Blocks are not yet used as building play materials, so providing them as manipulatives to aid in their development is appropriate (see *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives*). Children need only a few blocks rather than a wide assortment.

As children' dexterity increases, their potential for injury increases. Children of this age can hold two objects at once, meaning twice as many things are available on which to choke or to be hit by as they bang the two things together. Appropriate soft/plush blocks are larger than 3 inches across, have rounded edges, are easily grasped, are colorful, and are multisensory. Children in this age group are particularly attracted to blocks that incorporate sounds. Cube-shaped blocks are easy for them to grasp and bang together. Blocks that include pictures of familiar objects in the environment are also appealing. Generally, wooden blocks are considered too heavy for children in this age group. However, lightweight wooden or plastic blocks are suitable for the child's banging efforts.

12 Through 18 Months

Children's emerging interests in novelty and exploration characterize the 12- through 18-month period. Their curious nature is enhanced by the new ability to walk, which makes many more items available for their reach. However, walking is still unsure and wobbly, and children in this age group often fall as often as they step, particularly early on. Blocks with rounded edges make falls onto them safer. Blocks that are made from soft foam, plush cloth, sponge, or rubber-like materials also work well for meeting this need. These lightweight blocks will be used for stacking and lining up. However, children in this age group find knocking down is just as important as building. Once a tower of blocks is built, they want to knock it down with their hands or feet right away. Therefore, appropriate blocks are those that are not hazardous to children as they are knocked down. Large, heavy wooden unit blocks—also known as kindergarten blocks—are not appropriate because of their weight, size, and sharp edges.

Grasping is a much easier task during this phase of life so smaller blocks (2 to 4 inches) may be appropriate.

Children in this age group are becoming capable of making combinations of two to three objects, which makes nesting blocks appealing. Children have the physical motor and coordination skills necessary to manipulate the nesting task and have the emerging cognitive abilities to understand that the blocks go together in a predetermined way. At this age, children are able to use their fine motor skills to grasp lightweight blocks and subsequently stack them onto chunky dowels. Although children at this age will not make predetermined structures with magnetic blocks, they find it exciting to click and unclick blocks if they have internal magnets. The exploration interest of children can be incorporated into their blocks as well. Blocks that have "curiosities" built into them provide children with an exploration toy. For instance, hollow blocks that resemble a cage and have something inside that can be "freed" would be attractive to children in this age group. In this age span, they are starting to solve problems through an active process of trial and error, so blocks that encourage such behavior are appropriate. Simple lightweight wooden or plastic blocks that were appropriate for the 8- through 11-month child are also appropriate for the 12- through 18-month child. Children in the 12- to 18-month age group can begin to line up these medium lightweight non-interlocking blocks or stack them, or they may attempt to stack or line up blocks in an orderly way. Based on child observations, little to no mastery of fine or gross motor skills was required for stacking or lining up blocks in the set, making it appropriate for children in this age group. Block sets with many pieces is not necessarily a deterrent to this age group as they show they are comfortable making use of a partial set. Nesting and curiosity blocks are also appealing. A greater number of blocks (15 to 25) is appropriate, but a large number is still unnecessary.

19 Through 23 Months

The cognitive ability for representational or symbolic thinking emerges during the 19- through 23-month time frame. As a result, children may now start using blocks for true building play. Children in this age group are now capable of putting representational thought and imagination into action, so they may use a stack of blocks to represent a tower, a castle, an elevator, or a tree. Because their interest in building is starting to grow, sturdier blocks are appropriate. Cardboard

blocks and thick foam blocks are both lightweight and easy to stack, so children in this age group can easily build with them. Other attributes that are attractive in their play are shape (rectangular or square) and size (about 2 to 4 inches). Blocks that are too cumbersome or too heavy are of little interest, because they are more difficult to manipulate. Children in this age group find knocking down just as important as building. Once a tower of blocks is built, they want to knock it down with their hands or feet right away. Therefore, appropriate blocks are those that are not hazardous to children as they are knocked down, unlike heavy wooden unit blocks or kindergarten blocks. Lightweight wooden or plastic table blocks, however, are appropriate. Working with table blocks uses fine motor coordination skills as they work to stack them into towers. Sets of blocks that include 20 to 40 pieces are sufficient for the building in which children in this age group engage.

2 Years

Building play for 2-year-olds is very much the same as building play for 19- through 23-month-olds. They use their building for symbolic representation and they enjoy knocking down blocks as much as building with them. Therefore, appropriate blocks for 2-year-old children are the same as those for 19- through 23-month-old children: lightweight wood, cardboard, or foam material, square or rectangular shape, and about 2 to 4 inches across. Sets of 20 to 40 blocks are appropriate for this age group.

3 Years

Block constructions become more advanced by the time children are 3 years old. To reproduce something they have seen, they analyze the component parts and visualize each in relationship to the others. Statements like, "No. That doesn't go there. It goes over here," are often heard from children in this age group as they build. They work through problems of relative size, volume, space, and weight. Children in this age group are ready to advance from cardboard to wooden blocks of different sizes and shapes so that they can build things more complex than towers. Wooden unit blocks or kindergarten blocks are now appropriate. The basic unit is usually 3 inches by 3 inches by 1 inch, and the dimensions of other blocks in a set are multiples or fractions of that basic unit. A complete set often includes unit, double unit, and quadruple unit

blocks, as well as wedges, triangles, cylinders, half rounds, and others. However, triangles and half round arches are not highly used at this age. The blocks can be hard- or softwood, with hardwood being heavier, more durable, and more expensive. Blocks like these are attractive because they are simple geometric forms without complicated structures. This gives children in this age group the opportunity to build garages, airports, houses, barns, rockets, and other objects. An increased number of blocks over previous age groups (60 to 80) is also appropriate.

4 Through 5 Years

During this preschool period, block play is a dominant play activity. Complex structures that began to be enjoyed at 3 years of age with wooden unit blocks are now more accurate and intricate. Dramatic story lines are brought into the building play as children add loose parts to their creation. For example, cars are added when making garages, animals are brought in when making farms, and dolls and furniture are used in the structure of a house. Loose parts combined with wooden blocks are appealing because it opens the door for richer, more complex play. Suitable blocks for these preschool children tend to be made of wood and come in various sizes, lengths, shapes, and specialized forms other than just squares or rectangles. Children in this age group can also handle a relatively large number of parts (80 to 100).

6 Through 8 Years

Early elementary age children generally find block building and building play highly attractive. Elementary classrooms typically contain blocks for the children to use. Blocks provide children in this age group with experiences that combine visual and motor skills with the ability to plan ahead and execute their ideas through a series of steps. Fine motor skills, hand-eye coordination, and arm movement control are becoming more refined, so more elaborate and intricate constructions are seen. Due to the developmental level of children in this age group, appealing and appropriate blocks are generally wooden, contain both large and small pieces, include a variety of shapes besides just squares or rectangles, include a variety of lengths, and contain many pieces. Children in this age group can handle sets with 80 to 100 pieces. Attributes like these provide children in this age group with the materials needed to build at the level of representation for which they are striving.

9 Through 12 Years

By 9 years of age, block building is a fairly uncommon activity. However, those children who do choose to spend time interacting with blocks like blocks that have characteristics similar to those for the previous age group since these characteristics allow intricate structures to be built. Having many parts (100 or more) is also important to keep the appeal level high. Generally, though, this age group's appeal for building play lies with sets that have interlocking pieces, as discussed in the next subcategory, *Interlocking Building Materials*.

BUILDING PLAY: **BLOCKS**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts*	Easy to grasp & explore Too big to fit in mouth	--→ 3-4 inches	--→ 3-5 inches
Shape of Parts	Rounded edges	--→	--→
Number of Parts*	A few blocks (about 6) are sufficient; child does not need a large array	--→	--→
Interlocking/Loose Parts	Loose parts; child not capable of manipulating interlocking blocks	--→	--→
Materials	Soft, plush cloth, sponge, or rubber-like materials Squeezable Lightweight Not wood; too sharp	--→ --→ --→ --→	--→ --→ --→ --→
Motor Skills Required*	Grasping Squeezing Shaking	--→ --→ --→	--→ --→ --→
Color/Contrast	Bright colors, especially yellow & red High visual contrasts & patterns	--→ --→	--→ --→ Pictures of familiar objects on blocks
Cause & Effect*	Enjoys blocks that make noise if shaken or squeezed	--→	Likes blocks that demonstrate cause-and-effect relationships

Sensory Elements*			Especially enjoy sounds such as jingles, rattles, & squeaks
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Exercises involuntary reflexes Blocks used for exploration, not building Begins grasping by about 3 months	Performs deliberate, outwardly oriented movements --→ Grasping is mastered around 6 months Handles & mouths blocks Crude motor skills; erratic arm motions	--→ --→ Capable of holding 2 objects at once Squeezing & banging often occur More coordinated Understands simple cause-and-effect relationships

Examples of Toys	Small sets of plastic-coated soft cubes, foam cube blocks, & pillow blocks	--→	--→ Motorized bumble, bounce, & vibrate blocks Rattle/Jingle blocks & plastic air squeak blocks

* One of the most influential characteristics for these toys.

BUILDING PLAY: **BLOCKS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	2-4 inches	--→	--→
Shape of Parts	Rounded edges	--→ Rectangular & square blocks	--→ --→
Number of Parts*	15-25 pieces A large array of blocks is not needed	20-40 pieces --→	--→ --→
Interlocking/Loose Parts	Loose parts; child can stick together blocks with internal magnets	Can start using interlocking sets with simple connecting systems (see *Building Play: Interlocking Building Materials*)	
Materials*	Soft, plush cloth, sponge, or rubber-like materials Lightweight wood or plastic Not heavy wood to ensure safety when knocked over	Sturdier materials for building towers, like cardboard or thick foam blocks --→ --→	--→ --→ --→
Motor Skills Required	Grasping Minor fine motor coordination for manipulating blocks	--→ Fine motor skills for stacking blocks	--→ --→
Color/Contrast			

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Cause & Effect			
Sensory Elements			
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Emerging interests in novelty & exploration Ability to walk Decreased frequency of mouthing toys Solves problems via trial & error Curious nature Knocking down block structures is a popular activity	Representational & symbolic thinking True building play becomes a way of using blocks. --→ --→ --→	--→ --→ --→

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Examples of Toys	Talking blocks Problem-solving blocks Nesting blocks Lightweight blocks for stacking onto chunky dowels	Stacking Blocks Table Blocks ---→	---→ ---→ ---→

* One of the most influential characteristics for these toys.

BUILDING PLAY: **BLOCKS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Basic unit block = 3 ½ inches square x 1 ½ inches thick Other blocks in set tend to be multiples or fractions of basic unit	----------------------------→ ----------------------------→ Variety in size & length of blocks	----------------------------→ ----------------------------→ ----------------------------→	----------------------------→ ----------------------------→ ----------------------------→
Shape of Parts*	Unit, double & quadruple unit Wedges, triangles, cylinders, half-rounds Simple geometric forms	----------------------------→ ----------------------------→ ----------------------------→ More specialized forms	----------------------------→ ----------------------------→ ----------------------------→ ----------------------------→	----------------------------→ ----------------------------→ ----------------------------→ ----------------------------→
Number of Parts*	60-80 pieces	80-100 pieces	----------------------------→	----------------------------→
Interlocking/Loose Parts				
Materials*	Hard or soft wood Hard wood is heavier, more durable, & more expensive	----------------------------→ ----------------------------→	----------------------------→ ----------------------------→	----------------------------→ ----------------------------→
Motor Skills Required	Fine motor skills needed to handle heavier blocks	----------------------------→ Arm & body coordination	----------------------------→ ----------------------------→	----------------------------→ ----------------------------→
Color/Contrast	No color (blocks only varnished)			
Cause & Effect				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Sensory Elements				
Level of Realism/Detail	No color or complex structures	-------------------------------------→	-------------------------------------→	-------------------------------------→
Licensed theme				
Classic				
Robotic/Smart Features				
Educational				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Relevant Play/Behavior	More advanced constructions than 2-year-olds Analyze component parts of what they want to build Visualize parts in relationship to the others Work through problems of size, volume, space, & weight	Even more progressed structures Dramatic story lines added to constructions. Loose parts combined with blocks	----------------------------------→ ----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→ ----------------------------------→
Examples of Toys	Wooden kindergarten blocks Number & letter blocks Table blocks Hollow blocks	----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→

* One of the most influential characteristics for these toys.

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INTERLOCKING BUILDING MATERIALS

Interlocking building materials foster building play just like wooden, cardboard, and pillow blocks do. Interlocking building materials are similar in nature to blocks because they may be used to build something that represents an item in the physical world. However, they differ from blocks significantly through their ability to be joined, locked, or stay in a particular placement. Through various connecting styles, pieces are snapped together to make creations that would be impossible with traditional wooden table blocks.

True building play begins around 19 months of age and continues into adulthood. This play is linked to children's development because engaging in building play is evidence of children's progress. Children advance from simply handling objects and materials in their play to actively using them for constructing or building with a pre-conceived plan in mind. They begin to manipulate objects with the intention of creating something, such as a tower or a house. Children younger than 19 months of age generally lack the manipulative skills necessary to use interlocking building materials effectively. Therefore, the discussion in this subcategory starts at 19 months.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of interlocking building materials:

- Interlocking/Loose Parts
- Motor Skills Required
- Number of Parts
- Size of Parts

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of interlocking building materials are appropriate and how a particular age group plays with these toys.

19 Through 23 Months

The cognitive ability for representational or symbolic thinking emerges during the 19- through 23-month time frame and building play emerges as a result. Because children in this age group can manipulate toys with more ease due to their ever-increasing fine motor skills, interlocking block sets with simple connecting systems are suitable. Sets of large, chunky plastic bricks that can be easily stacked or pressed together in a non-systematic way are often the earliest appropriate interlocking system for children in this age group. Interlocking building sets that are 2 to 4 inches in size and 20 to 30 in quantity are appropriate. Plastic is an appropriate material for these blocks.

2 Years

Play with interlocking building materials for 2-year-olds is very much the same as it is for the previous age group. They participate in symbolic representation with their constructions, so a stack of blocks may represent a tree. Therefore, appropriate interlocking building materials for 2-year-old children are the same as those for 19- through 23-month-old children: 2 to 4 inches across, plastic, and 20 to 30 pieces. Children this age can manage a simple screwing action, but not other types of coordination like fitting a bolt in a flat piece of wood and attaching a nut.

3 Years

Three-year-old children can use interlocking building materials in intended ways, which usually take the form of stacking in an upward direction. They have the fine motor skills necessary to manipulate most simple interlocking building sets that involve snapping, screwing, pressing together or pulling apart, and nesting, so materials like notched log, suction cup connecting blocks, or rod-and-spool connector pieces are appropriate. Children in this age group's motor skills are developed to a sufficient degree to use interlocking bricks that are smaller (less than 1 inch in length) and simple snap-together building toys. They want their creations to become more realistic-looking, so variety in materials that can snap onto these interlocking bricks (for example, wheels, textures, miniature people, and model trees) is appealing. The addition of compatible figurines is appealing to this age group, as they enjoy pretend play that is afforded by

these additional accessories. Children at any younger age may lack the fine motor skills needed to work with the interlocking pieces and choose to spend their time playing with the figurines.

Suction cup connecting blocks are often too difficult for children younger than 3 years to assemble, with a fair amount of gross motor skills needed to forcefully stick them together and pull them apart. In addition, children at younger ages are more likely to find the suction cups as a fun item to chew or suck on instead of using as a building tool. Rod and spool connector pieces also require a fair amount of gross and fine motor skills that emerge around the age of 3— gross motor skills are needed to push and snap them together, and fine motor skills are necessary to align a dowel into the hole of a spool connector. Children may use rod and spool connector pieces to build familiar objects at this age, such as making a lollipop or a set of wheels. However, they lack the cognitive ability to follow assembly directions, so interlocking model kits are typically not appropriate. Instead, open-ended materials that allow children to create their own ideas are attractive. Plastic and wood are appropriate materials, as are smaller pieces (2 to 3 inches), a variety of shapes, and an increasing number of pieces (30 to 50). Very small, detail-oriented pieces that interlock are not yet usable or of interest to children in this age group. Simple sets that use rods and spool-like connector pieces are suitable.

4 Through 5 Years

During this preschool period, building is a dominant play activity. The preschool child is capable of working most types of interlocking building systems, such as notched logs, interlocking cogs, snapping or pressing plastic bricks together, using nuts and bolts, connecting straws, and popping tubes together. At this age, children finally have the gross motor skills and strength to insert flat pieces into slots, as well as the fine motor skills to align them properly. Interlocking building materials that are plastic or wood, and come in a variety of sizes, shapes, and lengths are appropriate for children. A larger number of parts (80 to 100) is also appropriate. However, for more complicated tasks like using nuts and bolts, larger pieces are more suitable. Most children do not understand how to hook up or use battery-powered building sets. Children will now begin to refer to directions when looking for help in how to assemble a miniature brick building kit, even if just studying pictures.

6 Through 8 Years, 9 Through 12 Years

Early elementary age children find building with interlocking pieces highly interesting, much more so than building sets that involve non-interlocking blocks. By the time children have reached these ages, they have developed the cognitive abilities to follow directions and to understand multi-step sequences, so working on complex model kits is appropriate. Theme- and movie-based kits hold a high level of appeal, as do those that produce realistic, detailed models. Fine motor skills are generally well developed, so small pieces present relatively little difficulty. They can build with sets using tiny screws, gears, nuts and bolts, and all-metal parts. The appropriate number of parts varies according to the child and the intended design, but there is essentially no limit to the number of parts for these ages. Generally, 100 pieces or more are needed to provide sufficient material with which children in this age group can build their designs. Sets containing parts that vary widely in size (very small pieces less than 1 inch and large pieces 2 to 3 inches) and shape allow more intricate structures to be built, which increases their attractiveness to children in this age group. By age 7 and 8 years, some children can build structures using sets with moving, motorized, or computer chip-based components. Likewise, children are able to work with robotic blocks that create certain effects (*i.e.*, light, movement) when placed in a prescribed order. Children are much less interested in similar cubes that do not produce light and movement at this age. Around age 9, model sets that include cement are appropriate. However, adult help may be required to ensure proper use of materials.

BUILDING PLAY: **INTERLOCKING BUILDING MATERIALS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*		2-4 inches	--→
Shape of Parts		Brick blocks; thus, square & rectangular shapes	--→
Number of Parts*		20-30 pieces	--→
Interlocking/Loose Parts*		Interlocking; simple connecting systems that can be easily stacked or snapped together in a non-systematic way	--→ Simple screwing action systems
Materials		Plastic	--→
Motor Skills Required*	Fine motor skills are more developed, but child is still incapable of manipulating objects to join interlocking pieces	Child continually increases fine motor skills; can manage simple connecting systems	--→ Child can handle simple screwing motions
Color/Contrast			
Cause & Effect			
Sensory Elements			
Level of Realism/Detail			
Licensed Theme			
Classic			
Robotic/Smart Features			
Educational			

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Relevant Play/Behavior	Emerging interests in novelty & exploration Solves problems via trial & error Fine motor skills more developed, but not ready for joining connectors.	Representational & symbolic thinking Building play becomes a way of using building materials More refined fine motor skills	---→ ---→ ---→ Can handle simple screwing action, but not other types of coordination such as fitting a bolt in a flat piece of wood & attaching a nut
Examples of Toys	Generally not appropriate	Snap-lock beads Large, chunky interlocking bricks/blocks	---→ Large interlocking bricks/blocks Interlocking foam puzzle mats

* One of the most influential characteristics for these toys.

BUILDING PLAY: **INTERLOCKING BUILDING MATERIALS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	2-3 inches <1 inch for simple designs like bricks	2-3 inches for more complicated designs like nuts & bolts -------------------------------------→	Variety of very small (<1"), small (1-2") & large (2-3") pieces allow more intricate structures to be built	-------------------------------------→
Shape of Parts	Variety of shapes	-------------------------------------→	-------------------------------------→	-------------------------------------→
Number of Parts*	30-50 pieces	80-100 pieces	100 pieces or more	-------------------------------------→
Interlocking/Loose Parts	Simple interlocking designs: snapping, screwing, press together, rod & spool connectors, notched logs, suction cups, & nesting	-------------------------------------→ Interlocking cogs, slot inserts, large nuts & bolts, connecting straws, popping tubes together	-------------------------------------→ -------------------------------------→ Tiny screws, nuts, gears, bolts	-------------------------------------→ -------------------------------------→ -------------------------------------→
Materials	Plastic or wood. Variety in materials, such as wheels, textures, miniature people, and model trees are appealing	-------------------------------------→ -------------------------------------→	-------------------------------------→ -------------------------------------→ All-metal parts	-------------------------------------→ -------------------------------------→ -------------------------------------→
Motor Skills Required*	Children of this age have the fine motor skills necessary to manipulate most interlocking designs	-------------------------------------→	-------------------------------------→ Small pieces present relatively little difficulty	-------------------------------------→ -------------------------------------→
Color/Contrast				

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Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Cause & Effect				
Sensory Elements				
Level of Realism/Detail	Want their creations to become more realistic-looking	-------------------------------------→	Want kits that produce realistic, detailed models	-------------------------------------→
Licensed Theme			Theme & movie based kits hold a high level of appeal	-------------------------------------→
Classic	Classic building sets that use notched logs or rods & connectors	-------------------------------------→	-------------------------------------→ Snap-together model car kits	-------------------------------------→ Cement-based model car kits.
Robotic/Smart Features		Cannot understand how to hook up &/or use battery powered building sets	By age 7-8, capable of sets that have moving, motorized, &/or computer chip-based components Can work with robotic blocks that create certain effects (*i.e.*, light, movement) when placed in a prescribed order	-------------------------------------→
Educational				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Relevant Play/Behavior	Uses interlocking materials in intended ways, which usually involves stacking in an upward direction	Building play is a dominant activity	Finds building with interlocking pieces highly interesting, much more so than non-interlocking building sets	--------------------------------------→
	Has the fine motor skills necessary to manipulate most interlocking designs	--------------------------------------→	--------------------------------------→	--------------------------------------→
	Lacks the cognitive ability to follow model kit assembly directions.	Will begin to refer to directions when looking for help in how to assemble a building kit, even if just studying pictures	Has cognitive abilities to follow directions & step sequence in model kits	--------------------------------------→
	Enjoys open-ended materials that allow them to create their own ideas		Enjoys realistic, detailed models & theme/movie based kits	--------------------------------------→
	Enjoys realistic-looking materials for their creations	--------------------------------------→		
Examples of Toys	Snap-lock beads		All examples from 4 Through 5 Years	--------------------------------------→
	Smaller interlocking bricks	--------------------------------------→	Sets using irregularly shaped or swiveling connector pieces	--------------------------------------→
	Notched logs	--------------------------------------→	Sets that build realistic, detailed, or transforming models	--------------------------------------→
	Sets using rods/dowels and spool-like connector pieces	--------------------------------------→	Sets that teach concepts of simple machines like wheels & axles, gears, levers, and pulleys	--------------------------------------→
	Work Bench Screws	Large nuts & bolts	Snap-together model car kits	Cement-based model car kits
			Small nuts, bolts, & screws	--------------------------------------→

* One of the most influential characteristics for these toys.

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PRETEND & ROLE PLAY

As young children develop memory and begin to make symbolic connections between a toy and a real-life object or person, they are laying the foundation for pretend and role play. Children typically begin rudimentary pretend and role-play with toys around 19 months of age. Such play peaks in the pre-school years and gradually fades as children progress through their elementary years, though role-playing may become important for some older school-aged children.

Dolls & Stuffed Toys (p. 77)

- Action figures
- Life-sized and oversized dolls and accessories (*e.g.*, baby dolls)
- Life-sized and oversized stuffed animals
- Miniature dolls & stuffed animals
- Peg dolls
- Small dolls & stuffed animals

Play Scenes & Puppets (p. 94)

- Dollhouses & thematic play scenes
- Marionettes
- Playhouses
- Pop-up scenes
- Sock, finger, hand, arm puppets

Dress-Up Materials (p. 104)

- Accessories (*e.g.*, fake teeth, hats, jewelry, masks, scarves, ties, wigs)
- Costumes (*e.g.*, army, astronaut, firefighter, holiday, police)
- Make-up and fingernail kits
- Media characters and superheroes

Small Vehicle Toys (p. 115)

- Boats
- Cars
- Motorcycles
- Planes
- Remote controlled vehicles
- Tracks, slopes, launchers for vehicles
- Trains
- Wind-up toys

Tools & Props (p. 128)

- Buckets
- Cash registers & money
- Decorative guns, holsters, helmets
- Hammers
- House cleaning tools
- Kitchen/cooking sets
- Medical kits & equipment
- Mobile communication devices (*e.g.*, cellular phones, pagers)
- Plastic construction tools
- Rakes
- Shovels & Trowels
- Telephones
- Vacuums & lawnmowers

DOLLS & STUFFED TOYS

Dolls and stuffed toys can be appropriate for children of all ages. They often become a child's first sensory objects. Children sometimes become attached to dolls and stuffed toys to feel a sense of security or to show affection. Such attachment may last through preschool and into the elementary school years. As cognitive abilities increase, dolls, action figures, and stuffed toys, serve an important symbolic function in helping children learn to pretend and role-play. Older children collect their favorite dolls, action figures, or stuffed toys.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of dolls & stuffed toys:

- Level of Realism/Detail
- Cause & Effect
- Size of Parts
- Licensed theme
- Color/Contrast

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of dolls and stuffed toys are appropriate and how a particular age group plays with these toys.

Birth Through 3 Months

Children this age mostly enjoy sensing and feeling objects. They lack fine motor control, so dolls and stuffed toys that are very lightweight (½ to 2 ounces) and have an easy-to-grip size—for example, with limbs ¼ inch thick and lengths of 4 to 8 inches—are appropriate. They are more appealing when they have a soft, felt-like texture like plush toys, have highly contrasting colors (for example, black and white) or basic contrasting patterns and faces, or have rich vibrant colors. Because children in this age group mouth most objects, dolls and stuffed toys should be easily cleanable with no hair or fur, no removable clothing or accessories, and no projecting parts like eyes or snouts. Clothing and moving eyes are not particularly appealing to this age group,

and stuffed animals should have facial features that are sewn. Dolls and stuffed toys with very basic one-piece construction are appropriate, and should be sturdy enough not to break or pull apart.

4 Through 7 Months

Dolls and stuffed toys remain soft, lightweight, and simple in design for this age group. Besides those characteristics described for younger children, children in this age group begin to appreciate highly contrasting facial features. A high degree of realism or detail is not recommended. Children in this age group enjoy toys with simple cause-and-effect features; for example, dolls or stuffed toys with rattles inside them. They can best handle lightweight toys that weigh no more than 2 ounces. Toys that are 4 to 12 inches in length are appropriate. Children in this age group tend to mouth most objects, so dolls or stuffed toys with buttons, whiskers, bells, ribbons, yarn wigs, or other such features are generally not appropriate. As they approach 8 months, children start to recognize words that are repeated. Such word recognition ability makes dolls and stuffed toys that say single words or a set of single words most attractive to those children. They also begin to recognize and become attracted to characters from familiar media like books and television.

8 Through 11 Months

While the same characteristics appeal as with younger children, children in this age group become attracted to small dolls and stuffed animals that have a low degree of realistic detail, especially facial features. They can most easily handle dolls and stuffed toys that weigh up to 3 to 6 ounces and are within 8- to 12-inches in length. Because children in this age group are rolling around, crawling more, and learning to walk, musical plush toys and others with a wind-up key or projecting surfaces are inappropriate.

12 Through 18 Months

The soft, simple, cuddly dolls and stuffed animals that were appropriate for children in the prior age group are also appropriate for children ages 12-18 months. During this period, children start to engage actively in imitative play with dolls and stuffed toys based on familiar family

relationships like mother and baby, or from watching television and other media. They are attracted to mid-size (10 to 16 inches) dolls and stuffed animals that offer simple cause-and-effect functions, such as push buttons that produce simple sounds or phrases, lights, and actions. For the same reasons, children in this age group like manipulating extremities or heads to create different postures and looks.

Because young children have a low degree of fine motor dexterity and control, dolls and stuffed toys are best when they are easy to grip (for example, limbs ½ inch thick) and weigh no more than 4 to 8 ounces. Also, appropriate dolls and stuffed toys generally lack removable, loose, or projecting parts. Hand-sewn eyes with high contrast are commonly used over movable eyes. Because children in this age group still mouth toys a great deal, appropriate toys are washable or easily cleaned. Suitable dolls tend to have only molded hair, if any, and stuffed animals lack fur.

19 Through 23 Months

Children at this age still imitate a great deal, basing such play mostly on familiar domestic and media themes. They are attracted to dolls and stuffed toys that have a low to moderate level of cause-and-effect functionality. For example, they enjoy pushing buttons or areas on a doll or stuffed toy to produce combinations of sound, lights, or action. They like to make simple manipulations of extremities or heads, and create different postures and looks (see also the *Exploratory and Practice Play* category). They can appreciate a low to moderate level of realistic detail and rich vibrant colors. Vinyl or rubber dolls with simple accessories like a stroller or blanket are appropriate. At this age, children have the gross motor skills needed to stand and push strollers, and have also cognitively reached a stage where they can pretend to take dolls and stuffed animals on "walks" using the stroller. As they approach 2 years of age, children have a simple set of basic words and phrases and can engage in simple pretend episodes. Therefore, dolls and stuffed toys that speak simple phrases or sentences are appropriate.

Because children in this age group still mouth toys, appropriate dolls do not have hair and appropriate stuffed animals do not have long fur. Also for this reason, dolls and stuffed toys are washable or easily cleaned. They are easily grasped and supported in the air. They may be slightly heavier than those appropriate for younger children (6 to 12 ounces). Children in this age

group also enjoy playing with small peg dolls (see *Pretend & Role Play: Play Scenes & Puppets*).

2 Years

Although they still imitate a great deal, children in this age group increasingly recognize the symbolic connections between toys and the real world, and start to pretend more often than younger children. This pretend play also occurs in more complex ways. Children in this age group have a low to moderate degree of fine motor dexterity and control, and can handle slightly larger (12 to 18 inches) and heavier (8 to 16 ounces) dolls and stuffed toys. Soft, rounded, pliable, and cuddly dolls and stuffed toys are most attractive. Pale or pastel colors also begin to attract this age group. These toys may have a small number (about two to four) of familiar accessories, such as a blanket or bone. Appropriate dolls and stuffed toys are easily carried, non-threatening, and familiar looking with a friendly appearance. Characteristics like these are important for children in this age group to initiate pretend episodes and to practice being friends or caring partners. As children in this age group approach 3 years of age, dolls become more appealing when they have a low to moderate level of realistic details in their facial features, hair, clothing, and accessories. This is especially true for baby dolls. Children of this age also begin to appreciate eyes that move, like baby dolls that sleep and wake up. Dolls and stuffed toys that are stiffly posed or elaborately detailed (for example, those with fine lace or intricate patterns on clothing, or those with facial wrinkles) are not as appealing.

Two-year-olds are attracted to dolls and stuffed toys that have a low to moderate level of cause and effect, such as toys that produce sounds, lights, or other actions when pushed, or ones that permit simple manipulations of the heads or extremities. Children in this age group will squeeze dolls and stuffed toys in various places to see if they can cause some kind of effect. Single, predictable interactions with talking dolls and stuffed toys activated by a button press begin to foster a sense of control and mastery, especially if they are associated with familiar characters the child recognizes from various media, books, or family and everyday contexts. At this age, children have the socioemotional capabilities of envisioning interactions between two dolls and stuffed toys. Toys that move, bounce, sing, talk, or dance with a button press or voice activation may result in some children trying to make one interactive doll talk to another. However, any

sound that is too loud, sudden or extreme coming from the doll could cause the child to avoid the toy. Interactive or talking toys that require sequential actions to use them are less appealing. Familiarity and captivating cause-and-effect features can help to balance out less cuddly forms, dull colors, and other less desirable features.

Because they desire independent functioning, children of this age enjoy dolls and stuffed toys that are easy to take care of and dress, so those with simple hats or with vests that have large arm holes would be appropriate. Children in this age group also enjoy toys with usable pockets or ones with easy-to-use pull strings and push buttons that initiate various actions. Two-year-olds can remove clothing, but may have difficulty redressing if clothing uses buttons or snaps. Fasteners that are more easily usable by children in this age group include large buttons, hooks, and hook-and-loop or touch fasteners. They like simple dress-me dolls and will pretend to bathe dolls, especially ones that are washable and submersible. Miniature dolls, life-sized dolls, and accessories (for example, baby dolls with grooming supplies) also appeal to this age group, as do wooden or plastic peg dolls. At this age, children start to have the cognitive skills to create pretend play scenes with dolls that come with props and accessories, such as using a doll with doctor supplies to take care of other dolls or figurines. If the doll portrays a familiar media character, children may act out familiar scenes that they have seen with the character in books or onscreen. Children in this age group will pull on the limbs, head, and fur of the toy, and may brush a doll's hair. Doll hair and stuffed animal fur are less likely to be pulled out by the brushing or pulling actions of children in this age group, if they are firmly rooted and tangle free.

Medium-sized stuffed toys (12 to 16 inches in length), like teddy bears and other animals, are more appealing when in tandem, like a mother and baby combination, as this offers the child greater pretend possibilities. They also enjoy larger or life-sized stuffed toys that they can drag around, climb on, and cuddle. They become more aware of dolls and stuffed toys that are licensed, and this begins to influence their preferences and ultimate enjoyment of these toys.

3 Years

Three-year-olds have a moderate degree of dexterity and fine motor control, and begin to enjoy low to moderately complex cause-and-effect in their pretend play. They like to push buttons and

to use devices that produce sound, lights or action, and more specialized, realistic features like crying, sucking, wetting, and walking. Children will also pretend to feed a doll with a baby bottle at this age. Bottles with faux liquid inside that disappears when the bottle is flipped over adds to the detail in pretend play accessories that children begin to seek in this age group. At any younger age, children may try to drink out of the bottle themselves due to their realistic appearance. They prefer dolls and stuffed toys with about a dozen diverse, easy-to-manipulate loose parts, and moving eyes. They become more adept at identifying and enjoy licensed fantasy characters like robots and superheroes, and they begin to develop an interest in simple collectibles. They also enjoy a moderate level of realistic detail, preferring dolls and stuffed animals that have accurate proportions and anatomy, moderately authentic parts, and body parts that can move in multiple directions. Given children's budding cognitive skills that allow them to pretend at this age, children may use dolls or figurines to engage in behaviors typical of that figure. For example, if given a toy dinosaur or bird, a child may pretend to make it fly or flap its wings. Children in this age group can manipulate clothing with large openings that allow easy dressing and undressing, as well as those with large buttons, hooks, and hook-and-loop or touch fasteners. Children in this age group are also able to handle slightly heavier (12 to 18 ounces) and larger (16 to 20 inches) dolls and stuffed animals than younger children can.

4 Through 5 Years

Children in this age group enjoy moderately to highly detailed, familiar, realistic dolls and stuffed toys to incorporate into their moderately to highly complex pretend play. Dolls and stuffed animals designed for moderately to highly complex cause-and-effect appear to promote more complex and longer periods of pretend play. Since they have moderate problem-solving abilities and have developed richer symbolic meanings in their toys, 4- and 5-year-olds prefer fashion, military, and other thematic dolls (for example, 1:6 scale dolls with various outfits or accessories), action figures about 4 to 8 inches in length, and stuffed toys that become the major characters for enacting diverse, often extended, stories during pretend or role play.

The dolls and stuffed toys that offer the greatest degree of interest to children in this age group are often based on licensed characters and on themes from various experiences at home, school, and through the media (television, videos, computer games, movies, and books). They are

attracted more to dolls and stuffed animals that are collectible, as well as larger or oversized ones. They enjoy well-defined facial features, dressing dolls and stuffed toys with simple outfits, and choosing among many loose parts like grooming supplies. Such toys may also have moderately to highly complex cause-and-effect, such as animatronic interactive animals with multi-directional rotation of body parts, multiple functions, or multiple voice, light, sound, movement responses to buttons pushed, or smart-chip accessories that are plugged-in. Animatronic animals and other figurines or dolls that can customize their responses to users are appealing in this age group because of the level of realism they afford. Children can set up scenarios where the doll interacts with other objects in the room to create a more complex play scene, a strong desire which peaks around age 4, when children are at the height of using their imaginations. At any younger age, children may focus too much on the toy's interactive qualities in a non-representational way (*i.e.*, spending time fiddling with the toy's moving ears or legs without any pretense). They also are attracted to smart, robotic dolls and stuffed toys that feature various reactions to different stimuli or a lack of stimuli, and begin to master these toys (see *Technology Play: Smart Toys & Educational Software*).

6 Through 8 Years

Young school-aged children engage in fewer pretend episodes than preschoolers, so structured activities become more attractive. Their pretend play becomes more drama-oriented with longer, more complex scenes and plays. Because they can readily transform symbolic meanings and have moderate to high problem-solving abilities as they mature through this period, 6- through 8-year-olds enjoy using dolls and stuffed animals in their diverse, often extended stories. Children in this age group enjoy life-sized or oversized dolls and stuffed animals that have many accessories. 18-inch thematic dolls with realistic additional parts are appealing at this age, because they are often one of the few dolls that older children will no longer consider too "babyish". The large variety of accessories and clothing available for these dolls that portrays them in real-life, mature activities that the child may have experienced or wish to do when they get older (gymnastics, swimming, ice skating, soccer). These varied accessories allow children to create different types of play scenes that are no longer solely based on nurturance (*e.g.*, feeding, tucking doll into crib) but rather, activities that are enjoyed at this age. They also enjoy miniature dolls (for example, 1:6 scale) that are more fashion oriented. Children of this age have a keen

awareness of and interest in licensed characters and collectibles that are popularized mostly by mass media. They enjoy diverse opportunities to engage with the accessories that typically go with many dolls and stuffed toys. In addition, their dexterity, fine motor control, and gross motor skills allow children in this age group to manipulate most small parts, such as fingers that move and small levers or buttons that activate features. Foldable figurines that can morph into two separate characters are also appealing at this age. The ability to change the character in their play scene is appealing at this age, adding a layer of complexity that appeals to this age group. Foldable figurines also allow for children to exercise their fine motor skills when gripping the tiny pieces that need to be held when changing the character.

9 Through 12 Years

Older school-agers mostly prefer to collect dolls and stuffed toys that are highly detailed, highly functional, authentic, and unique. Such toys include fashion or miniature dolls that are also used as decorative pieces, especially dolls with ornate costumes. They are often licensed and come with numerous licensed accessories.

PRETEND & ROLE PLAY: **DOLLS & STUFFED TOYS**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts*	Length 4-8 inches Ultra-lightweight, no more than 0.5-2 ounces Easily grasped & supported in the air	Length 4-12 inches Ultra-lightweight, no more than 2 ounces --→	Length 8-12 inches Lightweight, no more than 3-6 ounces --→
Shape of Parts	Very basic 1-piece construction Sturdy: toy will not break or pull apart Thick, round edges; no sharp edges or projecting parts	--→ --→ --→	--→ --→ --→
Number of Parts			
Interlocking/Loose Parts	No removable, loose parts, or clothing	--→	--→
Materials	Soft, felt-like, pliable, & cuddly No hair (unless molded), clothing, fur, bells, buttons, ribbons or whiskers Washable or easily cleaned	--→ --→ --→	--→ --→ --→
Motor Skills Required	Lack fine- or gross motor control	Stronger with small degree of fine- & gross motor control	--→
Color/Contrast*	Highly contrasting color (*e.g.*, black & white) &/or basic patterns Rich, vibrant colors	--→ --→	--→ --→
Cause & Effect*	Small degree of cause-and-effect functionality (*e.g.*, shaking produces sound)	Small degree of cause-and-effect functionality (*e.g.*, shaking produces sound or basic words & phrases)	--→

Sensory Elements	Soft textures Soft sounds (*e.g.*, rattles, music)	--→ --→	--→ More diverse sounds, lights, & actions
Level of Realism/Detail*	Friendly looking features, especially face Highly contrasting facial features, or hand-sewn No eyes that move	-------------------------------→ -------------------------------→ -------------------------------→	-------------------------------→ -------------------------------→ -------------------------------→
Licensed theme*		Start to recognize familiar characters from media & domestic context	--→
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	High tendency to mouth objects Sensing & feeling objects	-------------------------------→ -------------------------------→ Begins sitting & later crawling Begins to recognize oft-repeated words	-------------------------------→ -------------------------------→ Established crawlers & climbers Beginning walkers Awareness of object permanence & symbolic representation

Examples of Toys	Small dolls (baby, bean bag, rag dolls)	---→	---→
	Small stuffed or plush animals	---→	---→
	Music dolls & stuffed toys	---→	---→
	Grab-on soft toys	---→	---→

* One of the most influential characteristics for these toys.

PRETEND & ROLE PLAY: **DOLLS & STUFFED TOYS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	Length 10-16 inches Lightweight, up to 4-8 ounces Easily grasped & supported in the air (cont'd)	--→ Lightweight, up to 6-12 ounces --→	Length 12-18 inches Moderate weight, up to 8-16 ounces --→
Shape of Parts	Very basic 1-piece construction (cont'd) Sturdy (toy will not break or pull apart) (cont'd) Thick, round edges; no sharp edges or projecting parts (cont'd)	 --→ --→	 --→ --→
Number of Parts			2-4
Interlocking/Loose Parts	No removable, loose parts, or clothing (cont'd)	--→	Blanket, bone, etc.
Materials	Soft, felt-like, pliable, & cuddly No hair (unless molded), clothing, fur, bells, buttons, ribbons or whiskers Washable or easily cleaned	--→ --→ --→	--→ --→ Pliable & large openings in clothing for ease of dressing & undressing Large buttons, hooks, and hook-and-loop or touch fasteners
Motor Skills Required	Low degree of fine motor dexterity & control Easy rotation of body parts	--→ --→	Low to moderate degree of fine motor dexterity & control. --→
Color/Contrast*	Rich, vibrant colors	--→	--→ Pale or pastel colors

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Cause & Effect*	Pays close attention to simple cause-and-effect functionality (*e.g.*, pushing produces sound, lights or action)	Enjoys low to moderate level of cause-and-effect functionality (*e.g.*, pushing produces sound, lights, action, or simple manipulations of extremities or heads)	Toys activated by button press
Sensory Elements	Soft textures (cont'd) More diverse sounds, lights, & actions (cont'd)	---→ ---→	---→ ---→
Level of Realism/Detail*	Friendly looking features, especially face (cont'd) Highly contrasting facial features, or hand-sewn (cont'd) No eyes that move (cont'd)	---→ ---→ ---→	---→ ---→ Eyes that move or blink
Licensed theme*	Start to recognize familiar characters from media & domestic context (cont'd)	---→	Increased recognition of licensed forms
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	High tendency to mouth objects (cont'd) Sensing & feeling objects (cont'd) Very simple imitative & pretend play Established sense for object permanence Babbles with some spoken words & word comprehension	Mouth objects to lesser degree ---→ Simple pretend & imitative of domestic- & media-based themes More aware of symbolic connections Some spoken words & phrases, & word comprehension	---→ ---→ More, increasingly complex pretend Increased recognition of symbolic connections Increasing spoken words, phrases, sentences & word comprehension

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Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Examples of Toys	Small dolls (baby, bean bag, rag) (cont'd) Small stuffed or plush animals (cont'd) Music dolls & stuffed toys (cont'd) Washable rubber baby dolls	--→ --→ --→ --→ Peg dolls Doll stroller	--→ --→ Simple dress-me dolls --→ Combinations like mother & baby --→ Dolls with accessories (*e.g.*, doctor kit)

* One of the most influential characteristics for these toys.

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PRETEND & ROLE PLAY: **DOLLS & STUFFED TOYS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Toy & Parts*	Length 16-20 inches Weighing no more than 12-18 ounces	Larger or oversized About 1:6 scale thematic dolls	--------------------------------------→ --------------------------------------→	--------------------------------------→ --------------------------------------→
Shape of Parts				
Number of Parts	Numerous, about a dozen	10-20	--------------------------------------→	
Interlocking/Loose Parts	Diverse	--------------------------------------→	--------------------------------→	--------------------------------------→
Materials	Soft, felt-like, pliable, & cuddly Pliable & large openings in clothing for ease of dressing & undressing (cont'd) Large buttons, hooks, and hook-and-loop or touch fasteners (cont'd)	--------------------------------------→ --------------------------------------→ --------------------------------------→		
Motor Skills Required	Moderate degree of fine motor dexterity & control Easy to manipulate accessories, loose parts (*e.g.*, baby dolls with grooming supplies), buttons, & joy sticks	Moderate degree of dexterity, strength, fine motor & gross motor skills	Moderate to high degree of dexterity, strength, & gross motor skills	High degree of dexterity, strength, & gross motor skills
Color/Contrast*	Rich, vibrant colors (cont'd) Pale or pastel colors (cont'd)	Rich, vibrant colors, as well as realistic colors (*e.g.*, black, beige) Well-defined facial features	--------------------------------------→	--------------------------------------→

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Cause & Effect*	Enjoys moderately complex cause-and-effect functionality (pushing produces sound, lights or action producing more specialized, realistic features like crying, sucking & wetting)	Moderate to high level of complex cause-and-effect (multiple functions, multi-directional rotating body parts, numerous light, voice/sound, or movement responses to buttons, joy sticks, or smart-chip accessories)	--→	--→
Sensory Elements				
Level of Realism/Detail*	Moderate level of realistic detail (accurate proportions & anatomy of forms, moderately authentic loose parts, multi-directional rotation of body parts)	Moderate to highly realistic details (well-defined facial features, removable outfits)	Highly functional & realistic or minute details	--→ Authentic looking
Licensed theme*	Licensed forms popularized by mass media	Greater appeal of licensed forms popularized by mass media	Uses & adapts themes from experience at home, school, & various media (television, videos, computer games, movies, & books)	--→
Classic	Beginning interest in simple collectibles	Continuing interest in collectibles	Strong interest in collectibles	--→
Robotic/Smart Features	Simple buttons or joystick	More advanced joystick devices	--→	--→
Educational				
Relevant Play/Behavior	Low to moderately complex pretend play More adept at making symbolic connections Low to moderate level of partner or group interactions	Moderately to highly complex pretend play Moderate problem-solving abilities Extensive level of partner or group interactions	More structured, goal-oriented dramatic role-play Moderate to high problem-solving abilities Moderate to high level of independent functioning	Long, complex, structured dramatic performances Advanced problem-solving abilities

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Examples of Toys	More complex dress-me dolls Wooden & plastic peg dolls	Fantasy character/action figures -------------------------------------→ Life-sized dolls & accessories Life-sized stuffed animals -------------------------------------→ Fashion, military, & other thematic dolls (about 1:6 scale) Animatronic interactive animals	-------------------------------------→ -------------------------------------→ -------------------------------------→ -------------------------------------→ Oversized dolls & stuffed toys Unusual, unique dolls & stuffed toys -------------------------------------→ 18-inch thematic dolls with realistic accessories Foldable figurines that can morph into two separate characters.	-------------------------------------→ -------------------------------------→ -------------------------------------→ -------------------------------------→

* One of the most influential characteristics for these toys.

PLAY SCENES & PUPPETS

Play scenes and puppets help children to imitate and recreate familiar contexts, and to pretend and role-play as they construct dramatic scenes and stories. Children about 12 months of age may enjoy plush animal puppets that are also used as stuffed animals, though this is not considered true puppet play. Until children reach about 19 months of age, adults may model play with puppets or play scenes. At 19 months, children develop a greater capacity for making the symbolic connections that support pretend play, and they start to engage in simple pretend activities with play scenes and puppets. Preschool is the time of peak interest in play scenes and puppets. School-age children enjoy more diverse and complex play scenes and puppetry. Play scenes include miniature models, play sets, dollhouses, and pop-up scenes, all of which may come with characters, small vehicles, props, or a variety of accessories. Puppets start off as simple sock-like designs and evolve into elaborate hand puppets and marionettes, which may be used in conjunction with stages and scenery.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of play scenes and puppets:

- Motor Skills Required
- Level of Realism/Detail
- Interlocking/Loose Parts

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of play scenes and puppets are appropriate and how a particular age group plays with these toys.

12 Through 18 Months

This age group may use a soft plush animal puppet like a stuffed animal: cuddling and carrying it. They may also explore short, simple, sock-like puppets. Sizes tend to range from 8 to 12 inches, and they typically weigh 4 to 8 ounces. Puppets that portray familiar characters or have simple detail and contrasting facial features—especially eyes—are appealing to children in this

age group. The openings should be large enough for easy hand access. Since this age has only limited dexterity and fine motor control, puppets with arms or long hand/arm puppets are not appropriate, and will not be until the child is about 3 years old. Although children in this age group are not yet ready for true pretend play with objects, they may enjoy handling and carrying around small people and animals, or putting people into cars. As with puppets, these small figures need not be minutely detailed.

19 Through 23 Months

At 19 months, children start to have enough fine motor control and cognitive ability to manipulate simple sock-puppets and play scenes, as well as large accessories (2 to 4 inches), as they conduct simple pretend play. They begin to enjoy simple, realistic (though not detailed), familiar play sets and miniature models with easy access to one or two large areas with about two to six people, animals, vehicles, or accessories. Examples include simple kitchens, farms, gas stations, airplanes, pop-up scenes like fire trucks, and play sets that have vehicles with small figures like peg people. Although children in this age group do not need the small figures to have moving parts or elaborate detail, they do prefer ones with salient features, such as painted faces, plastic hair, or hats. Children in this age group are more capable of carrying play scenes that are constructed from lightweight plastic or wood, and that weigh 8 to 12 ounces.

2 Years

Two-year-olds become better at making simple symbolic connections and at controlling fine motor movements that allow them to position a few (two to six) large pieces (2 to 4 inches). They continue to prefer the same simple play scenes, yet with a low to moderate degree of realistic detail. They are attracted to simple moving parts like cranks or doors that they can slide or open via hinges with a basic pincer grip.

As they approach 3 years, children become attracted to simple sock and mitten puppets in which operation of the mouth encourages opening and closing with the thumb opposing the four fingers. Openings at the base of the puppet should permit entry of their fist. They also begin to enjoy finger puppets as they practice fine motor control.

3 Years

Most 3-year-olds are primed for exploring and pretending with play scenes and puppets. They are much more adept at making symbolic connections and working with their fingers and hands than 2-year-olds. They prefer play scenes and puppets of moderate complexity and realistic detail. They enjoy dollhouses and other familiar play scenes that have easy access to a few large areas with about a dozen loose parts that are easily positioned and repositioned. They also enjoy small playhouses or pop-up scenes where they can step in and take charge of their pretend episodes.

Three-year-olds use sock, mitten, hand, arm, and finger puppets more for pretend play than 2-year-olds do. As they approach 4 years of age, children in this age group are attracted to puppets with mouth and arm openings for simple thumb and finger manipulations. Other than well-defined puppet faces, they do not require extensive detail.

4 Through 5 Years

Their moderate degree of dexterity and fine motor control allow children in this age group to enjoy dollhouses and play scenes that have 10 to 20 loose parts of most sizes. They can manipulate most working mechanisms with screw actions and sections with multiple parts, and can manipulate pieces ½ inch in size. Licensed play scenes start to become important to children in this age group. They are attracted to action/adventure sets and military forts that have moderate to highly realistic details and that come with a wide variety of realistic accessories. They enjoy the challenge of positioning small objects in small rooms or areas. Besides thematic appeal, playhouses also appeal to children in this age group for the relatively private space they provide so children can carry out intensive pretend play.

Children's interest in puppetry reaches its zenith with 4- and 5-year-olds. Children in this age group enjoy the same puppets as before, yet they display more finger and fine motor skills to manipulate these puppets with greater effect. Hence, their puppets can be slightly more complex to operate. They place greater emphasis on telling stories and conducting plays that use simple puppet theaters.

6 Through 8 Years

Children in this age group are attracted to highly realistic, minutely detailed, and highly functional play scenes. They enjoy elaborate dollhouses with miniature figures and animals so they can incorporate familiar themes (for example, home or outer space) into their more structured, goal-oriented dramatic play. This age group develops a keen awareness of licensed characters and collectibles. They exhibit a moderate to high level of dexterity and fine motor skills as they manipulate a wide variety of accessories of mostly smaller sizes. Though their interest in playhouses subsides during this period, they still occasionally like the larger, more realistically detailed and functional ones.

Children in this age group enjoy operating puppets that are more complex and jointed, and ones that have hard heads and painted faces. They are attracted to puppets that have a high degree of realistic detail, function, and elaborate costumes, accessories, or scenery. They now can start manipulating simple string puppets or marionettes. At this age, children are able to master the use of puppets where one hand controls the mouth and the other controls a rod that manipulates the puppet's arm. Gross motor skills needed to hold up the puppet, as well as coordination between both of the children's hands to fully control the puppet are not yet developed until this age group. Children in this age group enjoy operating thematic puppet theaters with curtains for acting out extended stories.

9 Through 12 Years

Interest in play scenes wanes during this period,; however, some children are still interested and are attracted to dollhouses and other scenes that have authentic and detailed furnishings or accessories. Because they can readily transform and manipulate symbolic meanings and manipulate objects with a high degree of dexterity and fine motor control, 9- through 12-year-olds enjoy more complex hand puppets, string puppets, and marionettes. Puppets also appeal for their scrupulous attention to detail and authenticity, closely resembling adult versions of real-life equipment. They desire their puppet theaters to have authentic staging mechanisms and elaborate scenery.

PRETEND & ROLE PLAY: **PLAY SCENES & PUPPETS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts	Puppets with large enough openings for easy hand access Puppets of length 8-12 inches Lightweight puppets, up to 4-8 ounces Lightweight play scenes for carrying, up to 8-12 ounces	--→ --→ --→ --→	--→ --→ --→ Small parts at least 2-4 inches in size
Shape of Parts		Easy access to 1 or 2 large areas	--→
Number of Parts		2-6	--→
Interlocking/Loose Parts*			Simple moving parts like cranks or doors that they can slide or open via hinges
Materials	Soft textures	--→	--→
Motor Skills Required*	Limited dexterity & fine motor control Can handle and carry lightweight play scenes and figures	Low degree of dexterity & fine motor control Ability to manipulate simple play scenes & sock-puppets	Low to moderate degree of dexterity & fine motor control Controlling fine motor movements that permit placement of a few large pieces Opening & closing basic pincer grip
Color/Contrast	Contrasting facial features, especially eyes	--→	--→
Cause & Effect			

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Sensory Elements			
Level of Realism/Detail*	Puppets & figures are familiar characters or animals Familiar play sets & miniature models Simple, realistic (though not much detail)	--→ --→ --→	--→ --→ Low to moderate level of realistic detail
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Simple imitative play Not yet ready for true pretend play	Simple pretend play with domestic & media-based themes	Better at making simple symbolic connections

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Examples of Toys	Simple sock-like puppets Small, simple play scenes like kitchens, farms, gas stations, airplanes Simple pop-up scenes like fire trucks Simple play sets like those that have vehicles with small figures	--→ --→ --→ --→	Simple sock, mitten, & finger puppets --→ --→ --→

* One of the most influential characteristics for these toys.

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PRETEND & ROLE PLAY: **PLAY SCENES & PUPPETS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts	Puppets with large enough openings for easy hand access (cont'd) Easy access to a few large areas	Small play scene pieces around 0.5 inch Small rooms or areas	Accessories of mostly smaller sizes ---→	--→ --→
Shape of Parts				
Number of Parts	About a dozen	10-20	---→	
Interlocking/Loose Parts*	Simple moving parts like cranks or doors that they can slide or open via hinges (cont'd)	More complex, like screw actions & sections with multiple parts Wide variety of accessories	---→ ---→	--→ --→
Materials	Soft textures (cont'd)	---→		
Motor Skills Required*	Moderate degree of dexterity & fine motor control Much better at working with their fingers & hands than 2-year-olds Positioning & repositioning of small pieces	---→ Able to manipulate most working mechanisms ---→	Moderate to high degree of dexterity & fine motor skills ---→ ---→	High degree of dexterity & fine motor skills --→
Color/Contrast				
Cause & Effect				

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Sensory Elements				
Level of Realism/Detail*	Puppets are familiar characters or animals (cont'd) Well-defined facial features Moderate level of realistic detail	---------------------------------------→ ---------------------------------------→ Moderate to highly realistic details	Highly functional & realistic or minute details Elaborate costumes, accessories, & scenery	---------------------------------------→ ---------------------------------------→ Authentic looking
Licensed theme		Licensed play scenes start to become important	Keen awareness of licensed characters & collectibles	---------------------------------------→
Classic				
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Low to moderately complex pretend play More adept at making symbolic connections than 2-year-olds	Moderately to highly complex pretend play More adept at pretend than 3-year-olds Telling stories, conducting plays	More structured, goal-oriented dramatic play	Long, complex, structured dramatic performances

Examples of Toys	Sock, mitten, hand, arm, & finger puppets	Slightly more complex sock, mitten, hand, arm, & finger puppets	Hand, arm, finger, jointed, or simple string puppets & marionettes	--→
		--→		String puppets & marionettes
	Puppets with mouth & arm openings for simple thumb & finger manipulations		Puppets with hard heads & painted faces	--→
		Simple puppet theaters	Thematic puppet theaters with curtains	Authentic puppet theaters
	Simple dollhouses & miniature play sets of familiar themes	More detailed dollhouses & miniature play sets of familiar themes	Elaborate dollhouses with miniature figures, animals, & accessories	--→
	Pop-up scenes (cont'd)	--→	Familiar themes like home or outer space	--→
	Playhouses	--→	--→	--→
		Action/adventure & military sets	--→	
			Puppets with rod to control arm	

* One of the most influential characteristics for these toys.

DRESS-UP MATERIALS

Dress-up materials include costumes, accessories, jewelry, and dress-up kits that appeal to children of all ages except infants. These materials also include related crafts, such as jewelry-making, bead-stringing, weaving, and braiding kits. As children develop greater cognitive awareness and manual dexterity, they can use dress-up materials in more sophisticated ways of pretending. They use experiences with various media (primarily television, videos, computers, and books), family, and friends to perform imitatively or to live out fantasies of their own construction.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of dress-up materials:

- Level of Realism/Detail
- Licensed theme
- Materials
- Motor Skills Required

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of dress-up materials are appropriate and how a particular age group plays with these toys.

12 Through 18 Months

Children around 12 months use very simple forms of imitation and pretend play with objects and others, including imitation of adults and older peers. As they approach 18 months, they progress toward more basic forms of pretend and imitation with dress-up materials in conjunction with learning babbling and simple words. Though they do not pretend play much until they are closer to 18 months, young children do begin to enjoy basic dress-ups and costumes like easy-to-put-on one-piece bracelets and hair accessories. Although they may need help, older children in this age

group like easy-to-put-on, sleeveless, slip-on costumes without fasteners and with large openings for arms and legs.

Children in this age group often enjoy putting on necklaces, but this can present a strangulation hazard. Therefore, suitable necklaces for this age group are designed so they let children easily put them on and take them off without posing a strangulation hazard (for example, through the use of a break-away design). Children in this age group mouth objects and do not have the fine motor skills to use the materials in make-up kits or to use materials with sharp edges or points. Appropriate accessories have thick, rounded edges.

19 Through 23 Months

Children 19 through 23 months of age become more aware that costumes and accessories are symbolic for other characters, many of them licensed. Around 19 months, the appeal of dress-up materials starts to increase along with the child's increase in fine motor dexterity and control, such as the use of a pincer grasp between thumb and forefinger. They become more adept at undoing hook-and-loop or touch fasteners, though they still have some difficulty re-matching these types of fasteners. They continue to enjoy the same materials as before, but they also enjoy lacing objects with simple purposes in mind, such as lacing cubes or boards with large holes or thick blunt spindles, wood or plastic materials, and braided or plastic string, and stringing large beads (see also *Media Play: Arts & Crafts*).

Children in this age range are attracted to a variety of basic dress-up materials like shoes, hats, headscarves, other hair accessories, snap-on ties, bracelets, and necklaces. They prefer a simple level of detail like basic non-elaborate shapes and rich, vibrant colors. They continue putting necklaces and other items around their neck, so toys of this kind must not present a strangulation hazard. Suitable jewelry is easy to put on and take off, such as elastic bracelets, and has thick, rounded edges. Children in this age group enjoy wearing costumes or accessories that remind them of characters from television programs or videotapes.

2 Years

At age 2, children start to pretend-play more often and in more complex ways, preferring dress-up materials that have a low degree of realistic detail. They are learning to appreciate and enjoy the symbolic transformations that dress-up materials allow like becoming mother or baby and playing house. As they grow closer to 3 years of age, they have little difficulty becoming the characters that their costume suggests, acting out the typical behaviors and expressions of characters and pets, especially those from television and other media. They are developing greater dexterity, and around 30 months of age they become more adept at matching hook-and-loop or touch fasteners, and using large buttons, buckles, or hooks as on frames and cubes. They enjoy independently putting on simple costumes (for example, dresses, hats, and gloves) and accessories like elastic bracelets and simple wigs. They also enjoy playing with dress-me dolls, lacing cards or shoes, and stringing beads. Handheld mirrors, especially those with a familiar fantasy theme like Cinderella, appeal to children in this age group for role-playing purposes. Easy-to-put-on jewelry, such as elastic bracelets and long necklaces that do not require the child to hook or latch them and do not pose a strangulation hazard, are likely to appeal to this age. Earrings or short necklaces that cannot be viewed by the child are of less interest.

3 Years

Three-year-olds look forward to pretending with costumes, accessories, and kits of moderately realistic detail in rich, vibrant colors or pastel colors. Due to their increased dexterity, fine motor control, and problem-solving abilities, children in this age group are better able to put on and take off costumes and accessories. They enjoy costumes and dress-up materials with themes, such as superheroes, identifiable professions like doctor, police, and firefighter, and accessories like wigs and masks. Jewelry, like bracelets, necklaces, rings and earrings, appeal when they have a moderate level of realistic detail in form and function. With some degree of success, they can work with simple snaps and with relatively large buttons, hooks, lacing, and buckles. They can use longer string with a stiff end, and start to create simple sequential or repeated patterns of beads, like red and blue.

They enjoy playing with smaller beads for stringing, and with simple weaving toys, sewing cards, looper looms, and simple sewing kits (see also *Media Play: Arts & Crafts*). While they still have some difficulty exercising fine motor control with manicure, make-up, and disguise kits, children in this age group better understand how to use such kits safely and appropriately for dress-up play. These have a basic understanding of the dynamics of good and evil, and begin to enjoy games like cops and robbers. They also enjoy other simple story lines that involve exploration, dinosaurs, pets, and family contexts. Three-year-old children are better able to remove a necklace from around their neck, but require large hooks or other fasteners that can be easily separated or undone.

4 Through 5 Years

This age group demonstrates more expansive conceptualizations of symbolic meanings and moderate problem-solving abilities. Children 4- and 5-years-old develop greater sophistication in their pretend play and more often enact extended stories. They enjoy more elaborate, detailed costumes (for example, superheroes and identifiable professions), accessories (for example, rings, earrings, bracelets, necklaces, wigs, hats, ties, and gloves), and kits (such as manicure, make-up, and disguise kits) that increase their opportunities for independently developing and extending more complex dramas and fantasies. Adult coaching helps children in this age group to extend their pretend play. Their dexterity and fine motor skills are moderately developed to the point where they can better handle typical adult-size snaps, buttons, buckles, hooks, and lacing challenges. Bows are a more difficult, though acceptable challenge.

Children in this age group can copy longer sequential patterns and create simple multiple-order patterns when using smaller beads for stringing. They enjoy simple weaving and sewing kits, sewing cards, and looper looms, and they start to master simple bows by the time they reach 6 years of age. The dress-up materials that interest them to the greatest degree are based on themes from various experiences and media (television, videos, computer games, movies, and books), including doctor, house/family, school, police, military, fire fighters, dinosaurs, pets, and spaceships.

6 Through 8 Years

The surrounding media culture, the immediate community, and their school, peers, and experiences have a significant impact on school-age children. These play a larger role in the fantasy themes and dress-up materials that appeal to their interests and impact their choices. Children 6, 7, and 8 years old display a deeper interest in themes that promote chase games (for example, cops and robbers and the military), rough and tumble play (for example, wrestling and king-of-the-mountain), movie reenactments, and comic book characters. Appealing costumes, accessories, and kits are more realistic looking in size, detail, and function, and may include small beads for stringing jewelry, hand looms, hand sewing to make clothes for dolls and puppets, spool knitting, braiding, and simple needlepoint. Children in this age group have the fine motor dexterity to tie multiple knots, like what would be needed for macramé, braiding, and knitting. They can work a basic loom, twist plastic strands, string small beads, and use fragile art media like glass and pottery beads or shrinkable colored plastic to make their own accessories (for example, friendship bracelets, necklaces, and pins) and costumes, and enjoy doing so. Toward the end of this age range, children prefer semi-structured group drama performances or staged plays. Typical themes include major historical events, fairy tales, adventures in space and elsewhere, cops and robbers, battles of all kinds, ballet, circus, school, house and fire fighter, involving various accessories and kits like jewelry, wigs, make-up, hair, and disguise kits, and manicure sets. By 9 years of age, children use unfinished materials, accessories, and kits to customize and design their own outfits, costumes, and disguises.

9 Through 12 Years

Although dramatic play for 9- through 12-year-olds employs themes from the early school-age years to a lesser and lesser degree with age, such play becomes highly structured and centers on broader historical themes like wars, major national or regional transitions, and scientific advances, domestic themes, such as family and health issues, cleaning, cooking, and sewing, and the accessories for activities like more complex hand looms, or sewing, knitting, embroidery, needle point, plastic braiding, and leather kits. Children in this age group have a greater interest in dramatic activities, sports and other competitive activities, and various professions. They have also developed the ability to perform more difficult skills like applying make-up or set

construction. Therefore, these older children start to prefer those costumes and clothing that represent real-life roles, such as hunter, ballerina, athlete, doctor, and soldier. They also enjoy the accessories that bring these roles to life like realistic wigs, guns, specialized shoes, sports equipment, unfinished materials, and relevant decorations. Children in this age group place a greater and greater premium on authenticity with all costumes, accessories, and kits, so they often closely resemble adult versions.

PRETEND & ROLE PLAY: **DRESS-UP MATERIALS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts			
Shape of Parts	Thick, round edges Non-elaborate shapes for jewelry Sleeveless, slip-on costume design	--→ --→ --→	--→ --→ --→
Number of Parts			
Interlocking/Loose Parts			
Materials*	Wood or plastic beads	--→ Easy on & off hook-and-loop fasteners	--→ --→ Large buttons, buckles & hooks for costumes
Motor Skills Required*	Very little dexterity or fine motor control	Low degree of dexterity & fine motor control Able to string large beads & holes with pincer grasp Able to guide arms & legs through large openings	Low to moderate degree of dexterity & fine motor control --→ --→
Color/Contrast	Rich, vibrant colors	--→	--→
Cause & Effect			
Sensory Elements	Soft textures	--→	--→

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Level of Realism/Detail*			Low degree of realistic detail
Licensed theme*		Licensed costumes & accessories begin to appeal	Stronger connection with licensed costumes & accessories
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Imitative Very simple pretend & symbolic thinking Babbles, some words Exploring Feeling textures Mouths objects most of the time	--→ Simple pretend & symbolic connections Words & short phrases --→ --→ Mouths objects much of the time	--→ More, increasingly complex symbolic transformations Increase in vocabulary Values independent functioning Some mouthing of objects
Examples of Toys	Very simple costumes Necklaces, bracelets with low tension elastic, no rings/earrings Hair accessories (scarves, clips) Braided or plastic "string" Beads (up to 10)	Simple costumes --→ --→ --→ Shoes, hats, snap-on ties Beads (up to 20) Lacing cubes or boards with thick blunt spindles	--→ --→ Handheld mirrors with fantasy theme Simple wigs --→ --→ Dresses, hats, gloves, shoes, snap-on ties Beads (up to 20) Simple dress-me dolls Frames & cubes for buttoning, snapping, lacing, hooking, & buckling Lacing cards & shoes

* One of the most influential characteristics for these toys.

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts	Smaller beads (around 0.5 inch) Necklaces with large hooks or easy-to-separate fasteners	Beads around 0.25 inch -----------------------------------→	Realistic size & function of dress-up materials -----------------------------------→	---→
Shape of Parts				
Number of Parts				
Interlocking/Loose Parts				
Materials*	Smaller easy on & off hook-and-loop or touch fasteners Mid-size buttons, buckles & hooks Simple, large snaps	-----------------------------------→ Typical adult-size buttons, snaps, lacing, buckles & hooks	-----------------------------------→ -----------------------------------→ Pottery & glass beads	---→ ---→ ---→
Motor Skills Required*	Moderate degree of dexterity & fine motor control Simple lacing Independent dressing with simple costumes Snapping, buttoning, buckling, hooking	-----------------------------------→ Basic lacing & tying challenges -----------------------------------→ -----------------------------------→	Moderate to high degree of dexterity (can make clothes for dolls & puppets with sewing needle) Making simple dress-up materials Putting on basic adult-type costumes -----------------------------------→	---→ Making somewhat elaborate costumes Putting on somewhat elaborate costumes Precise application of make-up
Color/Contrast	Rich, primary colors & bright pastel colors	-----------------------------------→		
Cause & Effect				
Sensory Elements	Soft textures (cont'd)	-----------------------------------→		

Level of Realism/Detail*	Moderate level of realistic detail	Moderate to high level of realistic detail	High level of realistic detail	Very high level of realistic detail Premium on authenticity
Licensed theme*	More appeal of licensed costumes	Keen interest in licensed costumes	--------------------------------→	--------------------------------→
Classic				
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Much greater emphasis on pretend Low to medium problem-solving abilities Starts to engage in simple sequential patterns like red & blue	More, sophisticated pretend play More expansive conceptualizations of symbolic meanings Moderate problem-solving abilities Can copy more complex orders in bead stringing Able to create simple multiple-order sequences	More structured, goal-oriented dramatic role-play Moderate to high problem-solving abilities Moderate to high degree of customized dress-up	Highly structured, goal-oriented dramatic role-play High degree of problem-solving abilities High degree of customized dress-up
Examples of Toys	Low to moderately complex costumes All types of jewelry Simple wigs (cont'd) Hair accessories (scarves, clips) Dresses, hats, gloves, shoes, snap-on ties (cont'd) Small beads Dress-me dolls (cont'd) Frames & cubes for buttoning, snapping, lacing, hooking, & buckling (cont'd) Lacing cards & shoes (cont'd)	Moderately complex costumes Low to moderately complex kits (manicure, make-up, jewelry, braiding, disguises) --------------------------------→ --------------------------------→ Simple bows --------------------------------→ Looper looms --------------------------------→ --------------------------------→ --------------------------------→ Simple sewing kits --------------------------------→	Unfinished materials for making costumes --------------------------------→ More realistic wigs Complex hair accessories More complex bows --------------------------------→ Looper & hand looms Beads of all sizes Spool knitting Simple needlepoint	--------------------------------→ Adult-like jewelry, manicure, make-up, ties, disguises, hair, sewing, braiding, knitting, needle point, embroidery --------------------------------→ --------------------------------→ --------------------------------→ More complex hand looms --------------------------------→ --------------------------------→ Leather & plastic braiding Decorative guns & equipment

* One of the most influential characteristics for these toys.

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SMALL VEHICLE TOYS

Children up through 18 months, particularly those younger than one year, use small vehicle toys mostly for exploration and simple imitation purposes rather than for representational purposes. Therefore, simple vehicle-like toys intended for children under 12 months of age are discussed within *Exploratory and Practice Play: Push & Pull Toys*. After 18 months, children start to use small vehicles more for pretend play. Three- and four-year-olds pretend the most with small vehicles as they construct dramatic scenes and stories. Children are not meant to ride on the vehicles in this subcategory; for ride-on vehicles please see *Sports, Recreational, & Outdoor Play: Ride-On Toys*.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of small vehicle toys:

- Size of Parts
- Level of Realistic Detail
- Motor Skills Required
- Licensed theme
- Color/Contrast
- Cause & Effect

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of small vehicle toys are appropriate and how a particular age group plays with these toys.

12 Through 18 Months

Because they have been closely observing adults and older peers at home and see small vehicles being used on TV and in other media, these children start actively engaging in imitative play with substitutes of these objects. As children progress through this period, they are establishing object permanence, simplistic symbolic thinking, and can babble with some words and understand many more words. Young children can be helped to develop their ability to imitate

with small vehicles by watching adults or older peers, though such modeling is not necessary in order for children in this age group to play with these vehicles. Examples of small vehicle toys for this age group include small boats for the bathtub, simple cars, motorcycles, trucks, trains without tracks, and flying machines. Plastic, hard rubber, or lightweight wood are suitable materials for these toys.

Children in this age group are mostly attracted to rich vibrant colors with simple details that may be realistic or fantasy-oriented in nature. Children in this age group enjoy small vehicle toys that are simple, easy to recognize, and of one-piece construction, though the wheels may spin. Because of children in this age group's tendency to mouth objects and their low degree of fine motor dexterity and control, appropriate small vehicles do not have removable or loose parts. Young children also enjoy small vehicle toys with a small degree of cause and effect, such as vehicles on wheels that spin (see also *Exploratory and Practice Play: Push & Pull Toys*) or those with push buttons that produce simple sounds, lights, and actions. They may also enjoy simple remote control devices that are operated by rattles or large buttons. Cognitively, children are able to understand that the shake of a rattle or the press of a button on a remote control causes the vehicle to move. At this age, children have the fine and gross motor skills to hold remote controllers and press buttons at the same time, as any younger age child may have difficulty combining these two actions. Small vehicle toys for children in this age group are large enough for easy grasping and pushing (about 4 to 8 inches in size), and children find it easier to use these toys if they have at least one section that fits a small pincer or full hand grip (about ¼ to ½ inch). This, however, is not necessary. If the toy is to be picked up during use, children in this age group will find it easier to manipulate if it weighs no more than 3 ounces. Suitable toys have thick, rounded edges and are sturdy enough so the toy will not break or pull apart.

Simple trains, constructed of molded plastic or wood and capable of being rolled on either fixed or easy turning wheels, start to appeal to this age group. Because children in this age group have great difficulty negotiating tracks or manipulating and maintaining train or track connections, trains with tracks or small coupling mechanisms are generally not appropriate. As children approach 18 months, they can use simple coupling devices like large hooks or magnets.

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19 Through 23 Months

Around 19 months of age, children begin very simple pretend play with small vehicle toys, mostly in the form of imitating domestic and predominant media themes, such as the family car or popular cartoons that have vehicles. Children in this age group enjoy small vehicle toys that have a low to moderate level of cause-and-effect functionality, like pushing that produces sound, lights, or movement, pulling on a cord, or pushing buttons on a simple remote control to produce simple actions. Children at this age enjoy small vehicles that are battery operated and can perform simple tricks (*e.g.*, tumbling, rotating, and bump-and-go motion when a button is pressed on them). At any younger age, children may not have the cognitive skills to move out of the way to allow the vehicle to pass and complete its action. They enjoy relatively large, simple, workable parts—like hinged doors or hoods, dumpers, hoses, sails, rudders, ladders, and propellers—as long as they require only a low degree of fine motor dexterity and control and are easily manipulated with a pincer grasp. As steadier walking develops, they enjoy pulling small vehicles on a cord (see *Exploratory and Practice Play: Push & Pull Toys*). They find small vehicles that have a low to moderate level of realistic detail and rich vibrant colors appealing. Suitable small vehicle toys may include boats for the bathtub, cars, motorcycles, fantasy vehicles, trucks, trains, and flying machines. Wind-up vehicles are typically not appropriate.

These children begin simpler pretend play with small vehicle toys, more so as they approach 2 years. Small vehicles with removable or loose parts are inappropriate since children in this age group still mouth toys, though they do so to a lesser degree. Vehicles should be washable or easily cleaned, and should be large enough for easy grasping, gripping, or pushing. Vehicles that are 6 to 12 inches are appropriate, as are those that fit a pincer or full hand grip. These toys typically weigh no more than 4 ounces if they are intended to be picked up during use. For safety reasons, these toys should be of sturdy construction so that they do not break or pull apart, and have thick, rounded edges.

Boats, cars, motorcycles, fantasy vehicles, and trucks may have slightly more detail, though this is not necessary to appeal to this age group. Trains appeal as before, but this age group can handle greater challenges. As they approach 2 years, children in this age group are more adept at pushing buttons, manipulating parts, and operating simple remote devices. As with trains for

younger children, tracks are not appropriate, but children in this age group do enjoy manipulating and maintaining simple coupling mechanisms, such as magnetic or large-hook couplings. Two- to four-car trains appeal to this age group.

2 Years

Children at age 2 start to pretend more often due to their increased recognition of the symbolic connections between toys and the real world. Such pretend play also occurs in more complex ways than is the case with younger children. They are attracted to small vehicle toys that have a low to moderate level of cause-and-effect functionality, as when their pushing produces sound, lights, or movement, when they pull vehicles on a cord, or when they use a remote control to produce basic actions. For more pretend opportunities, children in this age group enjoy several movable parts like doors, hoods, dumpers, hoses, sails, rudders, propellers, and simple levers that are large and simple for easy pincer grasp. They enjoy small vehicles with low to moderately realistic detail and rich vibrant colors or bright pastels. They also enjoy vehicles that require a low to moderate degree of fine motor dexterity and control, including boats in the bathtub, cars, motorcycles, trucks, trains, fantasy vehicles, and flying machines. Children in this age group can soon use simple, one- or two-turn wind up mechanisms of low tension with a progressively higher rate of success as they progress towards 3 years of age.

Small vehicle toys may be smaller (2 to 4 inches), or larger (10 to 18 inches) for pushing purposes. Children enjoy tracks that can fit these cars and like to watch the cars go down slopes. Their fine motor skills at this age allow them to align the car correctly on the track. Younger children may have trouble aligning it correctly, or may attempt to put cars onto a track that are inappropriately sized for each other. As they approach 30 months of age, they are increasingly aware of vehicles featuring licensed characters, which starts to play a role in their preferences and ultimate enjoyment of these toys. They also start to enjoy small vehicles that incorporate the most basic educational purposes, such as a few voice-activated numbers and letters in tandem with relevant configurations. Children in this age group may find it difficult to manipulate toys that are not easily grasped or that weigh more than 4 to 6 ounces, if designed to be picked up during use (for example, an airplane). Appropriate toys are constructed to prevent them from

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breaking or pulling apart, and are typically made with thick, rounded edges. Washable or easy-to-clean toys are desirable.

Children in this age group enjoy large trucks with relatively large simple working parts, handles, and wheels because they can be used easily for more purposeful activities like carrying, dumping, or rescuing. Due to the larger size of these trucks, hard plastic is often preferred over metal to keep them from getting too heavy. The same trains that are appropriate for younger children are also appropriate here, but their cars can be smaller and moving wheels are much more appealing than fixed ones. As they approach 3 years, children in this age group enjoy connecting simple hooking, snapping, or interlacing tracks that have ample width for error as they push and pull the train along. They also enjoy manipulating, and are more successful at connecting and maintaining simple coupling mechanisms with multiple cars that easily fasten and detach.

3 Years

Three-year-olds display a moderate degree of dexterity and fine motor control, and low to moderately complex cause-and-effect functionality in their pretend play. They enjoy small vehicles that produce sounds or talking, lights, or movement by pushing buttons on the toy or on a remote control to produce basic actions. Small vehicle toys are attractive to this age because they are used increasingly in cooperative contexts that have a low to moderate level of social interactions, especially as they approach age 4. Children in this age group are attracted to both smaller (1 to 8 inches) and larger (12 to 24 inches) vehicles of more complexity and detail. They prefer vehicles in basic coordinated sets (for example, miniature die-cast cars and vehicles approximately 1:60 to 1:64 scale) and those with relevant figures and accessories.

Boats, cars, motorcycles, fantasy vehicles, trucks, and flying machines begin to appeal to 3-year-olds when they are more detailed, so they are attracted to materials like die-cast metal or plastics that capture more detail. They begin to prefer a moderate level of realistic detail like proportional design, loose parts, functionality, decorations, and printed words. They enjoy rich vibrant colors and bright pastel colors. They are attracted to simple remote devices that have easy to manipulate buttons or joysticks. Children in this age group also like to use pull-back-and-release

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mechanisms or simple, multiple-turn winding mechanisms that have a large key and low tension. They enjoy pretending with numerous movable parts, like doors, hoods, dumpers, hoses, sails, rudders, propellers, simple levers, with large workable parts for easy pincer grasp. Small vehicles that feature licensed characters popularized by various media appeal to children in this age group. If the toy is designed to be picked up during use, lightweight vehicles (no more than 6 to 8 ounces) are more appropriate.

Preferred trains have multiple cars that fasten and detach. As with the previous age group, large simple tracks with easy connections appeal to children in this age group because they derive a sense of completion and accomplishment when putting objects together.

4 Through 5 Years

Children in this age group enjoy small vehicle toys immensely because they can incorporate them into their moderately to highly complex pretend play. More complex small vehicles promote more complex and longer periods of pretend play. Because they develop richer symbolic meanings than 3-year-olds and have moderate problem-solving abilities, 4- and 5-year-olds use small vehicle toys as aids or pivots for enacting diverse, often extended stories with a friend or group.

Children in this age group enjoy rich vibrant colors and more realistic colors, as well as a moderate to high level of realistic detail, including proportional design, movable parts, functionality, and more detailed decorations or wording. Children ages 4-5 will spend more time with cars that are highly detailed in their illustration than those that are not. Boats, cars, motorcycles, fantasy vehicles, and trucks are especially appealing to this age group when they have enough detail to be identified by make or model. They are attracted to materials like die-cast metal or plastics that can capture more detail. They enjoy low-to-moderately complex cause-and-effect functionality, such as pull-back-and-release mechanisms, launchers, and manipulating numerous loose parts to produce moderately complex actions. Small or large workable parts, like doors, hoods, dumpers, hoses, sails, rudders, propellers, and levers, also appeal to this age group. They enjoy playing with trucks that have large parts, such as cranks and levers, especially on earth-moving trucks and road machinery. They enjoy medium-to-small-size keys on low-to-

medium tension wind-up toys. They are attracted to familiar small vehicles that feature licensed characters popularized by various media, and those that come with removable characters. This is also the age at which they begin to develop an interest in collectible vehicles. Appropriate small vehicles that are intended to be picked up during use generally weigh no more than 10 ounces. Children in this age group prefer both smaller (1 to 12 inches) and larger (24 to 36 inches) vehicles, as well as numerous loose parts of all sizes.

More detailed and realistic trains are preferred. These trains have multiple cars that fasten and detach, and large tracks with easy to hook-up, snap-on, or lock-type connections. They enjoy playing with heavier trains that they can readily maneuver, or operating simple electric trains with an adult.

6 Through 8 Years

These school-age children are attracted to small vehicles that are highly realistic, minutely detailed, highly functional, and unique in shape, parts, and color. They also enjoy small vehicle toys with numerous accessories and that are highly complex in cause-and-effect functionality, such as push buttons and joysticks that produce multiple sounds, lights, or actions. At this age, children have the cognitive skills to become creative in their play with these types of vehicles and may develop unique paths in a room for the vehicle to drive—for example, navigating a remote controlled vehicle underneath a table and behind a couch is a challenging, yet exciting task. They prefer more complex, highly detailed flying machines that may have a small key for medium tension wind ups. They have a keen interest in those small vehicles with age-appropriate licenses popularized by various media, including a somewhat sophisticated interest in collectibles as they approach the end of this period. Their moderate degree of strength and dexterity let them use vehicles weighing about 12 ounces if the vehicles are designed to be picked up during use.

Children in this age group prefer highly elaborate small or medium sized cars and motorcycles of all sizes with moderately complex configurations for basic tracks or electric tracks for racing. At this age, vehicle tracks that can quickly launch cars using cranking mechanisms are especially appealing. At this age, children are able to use their gross motor skill strength to use the crank.

Interest in operating trucks declines as racing and collecting interests become paramount for this age group. During this period, children enjoy operating electric trains with multiple cars that have couplings of moderate complexity to fasten and detach, and with smaller tracks that use a variety of straightforward connections children in this age group can easily set up on their own.

9 Through 12 Years

Older school-age children gradually focus on collecting sets of small vehicle toys that are elaborately detailed, though not necessarily realistic. Their small vehicles may be highly functional and complex, often resembling authentic adult-versions. They are attracted to unique or licensed vehicles that are popularized by various media. They enjoy flying machines with small key, high-tension wind ups, or that are air-pressure propelled (see also *Sports, Recreational, & Outdoor Play: Recreational Equipment*). They can handle all sizes of vehicles, and those that are intended to be picked up during use might weigh up to 1 pound. Their interest in racing and collecting cars, motorcycles, and trucks can wax or wane during this period, while their interest in complex, elaborately detailed trains and track configurations is mostly maintained and deepened.

PRETEND & ROLE PLAY: **SMALL VEHICLE TOYS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	Large for easy grasping, gripping, or pushing 4-8 inches in length & fits pincer or full hand grip May have section(s) 0.25 to 0.5 inch thick Weight no more than 3 oz if designed to be picked up during use	Large simple workable parts 6-12 inches in length & fits pincer or full hand grip ---→ Weight no more than 4 oz if designed to be picked up during use	---→ Smaller (2-3 inches), or larger (12-18 inches) for pushing purposes May have section(s) 0.5 inch thick Weight no more than 4-6 oz if designed to be picked up during use
Shape of Parts	No removable or loose parts Thick, rounded edges One-piece construction (but wheels may spin) Sturdy	---→ ---→ ---→ ---→	---→ ---→ ---→ ---→
Number of Parts	1 or 2 train cars	2-4 train cars 1-3 loose/movable parts	2-6 train cars 1-8 loose/movable parts
Interlocking/Loose Parts	Large, simple hooks or magnetic coupling devices for trains	---→	Large & simple hooking, snapping or interlacing tracks that have ample width for given vehicle
Materials	Plastic, hard rubber, or light wood Washable or easily cleaned	---→ ---→	---→ ---→
Motor Skills Required*	Low degree of fine motor dexterity & control	---→ Able to use simple remote controls & devices Start to fasten & detach simple coupling mechanisms (magnetic or large-hook)	Low to moderate degree of fine motor dexterity & control ---→ ---→ One- or two-turn wind-up mechanisms of low tension
Color/Contrast*	Rich, vibrant colors	---→	---→

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Cause & Effect*	Pays close attention to simple cause-and-effect functionality (pushing produces sound, lights or action)	Pushing produces sound, lights, movement, &/or voice activation Pulling on cord produces effect(s) Pushing buttons on simple remote control produces simple effect(s)	--→ --→ --→
Sensory Elements	Sound or lights	--→	--→
Level of Realism/Detail*	Simple realistic detail or fantasy details Some recognizable details	Low level of realistic detail	Low to moderate level of realistic detail (doors, hoods, dumpers, hoses, sails, rudders, propellers, simple levers)
Licensed theme*		Starts to recognize licensed vehicles	Readily recognizes several licensed vehicles
Classic			
Robotic/Smart Features	Able to use simple remote controls & devices (controlled by rattles or large buttons)	--→	--→
Educational			
Relevant Play/Behavior	Imitative play Observe adults & older peers, or watch TV & other media Established sense for object permanence Simplistic symbolic thinking Babbles with some spoken words & word comprehension Often helped by adults or older peers through modeling toy usage Mouthing objects	More imitative of domestic & media-based themes Simple pretend with more awareness of symbolic connections Some spoken words & phrases, & word comprehension --→ Mouth objects to lesser degree Enjoys low to moderate level of cause-and-effect functionality	--→ More, increasingly complex pretend Increased recognition of symbolic connections Some spoken words & phrases, simple sentences, & word comprehension --→ Some mouthing of objects --→

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Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Examples of Toys	Boats (mostly for bath) Push cars, motorcycles, & trucks Simple trains without tracks	--→ --→ --→ Flying machines (no wind ups) Simple remote-control vehicles	--→ Large trucks --→ Trains with 2-6 cars that fasten & detach Flying machines with simple wind ups --→ Fantasy vehicles with simple wind ups Tracks that allow child to watch cars go down a slope

* One of the most influential characteristics for these toys.

PRETEND & ROLE PLAY: **SMALL VEHICLE TOYS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Smaller working parts	Both small & large working parts	---------------------------------------→	---------------------------------------→
	Small (1-8 in.) or large (12-24 in.) for pushing	Small (1-12 in.) or large (24-36 in.)	All sizes	---------------------------------------→
	No more than 6-8 oz. if designed to be picked up during use	No more than 10 oz. if designed to be picked up during use	No more than 12 oz. if designed to be picked up and used	No more than 1 lb if designed to be picked up during use
Shape of Parts			Unique shapes & part	---------------------------------------→
Number of Parts	Multiple train cars	---------------------------------------→	---------------------------------------→	---------------------------------------→
Interlocking/Loose Parts	Large & simple hooking, snapping, or interlacing tracks that have ample width for given vehicle (cont'd)	Large tracks with easy to hook-up, snap-on, or lock-type connections	Smaller tracks with a variety of straightforward connections	Complex track connections & configurations
Materials	Die-cast metal or plastics that capture more detail	---------------------------------------→	---------------------------------------→	---------------------------------------→
Motor Skills Required*	Moderate degree of fine motor dexterity & control	Able to manipulate small pieces effectively	Moderate to high degree of dexterity, & fine motor skills	---------------------------------------→
	More adept at using buttons & joy sticks	Begins to master most remote devices	Masters most remote devices	
	More adept at using simple couplings	Able to use more complex couplings	Couplings of moderate complexity to fasten & detach	---------------------------------------→
	Simple multiple-turn winders with large key & low tension	Medium to small keys on low to medium tension wind ups	Small key for medium tension wind-ups	Small key, high tension wind ups
Color/Contrast*	Rich, vibrant colors (cont'd)	---------------------------------------→	Standard & unique colors	---------------------------------------→
	Bright pastel & realistic colors			
Cause & Effect	Pushing buttons on simple remote control produces more complex effects			
Sensory Elements				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Level of Realism/Detail*	Moderate level of realistic detail	Moderate to high level of realistic detail as in proportional design, functionality, loose parts, printed words, & more detailed decorations	Highly realistic, minutely detailed	--------------------------------------→ Elaborate & authentic
Licensed theme*	Licensed vehicles & characters, as popularized by various media, begin to appeal more	--------------------------------------→	Keen interest in licensed vehicles.	--------------------------------------→
Classic		Beginning interest in collecting classic vehicles	Somewhat sophisticated interest in classic vehicles near the end of this period	
Robotic/Smart Features	More adept at using buttons & joy sticks	Begins to master most remote devices	Masters most remote devices	
Educational				
Relevant Play/Behavior	Low to moderately complex pretend play Moderately adept at making symbolic connections Low to moderate level of social & cooperative friend or group interactions	Moderately to highly complex pretend play; longer periods of pretend play Develops richer symbolic meanings Object substitution Extensive social & cooperative friend or group interactions. Moderate problem-solving abilities	More structured, goal-oriented dramatic role-play Readily transform symbolic meanings Uses & adapts themes from experience at home, school, & various media (television, videos, movies, books, etc.) Moderate to high problem-solving abilities	--------------------------------------→ --------------------------------------→ --------------------------------------→ --------------------------------------→
Examples of Toys	Large trucks (cont'd) Vehicles with simple tracks & launchers Miniature die-cast cars Trains with multiple cars Trains with simple, easily connecting tracks Flying machines with simple wind ups (cont'd) Remote-control vehicles Fantasy vehicles with simple wind ups (cont'd)	--------------------------------------→ Vehicles with simple to moderately complex tracks --------------------------------------→ Trains with multiple cars that fasten & detach --------------------------------------→ Flying machines with large- to medium-size key, low-tension wind ups --------------------------------------→ --------------------------------------→	Cars, motorcycles, & trucks with moderately complex standard or electric tracks for racing Electric trains with multiple cars that fasten & detach Trains with small tracks that are moderately easy to connect Flying machines with small key, medium-tension wind ups --------------------------------------→ Vehicle tracks that can quickly launch cars using cranking mechanisms	Cars, motorcycles, trucks with highly complex standard or electric tracks for racing --------------------------------------→ Trains with small tracks that are somewhat difficult to connect Flying machines with small key, high-tension wind-ups or air-pressure propelled --------------------------------------→

* One of the most influential characteristics for these toys.

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TOOLS & PROPS

Tools and props for pretend and role-play start to appeal to children about 12 months old. This is about the time when they figure out that many objects can be used to imitate adults and older peers. Around 19 months, tools and props will help them to role-play domestic themes. By age 3, children are performing simple dramatic scenes and stories. Many of the simpler toys in this subcategory may also be found in the *Exploratory and Practice Play* category, where children of younger ages use such toys.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of tools and props:

- Cause & Effect
- Size of Parts
- Level of Realism/Detail
- Color/Contrast

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of tools and props are appropriate and how a particular age group plays with these toys.

12 Through 18 Months

Although young children do not make clear symbolic connections until they are closer to 18 months, children about 12 months of age will start to actively engage in imitative play with substitutes of objects they see adults and older peers using. For example, regardless of whether realistic detail is present, young children hold toy telephones to their ear because they often see their elders do so. Soon they begin to imitate a phone conversation with babbling and later with words. They enjoy using play cell phones and mobile devices that are modeled after those with traditional buttons as well as those with fake touchscreen square 'app' buttons. Children will spend a fair amount of their time pressing the buttons repeatedly to hear the electronic sounds

that come from the phone. They like the cause-and-effect stimuli from pushing buttons and making sounds (see also *Exploratory and Practice Play*).

An imitative response is also true with other tools and props like kitchen toys and dishes, tea sets, toy house cleaning tools (for example, brooms, mops, dustpans, and carpet sweepers), and lawnmower-like toys. Children using these types of tools and props will readily imitate actions that they have seen adults do (*e.g.*, sweep, stir, pour, mop). Children can also readily imitate simple actions that they have seen adults do when trying to encourage pretend play, such as waving around a magic wand. They can use sets with up to six separate parts. Rounded toys that are constructed from cleanable, thick, and sturdy material and structure—so children cannot break or pull them apart—are appropriate. They also prefer toys with rich vibrant colors. These toys are more easily usable if they fit the child's small opposable grip or full hand grip (handles about ½ inch thick) and weigh no more than 3 ounces if intended to be picked up by the child during play. Other examples of toys appropriate for 12- through 18-month-olds, in roughly the same order as they would be purchased as the child matures through this period, include rakes, shovels and trowels, and buckets.

19 Through 23 Months

Although children 19 through 23 months old still imitate a great deal, they are becoming more aware that tools and props represent other objects. Children in this age group enjoy tools and props that let them imitate elders in much more detailed ways. Compared to younger children, children in this age group are attracted to slightly more complex (less chunky and more realistic) tools and props, including telephones, cash registers, medical kits, kitchen/cooking sets, and low-power water guns, mobile communication devices, such as cellular phones and pagers, vacuums, lawnmowers, kitchen toys, or cleaning tools like brooms, mops, dustpans, and carpet sweepers. When using these housekeeping props, they are developing the cognitive skills needed to step outside the bounds of reality and pretend. Prior to this age group, children may have some difficulty using these tools as pretend play tools and may strictly engage in exploratory play with them without any symbolism. Care should be taken to ensure that these props are lightweight and in the case of lawnmowers and vacuums, easy to balance. They can use sets with up to 10 separate parts, and enjoy toys with low to moderate cause-and-effect features, such as those with

which pushing produces sounds, lights, or other actions. Appropriate tools and props have a low level of realistic detail, rich vibrant colors, thick and rounded edges, and require only a low degree of fine motor dexterity and control. Children in this age group begin to develop a greater interest in toy shovels and trowels, rakes, wheelbarrows (see also *Exploratory and Practice Play: Push & Pull Toys*), and buckets for sand and water play.

2 Years

Two-year-olds start to pretend more often because they increasingly recognize the symbolic connections between role-play and the real world. This pretend play is more frequent and occurs in more complex ways than with younger children. Children in this age group are attracted to the same tools and props as 19-23-month-olds, but they should have a level of cause and effect that responds to the child's actions in a simple way that is conducive to their limited motor and cognitive skills (*i.e.*, button pressing is appropriate at this age), be a bit more realistic (still somewhat cartoonish instead of very realistic) in detail, have rich vibrant colors, and require a moderate degree of fine motor dexterity and control. Tools and props that come in sets and tend to have no more than 10 pieces are appropriate.

As children grow closer to 3 years, they get better at substituting less realistic items for tools and props, and they can handle slightly bigger and heavier (½ pound) tools and props. Suitable toys for older children are made of thick, sturdy, cleanable, rounded material and structure so children cannot break or pull them apart.

3 Years

Three-year-olds have a moderate degree of dexterity, fine motor control, and ability to pretend. They enjoy using moderately to highly detailed, realistic looking, and slightly fragile tools. Lightweight (no more than 8 ounces) props permit easier manipulations. Children in this age group are attracted to props that exhibit a cause-and-effect stimulus to help support various simple dramatic themes. Sets generally have no more than 10 pieces. Children in this age group also begin to have more interest in realistic colors like black, white, beige, and gray.

They retain an interest in toy tools with a moderate to high level of realistic detail, including shovels, trowels, rakes, buckets for sand and water play, vacuums, lawnmowers, kitchen toys and dishes, cleaning tools (for example, brooms, mops, dustpans, and carpet sweepers), cash registers and play money, medical kits, play telephones and mobile communication devices, toy guns, holsters, helmets, low-power water guns, and small bow and arrow sets with suction-cup tipped ends. In this age group, children can also begin to use play food appropriately (*e.g.*, mimic eating and imitate chewing, but not actually trying to bite, suck, or mouth the play food—a common occurrence at younger ages). Children now also have the fine motor skills needed to put together play food with multiple pieces and parts (*e.g.*, putting together a sandwich using a kit that has a small piece of Velcro to connect the pieces together). Such toys are increasingly used in cooperative contexts, especially as they get closer to 4 years old. Children in this age group, because of their newly acquired level of speech and their desire to be more social and cooperative, are very attracted to telephones and mobile communication devices that have bright colors with moderately realistic details and somewhat complex functionality. For example, children in this age group enjoy phones with buttons that, when pressed, ask questions or make comments with basic language that they can understand.

4 Through 5 Years

Children in this age group also enjoy moderately to highly detailed, realistic tools and props to incorporate into their pretend play. Because they develop richer symbolic meanings and have moderate problem-solving abilities, 4- and 5-year-olds use tools and props to initiate and support role-play characters and to enact diverse, often extended stories. Their moderate degree of dexterity, strength, and gross motor skills allow them to begin handling lightweight (up to about 10 ounces), realistic, working hammers and similar tools for practicing construction skills.

The tools and props that interest children in this age group most are based on themes from various experiences at home, school, and through the media (television, videos, computer games, movies, and books). These include props like cash registers and play money, medical kits, kitchen/cooking sets, telephones, mobile communication devices, toy guns, holsters, helmets, low-power water guns that have a moderate degree of realistic detail, and small bow and arrow

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sets whose arrows are tipped with suction-cups. Sets of tools and props typically have no more than 10 pieces.

Tools and props designed for more complex cause and effect appear to promote more complex and longer periods of pretend play. For example, 4- and 5-year-olds seek realistic detail and prefer telephones and mobile communication devices with different buttons that produce various realistic functions. For example, the phone may beep and have a dial tone, voice response, or text messaging. Children in this age group do not prefer fantasy functions, like songs that play, as much as they did when they were younger.

6 Through 8 Years

Young school-age children produce fewer pretend episodes than pre-school children as they delve into more structured games. Their pretend play becomes more dramatic with longer, more complex structured scenes and plays. They are attracted to highly realistic, detailed tools and props to incorporate into their dramatic play. Because they can readily transform symbolic meanings and develop moderate to high problem-solving abilities as they mature through this period, 6- through 8-year-olds employ tools and props to initiate and support role-play characters to enact diverse, often extended stories. Children in this age group rely almost totally on the cause and effect that a given tool or prop produces, so the appeal of such toys is primarily based on their high degree of realistic detail and function, although the toys themselves are the same as those listed for 3-5-year-olds.

Their moderate to high degree of dexterity, strength, and gross motor skills allow them to handle lightweight (up to about 12 ounces), realistic, working hammers and similar tools for construction purposes. The tools and props that interest them most are based on themes from various experiences at home, school, and through the media (television, videos, computer games, movies, and books).

9 Through 12 Years

Older school-age children produce few pretend episodes. Their dramatic play is more complex and structured than younger children; they are elaborately staged and of lengthy duration. The tools and props that interest them to the greatest degree are based on themes from various experiences at home, school, and through the media (television, videos, computer games, movies, and books). They are attracted to highly functional, realistic, detailed tools and props to incorporate into their dramatic play.

Because they can readily transform and manipulate symbolic meanings and develop advanced problem-solving abilities as they mature through this period, 9- through 12-year-olds use tools and props to support both dramatic and constructive efforts. They rely less on the cause and effect that a given tool or prop produces, and can mime without the tool or prop present. The appeal of toys like cash registers and play money, medical kits, kitchen/cooking sets, telephones and mobile communication devices, guns, holsters, helmets, medium-power water guns, and bow and arrow sets with low tension and blunt safety tips, is based primarily on their high degree of authenticity. Children in this age group are most interested in props with realistic detail and function that closely resemble adult versions. Their relatively high degree of dexterity, strength, and gross motor skills allow them to handle authentic looking, working hammers and similar tools (weighing up to 1 pound) for constructing a wide variety of projects.

PRETEND & ROLE PLAY: **TOOLS & PROPS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	Size fits pincer or full-hand grip (handles 0.5 inch thick) Weighs no more than 3 oz. if designed to be picked up & used	--→ Weighs no more than 4 oz. if designed to be picked up & used	--→ Weighs no more than 4-6 oz. if designed to be picked up & used
Shape Parts	Sturdy (toy will not break or pull apart) Thick, round edges (no sharp edges)	--→ --→	--→ --→
Number of Parts	1-6	2-10	--→
Interlocking/Loose Parts	Loose	--→	Tools that easily fit into "work" holster
Materials	Easily cleaned Mostly plastic	--→ --→	--→ --→
Motor Skills Required	Low degree of fine motor dexterity & control	--→	Low to moderate dexterity & fine motor control
Color/Contrast*	Rich, vibrant colors	--→	--→
Cause & Effect*	Pays close attention to simple cause-and-effect functionality (pushing produces sound, lights or action), or turning & pounding produce a given result	Low to moderate level of cause-and-effect functionality (pushing produces sound, lights or action)	--→
Sensory Elements			

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Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Level of Realism/Detail*	Low level of realistic detail	--→	Low to moderate level of realistic detail
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Imitative Very simple pretend & symbolic thinking Babbles, some words Exploring Mouthing objects	--→ Simple pretend & symbolic connections Sand & water play --→ Mouthing objects less	--→ More, increasingly complex symbolic transformations --→ Values independent functioning Some mouthing

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Examples of Toys	Rakes, shovels, buckets & trowels Small lawnmower-like toys House cleaning tools Kitchen/cooking & tea sets Cell phones and mobile devices modeled after those with traditional buttons as well as those with fake touchscreen 'app' buttons. Magic wands	---→ Vacuums & lawnmowers ---→ ---→ Telephones & mobile communication devices (cell phones, pagers) Cash registers & money Medical kits Construction tools Wheelbarrows	---→ ---→ ---→ ---→ ---→ ---→ ---→ ---→ ---→

* One of the most influential characteristics for these toys.

PRETEND & ROLE PLAY: **TOOLS & PROPS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Toy & Parts*	Size fits pincer or full-hand grip (handles 0.5 inch thick) (cont'd) Weighs no more than 6-8 ounces if designed to be picked up & used	Size fits pincer or full-hand grip (handles 0.75 inch thick) Weighs no more than 10 ounces if designed to be picked up & used	--→ --→	Size fits pincer or full-hand grip (handles 0.75 to 1.25 inches thick) Weighs no more than 1 lb if designed to be picked up & used
Shape of Parts	Will not easily break or pull apart into small pieces Somewhat thick, round edges (no sharp edges)	--→ --→		
Number of Parts	2-10 (cont'd)	--→		
Interlocking/Loose Parts	Tools that easily fit into "work" holster (cont'd)	--→		
Materials	Easily cleaned (cont'd) Mostly plastic (cont'd)	--→ --→	 Plastic, wooden, or metal	 --→
Motor Skills Required	Moderate degree of fine motor dexterity & control	Moderate degree of dexterity, strength, & gross motor skills	Moderate to high degree of dexterity, strength, & gross motor skills	High degree of dexterity, strength, & gross motor skills
Color/Contrast*	Rich, vibrant colors (cont'd) Realistic (*e.g.*, black, white, beige, gray)	 --→	 --→	 --→
Cause & Effect*	Moderate level of complexity in cause-and-effect functionality (pushing produces sound, lights, &/or action)	Moderate to high level of complexity in cause-and-effect functionality	High level of complexity in cause-and-effect functionality (pushing, etc. produces conversation, lights, &/or action)	High level of complexity in cause-and-effect functionality

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Sensory Elements				
Level of Realism/Detail*	Moderate level of realistic detail	Moderate to highly realistic detail & function	Highly realistic detail & function	Highly realistic details & function resembling authentic adult-versions
Licensed theme		Use themes from experience at home, school, & various media (television, videos, computer games, movies, & books)	--→	--→
Classic				
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Greater ability to pretend More, increasingly complex symbolic transformations Low to moderate problem-solving abilities Some partner or group interactions	Develop richer symbolic meanings --→ Moderate problem-solving abilities Extensive partner or group interactions	--→ --→ Moderate to high problem-solving abilities --→	--→ --→ --→ --→

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Examples of Toys	Rakes, shovels, buckets, & trowels	---------------------------------------→		
	Vacuums & lawnmowers (cont'd)	---------------------------------------→		
	House cleaning tools (cont'd)	---------------------------------------→		
	Kitchen cooking props (cont'd)	---------------------------------------→		
	Telephones, cell phones, pagers (cont'd)	---------------------------------------→	---------------------------------------→	---------------------------------------→
	Cash registers & money (cont'd)	---------------------------------------→	---------------------------------------→	---------------------------------------→
	Medical kits (cont'd)	---------------------------------------→	---------------------------------------→	---------------------------------------→
	Construction tools (cont'd)	---------------------------------------→	---------------------------------------→	---------------------------------------→
	Toy guns, holsters, helmets, & bow & arrow sets with suction cups	---------------------------------------→	---------------------------------------→	---------------------------------------→
	Play food	---------------------------------------→		---------------------------------------→
		Light hammers	---------------------------------------→	Authentic, adult-like tools & props

* One of the most influential characteristics for these toy

GAME & ACTIVITY PLAY

Children begin to enjoy certain types of puzzles around the age of 1 and games around the age of 2 when they start interacting with toys in more symbolic, logical ways. Game play takes off in the elementary years when games-with-rules dominate children's play. Many games have educational elements or cultural traditions, and these make them appealing to parents and children.

Puzzles (p. 141)

- Cardboard puzzles
- Inset or fit-in puzzles
- Jigsaw puzzles
- Magnetic puzzles
- Nesting cups
- Shape sorters
- Three-dimensional puzzles
- Wooden puzzles

Card, Floor, Board, & Table Games (p. 149)

- Activity games
- Backgammon
- Bingo games
- Card games
- Checkers
- Chess
- Chinese checkers
- Cooperative games
- Dice games
- Dominoes
- Fantasy adventure games
- Lotto games
- Matching games
- Mazes
- Pattern memory games
- Pick-up-sticks
- Table games
- Trivia games
- Word games

PUZZLES

Children enjoy puzzles of various types and styles. Puzzle play can be a solitary or group activity. Puzzles are often seen as a solitary activity for young children, however children are also keen observers and interested in watching others finish puzzles. In general, puzzles are appropriate for children starting at 12 months of age. Children younger than this can only use pre-puzzles, which are intended for exploratory or practice play rather than fitting pieces together. Therefore, these are considered under *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives*.

Puzzles require three major skills: fine motor skill to pick up and place the pieces, visual discrimination to identify if the pieces fit, and some cognitive skill to organize and plan the placing of pieces. As children develop, their fine motor skills increase, visual discrimination improves, and cognitive abilities for trying different puzzle strategies improve. Children who have more experience with puzzles can try more complex puzzles at an earlier age than can children who have little experience. Puzzles are important for the problem solving process because children learn new strategies for completing puzzles as they try new puzzles. Research indicates that working with puzzles and other closed-ended materials encourages persistence in children because they are expecting a solution for fitting the pieces together.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of puzzles:
- Number of Parts
- Licensed theme
- Motor Skills Required
- Size of Parts
- Interlocking/Loose Parts

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of puzzles are appropriate and how a particular age group plays with these toys.

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12 Through 18 Months

Children in this age group have very little interest in true puzzle-type activities. They can rarely focus on the visual discrimination cues required to finish a puzzle. Shape sorters, figurine puzzles with distinctly shaped wells that fit the figurines, and other similar activities can be given to this age group, but children in this age group are still primarily focusing on sensory-motor experiences so they approach puzzles by grasping them, mouthing them, banging them, and throwing the pieces. At this age, figurine puzzles with pieces that make noise or light up are appealing, and the pieces should be chunky and easy to grip to accommodate rudimentary fine motor skills.

19 Through 23 Months

Nineteen-month-old children are interested in putting together objects that fit. Children at this age work these activities through trial and error rather than using systematic strategies for completing puzzles. However, as they approach 2 years of age, they can deliberately match angles and fit a square piece into a square hole, as well as nesting cups. Cognitively, the early math skill of ordering by size is developing at this age and children are able to sort and order nesting cups in a meaningful way. This is different than previous age groups, who may have used the cups out of order to build or stack. Toys for this age include shape sorters, nesting toys, and form toys. These puzzles are designed to be mouthed, have smooth surfaces, and are washable. Children 19 through 23 months old do not have the visual discrimination or interest required to try inset or other fit-in type puzzles.

2 Years

Two-year-olds have developed the fine motor skills and visual discrimination that are required to do inset puzzles. The simplest puzzles have pieces that give obvious visual and physical cues that a piece is in place (some puzzles may repeat the name of the object put in the well if it has electronic features), and that have only one clear solution. Inset puzzles based on familiar pictures and characters, as well as abstract shapes, should also be very simple. At younger ages, children's cognitive skills will lead them to struggle with aligning the puzzle pieces correctly

into the wells. Children's abilities to sort and recognize colors means that they can now complete more complex peg-style shape sorters based on colors. Children in younger age groups may haphazardly put the pieces on the pegs without respect to sorting or color. They continue to approach puzzles through trial and error rather than systematic strategies. Because of this, puzzle pieces need to be close-ended so that the pieces fit in only one orientation. For example, frames that have individual places for each piece can be used. Knobs on the puzzles allow the child to rotate the puzzle piece in place without having to move their fingers. Appropriate inset puzzles have individual pieces with distinctive shapes to emphasize visual cues. Puzzle pieces with smooth edges that are made from wood or another lightweight material like plastic are suitable.

3 Years

Three-year-olds have developed greater fine motor skill and visual discrimination. Although they have greater physical dexterity, they still require knobs on the puzzle pieces and an inset form or frame for placing them. If there are no knobs, a magnetic connection between the puzzle piece and a magnetic wand to pick up the piece (*e.g*., a 'fishing' or 'bug catching' puzzle) will suffice. At age three, children's fine motor skills are developed enough to align the magnetic wand with the metal in the puzzle piece to grab and maneuver the puzzle piece to where it belongs. Younger age groups may have trouble aligning the two magnets together with enough precision to complete the puzzle. Three-year-olds are interested in licensed characters based on popular age-appropriate cartoons or television characters, so pictures of common objects and licensed characters are appropriate for this age. Parents prefer characters that are non-violent or non-threatening (also known as "safe harbor characters"), and these may come from popular cartoons or children's books. Because of their greater cognitive ability, 3-year-olds can work puzzles with 5 to 8 pieces. Cardboard puzzles may be introduced to children in this age group because they are less likely to mouth the pieces and thus ruin the fit.

4 Through 5 Years

Four-year-olds have sufficient fine motor skill to work puzzles without knobs. Four- to five-year-old children are also developing more systematic strategies for approaching puzzles, although they often still rely on trial and error. Their increased cognitive ability allows them to do puzzles

with 12 to 15 pieces. Five-year-olds can work puzzles with 18 to 35 pieces. Although children in this age group may prefer insets, some 4- and 5-year-olds are beginning to work non-inset jigsaw type puzzles with large wooden or cardboard pieces. Parents still prefer safe harbor licensed characters that are non-violent or non-threatening for this age group. However, children are becoming more interested in action or fashion oriented characters.

6 Through 8 Years

Six-year-olds have developed the cognitive ability to work jigsaw type puzzles. They can identify pieces based on where they go in the puzzle, can sort pieces, and have more systematic methods of testing pieces for the puzzle. They generally are not interested in inset puzzles. They will continue to do frame-type puzzles if they are complex enough and have enough pieces. They can do puzzles with up to 100 pieces. Six- through eight-year-olds may require puzzle pieces to be at least an inch across until they have developed the fine motor skills to handle smaller pieces. Simple three-dimensional puzzles begin to interest children more as they approach 8 and 9 years of age.

9 Through 12 Years

Nine- through twelve-year-old children are interested in highly complex puzzles. They can follow directions for puzzles with three dimensions, and they now have the fine motor skills required to handle small, abstract, or interlocking pieces. Nine-year-olds can complete jigsaw puzzles with 100 to 500 pieces, and 10- through 12-year-olds enjoy the challenge of puzzles with 500 to 2000 pieces.

GAME & ACTIVITY PLAY: **PUZZLES**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*		Inset puzzles with large pieces	--→
Shape of Parts		Smooth edges	Smooth edges
Number of Parts*		No more than 3-5 pieces	No more than 5-12 pieces
Interlocking/Loose Parts*		Pieces fit together without interlocking	--→
Materials		Plastic, solid wood	--→
Motor Skills Required*	Use shape sorters in exploratory ways	Pieces fit together easily & only in one way	Child can put together simple inset puzzles, knobs make puzzles easier to complete
Color/Contrast		Bright colors	--→
Cause & Effect			
Sensory Elements		Interesting textures increases appeal	--→

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Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Level of Realism/Detail		Abstract shapes more than realistic detail	Interested in realistic-looking objects
Licensed theme*			Some interest in licensed television characters
Classic			
Robotic/Smart Features			
Educational			Parents often buy puzzles for their educational value
Relevant Play/Behavior		Will put together simple pieces that fit together	Beginning interest in simple puzzles Ability to do puzzles increases depending on experience with puzzles
Examples of Toys	Chunky figurine puzzles with distinctly shaped wells that fit the figurines	Shape sorters Nesting toys Form boards	--→ --→ --→ Inset puzzles with knobs & large pieces Puzzles that repeat the name of the object put in the well if it has electronic features Peg-style shape sorters based on colors

* One of the most influential characteristics for these toys.

GAME & ACTIVITY PLAY: **PUZZLES**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Able to use smaller parts; still need parts to be about 2" in size to facilitate placement	--→	Able to do puzzles with smaller pieces (<2")	Able to do puzzles with pieces less than an inch across
Shape of Parts	Smooth edges (cont'd)	--→		
Number of Parts*	8-12 pieces	Age 4: 12-18 pieces Age 5: Up to 35 pieces	Up to 100 pieces	Age 9: 100-500 pieces Age 10: 500+ pieces
Interlocking/Loose Parts*	Inset puzzles without interlocking pieces	Basic Jigsaw type puzzles	Interlocking jigsaw pieces & 3-dimensional puzzles	--→
Materials	Cardboard	--→	Paper	--→
Motor Skills Required*	Increasing level of visual discrimination & fine motor skills	--→	--→	--→
Color/Contrast	Bright colors & pastels	--→	Any color	--→
Cause & Effect				
Sensory Elements				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Level of Realism/Detail	Increasing interest in realistic details	------------------------------------→	Like puzzles with photographs or other scenes	------------------------------------→
Licensed theme*	Like puzzles with popular gentle cartoon characters	Like puzzles with popular cartoon characters	Like puzzles with popular cartoon characters, sports stars, & television stars	------------------------------------→
Classic				
Robotic/Smart Features				
Educational	Parents buy puzzles for educational purposes	------------------------------------→	------------------------------------→	------------------------------------→
Relevant Play/Behavior	Trial & error placement of pieces. Pieces need to fit together clearly Puzzles that do not go together easily cause frustration	More systematic placement of pieces, beginning to plan puzzle strategies Have attention necessary to complete puzzle in a few minutes	Able to plan puzzle completion & able to put a puzzle together systematically Can pay attention to a puzzle for an hour or return to a puzzle for a second sitting	Able to put together a puzzle systematically Able to do puzzles that require several days to complete
Examples of Toys	Inset puzzles with knobs Wooden puzzles Magnetic puzzles with connection between a wand and a puzzle piece (*e.g.*, a 'fishing' or 'bug catching' puzzle)	Inset puzzles Floor puzzles Simple jigsaw puzzles	Paper & cardboard puzzles 100-piece puzzles Simple 3-dimensional puzzles	3-dimensional puzzles Age 9: Jigsaw puzzles with 100-500 pieces Age 10-12: Puzzles with 500 or more pieces Abstract puzzles Puzzles with instructions

* One of the most influential characteristics for these toys

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CARD, FLOOR, BOARD, & TABLE GAMES

Board and card games have an ancient history with deep traditional roots. Because games are social in nature, they are very appealing to children. Games also appeal to children because they have a cognitive element, and give children an opportunity to interact with and learn from adults. Infants and toddlers, however, have not developed the cognitive and motor skills required to take part in structured games. Although they enjoy participating in social situations, 2-year-olds cannot focus on game rules.

The games covered under this category include card games, lotto and bingo games, dominoes, dice games, floor games, table games, and similar games. Games come in great varieties and have a number of different permutations. By definition games have a number of rules that regulate how the players are expected to participate. Games may have different methods of taking turns, and are based on randomness, strategy, or a combination of the two. Parents like games because they can directly or indirectly teach cognitive and academic skills. Parents also like traditional or classic board games because they enjoyed them as children.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of card, floor, board, and table games:

- Motor Skills Required
- Content Complexity
- Length of Time Required to Play
- Educational
- Classic

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of card, floor, board, and table games are appropriate and how a particular age group plays with these games.

2 Years

Two-year-olds have developed rudimentary problem-solving skills, such as simple matching or differentiation, but they do not have the cognitive skills or attention span required to participate in true game play that involves rules or requires turn taking. Instead, children in this age group will often use games of this sort as learning or educational toys (see *Technology Play: Learning Toys* and *Smart Toys & Educational Software*). Simple matching or lotto-type games, in which the matching is based on pictures, shapes, or colors rather than more abstract letters or numbers, may be enjoyed by children in the latter half of this age group. Dominoes—especially giant ones—also may be enjoyed by children in this age group. They can manage fishing-type games as long as the connections use magnets rather than hooks, and can use simple action games that involve pressing a lever or flipping a marker into a hole. Play with these games may involve one other child or adult, but children of this age will often choose to play with the game alone in exploratory ways.

3 Years

Games for 3-year-olds must be very simple, with no more than five or six pieces involved, and involve few rules. Three-year-olds can take turns and understand simple rules. They can follow a plan of action by moving a piece from start to finish. Although 3-year-olds can concentrate on a game, games for 3-year-olds should move quickly and not require too much time between turns. In general, 3-year-olds cannot count to more than 10. They can recognize simple ABCs and 123s in games, but cannot use reading for any part of the game. For this age group, using cards or spinners is preferred to using dice as a method of moving, though a single die may be used.

Since 3-year-olds have little or no understanding of game strategies, suitable games are based on chance. Most appropriate for 3-year-olds are activity games that do not have a final winner or loser and are not goal directed. Children in this age group are unable to consider both an opponent's pieces and their own, so games should not require "blocking" an opponent. Games for 3-year-olds best incorporate some sort of physical participation rather than cognitive strategies. Games for this age group include simple lotto games, matching games, dominoes, and simple board games using cards or spinners to indicate movement. Children also enjoy active

movement games and cooperative games. Appropriate card games require only simple matching and do not require children to hold cards in their hands.

4 Through 5 Years

Children 4 through 5 years old have a greater interest in games, but they still lack the ability to understand complex rules and strategies. Although most 4- and 5-year-olds are developing their reading abilities, they generally cannot use written directions. Words and numbers can be used as part of the game if they are not needed for complex actions. Children of this age group are interested in number and letter recognition games, and activity games with a physical component are still very popular. Four- and five-year-olds do not have the fine motor skill to hold more than a few cards at a time. Children in this age group are developing the fine motor skills to make pick-up-sticks, games that require balancing pieces on one another, and similar games appealing. They may enjoy handheld games filled with water with a large button with the goal of launching small balls into baskets. Younger children may flip the handheld game over to move the balls around instead of using the strategy of button pressing. Cognitively, they can remember a few rules and one or two strategies. They are egocentric, so they are not very good at anticipating another player's actions, and like games based on random factors. Therefore, as with 3-year-olds, games should not require "blocking" an opponent. Children of this age group like dominoes, card matching and lotto type games. Parents often buy traditional or nostalgic games, such as Old Maid and similar games that have been around since their own childhood, for this age group. Parents are also very attracted to games that offer some sort of educational benefit, like letter and number recognition.

6 Through 8 Years

Children 6 through 8 years of age are very interested in all types of games. They enjoy playing traditional card games, board, and floor and table games. They have the cognitive ability to understand game technique and strategy, especially as they approach the latter end of this age range. They have a great desire to play games because games are social. Some children are very competitive and enjoy competing with others. They can anticipate moves and focus on more than one rule at the same time. They can remember a number of moves and can use reading as part of

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the activity. They enjoy matching and memory games that require them to follow a set of actions in a pattern. For example, children in this age group now have the memory skills to flip over an object with a shape on it, turn it back over, and be able to relocate the shape later, where in previous age groups, children may focus on playing with the object itself instead of noticing the shape. In addition, light and sound pattern pads are usable by children at this age, because they have the cognitive skills to follow a pattern for multiple steps in sequence. When given a light and sound pattern pad, children at younger ages do not have the inhibition to wait for the prompts and keep pressing the buttons without regard to the pattern. They can use traditional cards and dominos, and they can use reading and language as part of the game; however, they do not have the ability to read and interpret the directions to the game without help. Children at this age can make fine motor movements needed to navigate labyrinth or maze games that require maneuvering a marble along a pathway, as well as cognitively strategize how to get the ball through the maze most efficiently. At younger ages, children lacking these motor and cognitive skills may be more likely to use a 3D maze ball as a ball instead of a maze by throwing or kicking it around.

Parents often buy nostalgic or traditional games—that is, games that have been around since their childhood—for this age group. Children enjoy games based on popular licensed television characters or cartoons. They are beginning to have an interest in simple fantasy adventure-type games that do not require extensive memory of detail. They also have the gross motor skills required to participate in balancing and body movement activity games.

9 Through 12 Years

Nine- through twelve-year-olds are very interested in all types of games, especially those that can be played with peers. They can use abstract concepts and content area knowledge in playing games. Complex games of strategy are popular with this age group, and they have an extended attention span, so they can play games that do not end in a single sitting. They have developed sufficient fine motor coordination for games that require the careful shooting or aiming of markers. They are interested in educational topics and games like trivia games. Children 9 through 12 years old are very interested in collecting, especially cards based on popular cartoons or other licensed characters, music and fashion figures from popular culture. Games that

combine this age group's interest in collecting and gaming are very popular. Children in this age group also become interested in themes, so fantasy and adventure games are appealing. They are also beginning to show more interest in adult topics like war, fashion, popular music, and movies.

GAME & ACTIVITY PLAY: **CARD, FLOOR, BOARD, & TABLE GAMES**

Toy Characteristics	2 Years	3 Years
Size of Parts	Parts are large enough to handle easily	Parts are large enough to handle easily
Shape of Parts		
Number of Parts		t
Interlocking/Loose Parts		
Materials		Sturdy pieces
Motor Skills Required*	Can manage magnetic fishing-rod games Can press a lever and flip a marker into a hole	Difficulty holding cards
Color/Contrast	Bright, primary colors	
Cause & Effect		
Sensory Elements		Games can have sound elements, like music or beeping
Level of Realism/Detail		
Licensed theme		Enjoy popular cartoon characters
Classic		Parents like to buy classic or nostalgic games

Toy Characteristics	2 Years	3 Years
Robotic/Smart Features		
Educational*	Parents like games that teach simple concepts, such as colors, shapes, & pictures	Parents like educational games like letter & number-recognition games
Relevant Play/Behavior*	Will play alone in exploratory ways, or can play with one other person Can match simple colors, shapes, & pictures Vocabulary allows for naming pictures Lacks the cognitive skills & attention span necessary to participate in true game play with rules or turn-taking	Little understanding of games & strategies Unaware of other players Can only use simple ABCs & numbers in games
Examples of Toys	Simple matching or lotto-type games Giant picture dominoes Simple action games Magnetic fishing games	Matching games Matching dominoes with pictures rather than dots Games based completely on chance Activity games that include physical movement, dance, or drawing Simple board games that use spinners or cards

* One of the most influential characteristics for these toys.

GAME & ACTIVITY PLAY: **CARD, FLOOR, BOARD, & TABLE GAMES**

Toy Characteristics	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts			
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials			
Motor Skills Required*	Can hold 4 cards or less Can move small pieces	Can hold a hand of cards	----------------------------------→ Good eye-hand coordination Speedy responses
Color/Contrast			
Cause & Effect			
Sensory Elements	----------------------------------→	----------------------------------→	Popular music
Level of Realism/Detail			
Licensed theme	Interested in popular cartoon & action characters	Interested in action characters & sports figures	----------------------------------→
Classic*	----------------------------------→	----------------------------------→	----------------------------------→
Robotic/Smart Features			
Educational*	Parents like educational games like reading & mathematics games	Interested in learning games like science & nature games Interested in collecting games	Interested in adult topics, trivia & historical games ----------------------------------→

Toy Characteristics	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Relevant Play/Behavior*	Some interest in games Unaware of other players, cannot block other players Short attention span, can play no more than about 30 minutes Can use words on games but cannot read directions Can manage games involving balancing objects	Very interested in games Can use simple strategies, aware of other player moves because better at perspective taking Games usually last an hour or less Have difficulty reading directions but can follow complex rules Enjoy social nature of games	Interested in adult topics like war, dating & fashion Can use complex strategies Can use academic content area knowledge in games Interested in collecting Can play games over several days Can read & interpret directions Enjoy social nature of games
Examples of Toys	Memory or matching games Number & letter recognition games --------------------------------------→ Activity games like dancing or drawing Pick-up-sticks --------------------------------------→ Dominoes with dots Simple card games like Old Maid Handheld games filled with water with a large button with the goal of launching small balls into baskets	Traditional card games Card games that involve counting & sorting cards Chess, Checkers, Backgammon, Chinese checkers Strategy games Activity games Simple word games Dice games Collector card games Fantasy adventure games Memory games that require adherence to actions and patterns Labyrinth games and 3 D mazes	Interactive games Simulation games Sports games Abstract & academic content area games --------------------------------------→ Trivia games --------------------------------------→ --------------------------------------→ --------------------------------------→

* One of the most influential characteristics for these toys.

SPORTS, RECREATIONAL, & OUTDOOR PLAY

Children enjoy sports and recreational play because it is social in nature and often pursued outdoors. Children around the age of 12 months begin to enjoy recreational play, such as on ride-on toys. As children enter the preschool and elementary years, they become more interested in organized activities like sports. Parents frequently encourage sports and recreational play and enjoy participating with children in these activities.

Ride-On Toys ()

- Bicycles
- Motorized vehicles
- Rocking horses
- Scooters
- Skateboards
- Tricycles

Recreational Equipment ()

- Aerobic dance materials
- Air guns
- Ball guns
- Ball pits
- BB guns
- Beach balls
- Climbers
- Cork guns
- Creative movement equipment (bean bags, hoops, umbrellas, ribbons)
- Dart guns
- Diving toys
- Floor launchers
- Flying disks
- Goggles & flippers
- Gymnastics equipment
- Helicopter type projectiles
- Hiking equipment
- Horseshoes
- Ice skates
- Inflated bouncers
- Inline skates
- Jump ropes
- Marbles
- Mechanical swings
- Overhead equipment
- Parachutes
- Photography equipment
- Playground equipment
- Pools
- Projectiles from action figures
- Propelled rockets
- Rafts and boats
- Roller skates
- Scarves
- See-saws (teeter-totters)
- Skis
- Sleds
- Slides
- Slingshots
- Snorkels
- Sprinklers
- Swings
- Table hockey
- Table tennis equipment
- Toboggans
- Trampolines
- Tunnels
- Weightlifting equipment
- Yoyos

Sports Equipment ()

- Bats, clubs, and mitts
- Bowling games
- Croquet sets
- Nets and goals
- Racquets
- Replica sports equipment
- Sports balls

RIDE-ON TOYS

Ride-on toys are those that allow a child to propel him or herself, either under his or her own power or through the use of an electric or gasoline motor. Ride-on toys are very popular with children, who enjoy both the sense of movement that they get from wheeled toys and the pretend element that wheeled toys give them as they imitate the important adults in their lives. Ride-on toys are important for developing a sense of balance, physical fitness, and coordination. The ride-on toys covered under this category include sit-on riders, motorized vehicles, bicycles, skateboards, scooters and tricycles, and rocker toys.

Several physical factors affect the age level for using ride-on toys. The first factor is balance. Depending on the vehicle, more or less balance is required to use the vehicle. In general, wide-spaced wheels and more wheels make the vehicle easier to balance. The second factor is the rotational speed of the wheels. Wheels that turn very easily can move faster and speed of movement increases the difficulty level. The final factor is the method of propulsion. A wheeled vehicle that relies on children pushing with their feet will move slowest, while wheeled vehicles propelled by pedaling or that use gears can be used at greater speeds. Motorized vehicles can be set at different speeds, with increased speed requiring greater physical skill. Children under the age of 1 year cannot use ride-on toys because they require a sense of balance to operate. The balance that is required to use a ride-on toy usually develops when a child begins to walk with some steadiness. In general, ride-on toys are not recommended for use without proper protective gear, especially helmets.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of ride-on toys:

- Size of Parts (or of toy itself)
- Motor Skills Required
- Licensed theme
- Level of Realism/Detail

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description

of what types of ride-on toys are appropriate and how a particular age group plays with these toys.

12 Through 18 Months

Children become capable of using ride-on toys that are straddled and propelled by their feet only after they learn to walk with some steadiness. Children in this age group, especially the youngest in this age group, may not be able to alternate their feet when pushing ride-on toys. They cannot yet pedal, and will propel the ride-on by pushing with both feet simultaneously instead. For safety reasons ride-on toys must be stable, and vehicles with four or more wheels tend to be more stable than three- or two-wheeled vehicles. Appropriate ride-on toys have wheels that are spaced relatively wide apart to be stable, but not so wide apart that it is difficult for children to swing their legs over the seat. The toy should be low for easy mounting and dismounting, and the children's feet should be flat on the floor when they are seated.

For maneuverability, recessed wheels make it easier for the child to push her or himself along without banging the feet or legs into the wheels. Castors or wheels are appropriate. For the youngest children in this age group, castors may be preferable because they allow the toy to move in any direction without tipping. The first ride-on toys do not need to have steering mechanisms because young children may not be able to use them effectively. Simple rocking horses may be introduced. Suitable ones are small and easily mounted and dismounted to reduce risk of falling. Children's feet should touch the floor or the base of the horse when they are seated, and the horse should have a confined rocking arc.

19 Through 23 Months

Children 19 through 23 months old can operate ride-on toys in which they sit inside and propel the toy by pushing with their feet. However, these are more difficult to use than the straddle ride-on toys because they are harder to steer and maneuver. Features that make ride-on toys more attractive to children include bright colors, special sound effects like beeping horns or those produced by vehicle movement, and covered compartments or storage bins. Children at this age are interested in cause-and-effect actions that produce sounds or reveal hidden items. Children in

this age group are also interested in carrying and collecting items that they can put in storage bins or compartments. Wagons are appropriate. Suitable rocking horses are small and easily mounted to reduce risk of falling. Children's feet should touch the floor or the base of the horse when they are seated, and the horse should have a confined rocking arc. Features that make rocking horses popular include their realistic or nostalgic (like those popular for previous generations of children) appearance, and their ability to make sounds. With adult supervision, some children may be capable of making a slow-moving motorized vehicle stop and go, but children in this age group are unlikely to have the steering skills needed to avoid obstacles and hazards.

2 Years

Children 2 years old enjoy the same characteristics and features of ride-on toys as younger children. Pretend play begins to appear around this age so vehicles that are realistic, like pretend fire engines, are popular. Parents are also interested in encouraging pretend play and are very likely to buy realistic-looking vehicles for this age group. Children of this age group have increased coordination and balance, so they can maneuver a ride-on that requires them to bounce up and down in the seat. Slow-moving three-wheeled scooters with wide standing platforms also become attractive to children in this age group. They are learning to pedal and some children may start using tricycles with pedals—especially during the latter half of this age period. However, they have not mastered this skill yet. Battery-operated vehicles appeal to both parents and children for this age group. Although children in this age group are physically capable of steering vehicles of this type, most 2-year-olds lack the steering skills needed to control slow-moving motorized vehicles and to avoid hazards.

3 Years

Children at age 3 have developed the ability to pedal, and have the coordination required to use a steering wheel or handlebar. They can use three-wheeled scooters, but they have not developed the balance required to operate two-wheeled scooters and bicycles. Children in this age group enjoy tricycles and four-wheeled vehicles propelled by pedaling. Tricycles should be sized to the child, and 12- or 13-inch wheels are about the right size for children in this age group. They can

use a small bicycle with training wheels, but foot brakes are preferred because children in this age group cannot yet use hand brakes. Children at age 3 can steer a slow-moving battery-operated vehicle.

4 Through 5 Years

Children 4 and 5 years old are interested in vehicles used by older peers. They have little interest in the types of ride-on toys that are commonly used by younger children, and prefer the bicycles and scooters used by older peers. They begin to show an interest in skateboards. They can use battery-operated vehicles, and depending on experience, most children by the age of 5 have the balance and coordination to use two-wheeled scooters and bicycles without training wheels. However, children in this age group do not understand the risks of riding in areas with cars, and are at a very high risk of falling and injuring themselves. Therefore, adult supervision is a must and protective equipment like helmets, knee, and elbow pads should be used for these activities.

6 Through 8 Years

Most children have the physical ability to ride a bicycle without training wheels by the age of 6. They also have developed some understanding of the consequences of riding in areas shared by cars and pedestrians. Six-year-olds have developed the coordination to use hand brakes, and appropriately sized bicycles allow them to stand and straddle the bicycle with both feet on the ground. Children of this age group are very interested in popular wheeled vehicles like scooters and skateboards, and can operate slow-moving motorized vehicles, particularly those with four wheels.

9 Through 12 Years

Children 9 through 12 years old are very capable bicycle and scooter riders, and they can use bicycles with hand gears for different speeds. Bicycles and skateboards that are from licensed brand names or used by popular extreme sports riders are popular with this age group. They are usually fairly aware of traffic laws, but they are very likely to engage in high-risk behaviors like riding in traffic and stunt riding. Generally, 9- through 12-year-old children can operate a motorized wheeled vehicle that does not exceed 10 miles per hour and has gear shifting. Faster-

moving motorized bicycles and scooters are generally not appropriate even for 12-year-olds because of difficulty associated with both balancing and steering the vehicle while moving.

SPORTS, RECREATIONAL, & OUTDOOR PLAY: **RIDE-ON TOYS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	Not too large for child's size Of a size that is easy to mount Narrow enough to not hinder leg movement & wide enough for comfortable seating. Child can touch ground with both feet when seated	--→ --→ --→ --→	--→ --→ --→ --→
Shape of Parts	Smooth edges	--→	--→
Number of Parts			
Interlocking/Loose Parts			
Materials	Plastic, solid wood	--→	--→
Motor Skills Required*	Uses both feet together Unable to steer	Begins to alternate feet Unable to steer effectively Can pull a wagon	Can bounce up & down on seat Able to steer Learning to pedal
Color/Contrast	Bright colors	--→	--→
Cause & Effect	Like vehicles that make sounds when moved or when pushed Like containers with doors for holding objects	--→ --→	--→ --→

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Sensory Elements	Like vehicles with beeping horns or that make clicking noises	--→	--→
Level of Realism/Detail*	Not interested in realistic vehicles	--→	Beginning interest in realistic vehicles
Licensed theme*	Not interested in licensed characters	--→	--→
Classic			Parents like classic vehicles
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Enjoy ride-on toys Like vehicles with doors, compartments for carrying toys	--→ --→	Beginning dramatic play Interested in animals
Examples of Toys	Non-pedal ride on toys Simple, low rocking horses	--→ Rocking horses Wagons	--→ --→ --→ Slow-moving 3-wheeled scooters with large standing platforms Appropriately sized tricycles with pedals

* One of the most influential characteristics for these toys

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SPORTS, RECREATIONAL, & OUTDOOR PLAY: **RIDE-ON TOYS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Tricycle is sized to child 12" to 13" wheels about right size for this age group	--------------------------------------→	Child can touch ground with both feet	Adult-size bicycles
Shape of Parts				
Number of Parts				
Interlocking/Loose Parts				
Materials				
Motor Skills Required*	Able to pedal	Able to use foot brakes Able to stand on & use scooters & skateboards by 5	Able to use hand brakes Able to stand on & use scooters & skateboards	Able to shift gears & use hand brakes Able to use stunt type skateboards, scooters, & bicycles
Color/Contrast				
Cause & Effect	Less interest in vehicles with compartments			
Sensory Elements				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Level of Realism/Detail*	Like realistic-looking vehicles like fire engines, tractors, & motorcycles	------------------------------→	Less interested in realistic-looking vehicles	
Licensed theme*	Like wheeled toys with popular cartoon characters	Like wheeled toys with popular cartoons & action figures	Like wheeled toys with popular action figures	Like bicycles & skateboards that have licenses from popular athletes, companies
Classic	Parents like classic vehicles and wagons	------------------------------→	Less interest in classic vehicles	
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Able to pedal Able to steer slow moving battery-operated vehicles	Able to balance on bicycle with training wheels Can use skateboards & 2-wheeled scooters by 5, but may not use this type of vehicle safely Able to operate a motorized vehicle	Usually able to balance on 2 wheels Generally have the balance required to operate skateboards & scooters ------------------------------→	Enjoy bicycling for fitness Interested in stunt riding of skateboards, bicycles, & scooters ------------------------------→ Motorized scooters & bicycles require cognitive skills & motor skills that usually develop after age 12
Examples of Toys	Wagons Tricycles (including low-slung versions) Slow moving battery-operated vehicles Rocking horses Slow-moving 3-wheeled scooters	------------------------------→ ------------------------------→ 3-wheeled scooters 2-wheeled scooters by age 5 Skateboards by age 5 Bicycles with training wheels	Bicycles with hand brakes ------------------------------→ ------------------------------→ Motorized 4-wheel vehicles	Bicycles with gears Stunt bicycles Go carts ------------------------------→ ------------------------------→ Motorized bicycles and scooters at age 12+ Motorized vehicles with gears at age 12+

* One of the most influential characteristics for these toys

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RECREATIONAL EQUIPMENT

Recreational equipment differs from sports equipment in that recreational equipment generally is not associated with competitive activities. Rather, recreational equipment is used for leisure activities. The main areas covered under recreational equipment include playground equipment, water play equipment, winter sports equipment, creative movement equipment and small equipment leisure games like beach balls, marbles, horseshoes and flying disks. Other equipment that falls under this subcategory includes skates, projectile toys, backyard play equipment, and gear for adult play activities. Recreational activities are popular for both adults and children. Adults and children enjoy participating in many of the same recreational activities to spend time together and to keep fit. Due to the wide variety of equipment under this category, a number of cognitive and physical skills are required to use recreational equipment. Therefore, except for tot swings and soft play equipment, this equipment is inappropriate for children under 2 years of age. For younger children, please see the *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives*. For safety guidelines and more information on playground equipment, please refer to CPSC's *Handbook for Public Playground Safety.*[3]

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of recreational equipment:

- Classic
- Motor Skills Required
- Size of Parts

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of recreational equipment are appropriate and how a particular age group plays with such equipment.

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[3] Available at https://www.cpsc.gov/s3fs-public/325.pdf

Birth Through 3 Months

Children at this age enjoy the movement associated with slow-moving mechanical swings, but cannot sit upright and generally remain lying on their backs. Therefore, appropriate swings must completely support the child.

4 Through 7 Months

Children at this age can generally sit supported and enjoy the movement associated with slow-moving mechanical swings. By 6 or 7 months children begin to sit unsupported and enjoy being pushed in a swing. Appropriate swings for this age group entirely support the child.

8 Through 11 Months

Children usually begin to crawl and walk at this age. They begin to climb and they enjoy soft play climbers like pads and ramps. Children of this age enjoy bouncing activities and swinging. Appropriate swings for this age group entirely support the child. Appropriate equipment does not have protrusions and is washable since children in this age group frequently mouth objects.

12 Through 18 Months

Children aged 12 through 18 months are gaining confidence as climbers and walkers, and most children in this age group have learned to walk. Children in this age group can climb heights but they lack an awareness of the consequences of falling. Soft play equipment is very enjoyable for children of this age, including very short slides, ramps, and ball pits. Children's use of slides may need adult assistance at first, as some children may need to be taught how to enter the slide from the correct direction and slide down. Children may not yet have the cognitive skills to realize that a slide is not intended for use as a ramp for crawling up. Children of this age enjoy bouncing, throwing, and chasing after balls. Lightweight balls are best for children limited gross motor skills at this age. However, large balls are necessary since most children will grasp and catch with both hands.

19 Through 23 Months

Children now begin to walk and climb with confidence. However, they do not understand cause-and-effect and lack an awareness of the consequences of falling. Children at this age enjoy tot swings and can sit without support, but they should be entirely enclosed by the swing. Soft play equipment continues to be popular. At this age, children are interested in balls that light up or make noise when bounced. These balls should be lightweight and easy to throw given children's limited strength at this age. They should also be made of a soft material, such as rubber, as children lack the inhibition at this age to hold back from throwing the ball at people or fragile objects. They are also interested in balls that make a sound when shaken, squeezed or thrown. Their ability to kick and throw is improved, so balls should be soft and lightweight.

2 Years

By 2 years of age, children are interested in some types of outdoor playground equipment. Most 2-year-olds can climb steps and short ladders, and may get themselves to the top of a climbing structure only to find that they cannot get back down. They enjoy sliding and swinging. Appropriate swings for this age group entirely support the child. Appropriate playground equipment has rounded edges and is free of protrusions. Loose ropes and straps can form a noose around the child's neck, and present a risk of strangulation. Around 2 years of age, children start to take an interest in creative movement activities. They enjoy moving to music, repeating song lyrics, and participating in finger games. Materials for creative movement at this age are generally limited to parachutes, played under adult supervision, in which children pull the parachute back and forth and up and down to create waves and sounds. As they near 3 years of age, children in this age group are developing the necessary balance and cognitive abilities to stand on and use skates. However, they will find skates difficult to use unless the wheels can lock, roll in only one direction, or have limited movement to keep them from sliding out from under the child. Customarily, water sports activities are not appropriate because children of this age usually cannot swim and are at very high risk of drowning.

3 Years

Children by 3 years of age enjoy most types of playground equipment including open swings, slides, and climbers. Children at this age also are interested in inflatable bouncers. Playground backyard equipment may involve swings, slides, climbers, and overhead equipment. By the age of 3, children have developed the balance and cognitive abilities to use skates more effectively, though limited wheel movement is still important for most children. They are interested in creative movement, and can use materials like beach balls, scarves, ribbons, parachutes, and plastic hoops in their creative movement. Children also enjoy climbing through enclosed tunnels at this age, at younger ages they may feel too scared or intimidated to crawl through. Although 3-year-olds enjoy being in the water with adult supervision, water sports can be very risky at this age since they usually cannot swim. Sprinklers and water play are popular with this age group.

4 Through 5 Years

By the age of 4, children generally have the balance to use four-wheeled non-inline skates. Playground equipment for 4- and 5-year-olds may contain overhead ladders and fire poles, slides, climbers, and swings. They can pump a swing, climb a rope ladder, and climb up an inclined board. They also begin to become interested in acrobatics. Children usually learn to swim around age 4 or 5 depending on their experience with water; however, they require constant supervision. Children at this age continue to enjoy sprinklers and other water-play toys. They can use rafts and other support devices for the water. Children in this age group can use water guns, but suitable ones are small and low powered because children of this age may be unaware of the consequences of using water as a projectile. Children by the age of 4 begin to show an interest in small equipment for recreational purposes. They have sufficient fine- and gross motor skills to include materials like beanbags and umbrellas in their creative movement activities. Children enjoy free and creative movement activities with these materials. Four-year-olds can use marbles, flying disks, and soft plastic horseshoes.

Many children at the start of this age group are attracted to winter sports like skiing, ice skating and sledding. These can be hazardous due to the speed created on ice and snow. Therefore, children should wear proper protection when participating in these activities. Children of this age

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are interested in projectile toys, but they have immature judgment and do not have the cognitive understanding of consequences. As a result, they may do dangerous things with projectiles or other equipment. Soft and very lightweight projectiles, including those on action figures that do not fly more than 12 inches are appropriate for this age. Air-propelled floor launchers with soft foam projectiles that are activated when a child steps on a pumping pad are very exciting to this age group. Children may experiment with the air pumping mechanism to blow at other objects in the room. At younger ages, children may lack the gross motor skills needed to step on the pad hard enough to propel the rocket.

Balls are enjoyed by all ages, however, small balls, especially hard ones, are not appropriate for young children because of their high likelihood of mouthing small objects. High-bounce balls rebound forcefully and travel at speeds generally too fast for children under 5 years of age. They are not usually considered appropriate for children under five because this age group over-zealously throws them, unable to anticipate the ball's careening trajectories, endangering themselves, bystanders and property.

6 Through 8 Years

Children aged 6 through 8 are accomplished players on playground equipment. They can use flexible climbers, ring treks and other complicated apparatus. They enjoy climbing, swinging and chasing on playgrounds. However, children this age may use playground equipment in unintended ways. By the age of 6, children generally have the balance to stand using in-line skates. Children 6 through 8 years old can begin using trampolines; however, trampoline use can be hazardous without experience and adult supervision. Children have the ability to throw a flying disk by the age of 6. At this age children are starting to jump rope, and this interest increases as they gain skill with this activity. Children in this age group are developing independence as swimmers, and sometimes participate in organized swimming and water sports activities. They enjoy diving for objects in the water and can use goggles, snorkels, and flippers. By this age children can handle larger and more powerful water guns.

Six- through eight-year-olds continue to use small equipment for recreational activities. Children in this age group begin to lose interest in creative movement activities as they take more interest

in organized movement activities like dance and gymnastics. Photography is popular with this age group as they take an interest in photography equipment. They enjoy activities like bowling and horseshoes. They are very interested in winter sports like skiing and skating. Depending on experience, most children can ski, ice skate, and sled. Children in this age group are also interested in projectile toys. They have a greater understanding of the consequences of projectiles, but do not have the physical control needed for high-speed projectiles. They can use soft or lightweight projectiles like table tennis balls, soft darts, and foam projectiles, and can also use helicopter-type projectiles.

9 Through 12 Years

Children this age are very accomplished players on playground equipment, but often use it in unintended ways. They are also outgrowing playground equipment and moving on to more organized sports. They start to become interested in athletics for their own sake. Children in this age group begin to take an interest in weightlifting equipment as well as aerobic exercise and dance. They generally are accomplished skaters and are frequently risk takers when using skates. Children in this age group can use all types of in-line skates. They are strong swimmers, depending on their experience with water. They can participate in water sports and activities like water polo.

Children at this age are interested in small equipment for recreational purposes. They enjoy traditional games like horseshoes and can be proficient with adult-sized equipment. They are also interested in more adult-like activities, such as collecting, hiking, nature studies, and photographic equipment. Nine- through 12-year-olds are very interested in winter sports. Depending on experience, most children can ski, ice skate, and sled. Children in this age group are developing some understanding of projectiles. They can use air-propelled projectiles like rockets, cork guns, and small plastic disks. Products like BB guns, which fire penetrating projectiles are inappropriate for children in this age group.

SPORTS, RECREATIONAL, & OUTDOOR PLAY: **RECREATIONAL EQUIPMENT**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts			
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials			Soft vinyl
Motor Skills Required*	Cannot sit unsupported	Infant sits unsupported	Begins walking & climbing
Color/Contrast	Bright colors	--→	--→
Cause & Effect			
Sensory Elements	Enjoy rocking motion of swings	--→	--→ Enjoy different textures & soft materials

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Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Do not have the motor skills required to actively use recreational equipment	Crawling, sitting up Enjoys movement	Beginning to walk and climb Little fear of heights; at risk of falling Mouth objects, all equipment should be washable Interested in exploring environment
Examples of Toys	Mechanical swings that completely support the child	Mechanical swings	--→ Soft play ramps & pads Large soft balls like beach balls Ball pits

* One of the most influential characteristics for these toys.

SPORTS, RECREATIONAL, & OUTDOOR PLAY: **RECREATIONAL EQUIPMENT**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts			
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials →	Vinyl & plastic for equipment, rubber	-------------------------------------→	-------------------------------------→
Motor Skills Required* →	Throwing, chasing & kicking soft balls Walking & climbing for playground equipment	-------------------------------------→ -------------------------------------→	-------------------------------------→ -------------------------------------→ Able to stand on skates as they approach 3 years of age
Color/Contrast	Bright colors		
Cause & Effect			

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Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Sensory Elements			
Level of Realism/Detail	Equipment can be abstract	Beginning to show interest in realistic playground equipment	Interest in playground equipment, which promotes pretend play May find skates difficult to use unless wheels lock or have limited movement
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Walking & climbing Exploring environment Mouths objects; all equipment should be washable Little fear of heights; at risk of falling	---→ ---→ ---→ ---→ Interested in water; great risk of drowning	---→ ---→ ---→ ---→ ---→ Interested in group movement activities

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Examples of Toys	Soft play climbers Slides with rails Tot swings Large soft balls like beach balls Ball pits Playground balls	--→ --→ --→ --→ --→ --→	--→ --→ --→ --→ --→ --→ Parachutes Wading pools (with adult supervision) Skates with locking or limited-movement wheels (near 3 years)

* One of the most influential characteristics for these toys.

SPORTS, RECREATIONAL, & OUTDOOR PLAY: **RECREATIONAL EQUIPMENT**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Child-size equipment	---→	Begin to be able to use adult-size equipment	Adult-size equipment
Shape of Parts				
Number of Parts				
Interlocking/Loose Parts				
Materials	Wood & metal	------------------------------------→	------------------------------------→	------------------------------------→
Motor Skills Required*	Able to throw & catch with both hands Able to use skates with limited wheel movement Able to climb & swing unsupported	Beginning to learn to swim Beginning to be able to skate & ski Able to use overhead equipment & fire poles	Able to swim Able to skate & ski Able to use gymnastics equipment like rings & trampolines	Strong swimmer Strong skills for winter sports Able to use all gymnastic equipment
Color/Contrast				
Cause & Effect				
Sensory Elements				
Level of Realism/Detail	Interested in realistic-looking playground equipment	Less interest in realistic-looking playground equipment		

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Licensed theme		Interested in licensed theme of cartoon characters	Interested in licensed theme of professional athletes	--------------------------------------→
Classic*		Parents introduce winter sports activities	Interested in traditional activities like horseshoes & marbles	--------------------------------------→
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Little understanding of rules & strategies Interested in free movement activities rather than organized sports Interested in water play	Increasing confidence in the water; learning to swim Interest in winter sports	Usually able to swim Do not have the cognitive understanding to understand high speed projectiles	Take risks on skates, bicycles, & playground equipment Developing understanding of consequences of projectiles; mature understanding for some projectiles will not develop until after age 12 Interested in fitness & fitness equipment Interested in organized recreational activities

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Examples of Toys	Pools (with adult supervision) Sprinklers	--→	Water play equipment, diving equipment, flippers, goggles, snorkels	Air propelled rockets, & other projectiles
	Low-movement roller skates (not inline skates) Inflatable bouncers	Low-movement roller skates and double runner ice skates	Roller skates, inline skates	Kites
	Playground equipment like climbers, slides, & unsupported swings	Playground equipment including overhead equipment and fire poles		Hiking equipment
	Creative movement materials, hoops, scarves, beach balls, ribbons, parachutes, flying disks	Creative movement materials, bean bags, umbrellas Small-size ski equipment	Gymnastics equipment, rings, trampolines	Weightlifting equipment Aerobic & dance activities
	Sleds Tunnels	Sleds: disks, toboggans, plastic sheets	Sleds with steering mechanisms, hand brakes, toboggans, skis, single runner skates	
		Soft, very lightweight projectiles that fly less than 12 inches Air powered floor launchers with soft projectiles activated when child steps on a pumping pad	Water guns Soft, lightweight projectiles like table tennis balls, soft darts, & soft foam projectiles; also helicopter-type projectiles Cameras Jump ropes	Cork guns and other guns that shoot smaller projectiles, high pressure water guns Darts, BB guns, Air guns at 12+ Combustion type rockets for ages 12+
		Marbles Soft horseshoes Flying disks	--→ Horseshoes --→	

* One of the most influential characteristics for these toys.

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SPORTS EQUIPMENT

Children, especially those between 6 and 12 years of age, enjoy playing games and sports. Sports encourage movement and combine the elements of strategy and physical skills. They also provide opportunities for children to show their skills and to test their ability as they confront others in game play. This category includes equipment for traditional sports like football, baseball, basketball, racquet sports, golf, hockey, soccer, and net sports. Most of these sports have long historical, cultural, and traditional foundations, which add to their appeal as parents teach sports to their children that they played themselves. Active sports and games also frequently have professional athletes that children can watch and emulate.

Sports generally require specialized equipment and a place to play. It can require specialized physical skills like swinging a bat at a ball and generalized skills like moving through space without running into other players. Before children can fully take part in organized activities like sports, they must understand the rules. However, children enjoy interacting with sports equipment to develop their physical skills before they understand the rules needed to participate in an organized sport, and specialized equipment is usable by children starting at 12 months. The cognitive ability to effectively play sports usually develops around age 6. Children in this age group have an interest in playing games with rules and have the cognitive ability to strategize about games. Balls for exploratory play that are also associated with active sports and games are also included in *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives* and *Sports, Recreational, & Outdoor Play: Recreational Equipment*.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of sports equipment:

- Classic
- Size of Parts
- Licensed theme
- Motor Skills Required

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description

of what types of sports equipment are appropriate and how a particular age group plays with such equipment.

12-18 Months

Although gross motor skills are still rudimentary at this age, specialized sporting equipment can be appealing for children in this age group. Sporting equipment that incorporates new activities with easy-to-hold balls can teach children new skills. At this age, children can use small combination sport centers (*e.g.*, a small basketball hoop attached to a small soccer net). Children are also learning how to place balls through hoops at this age as their coordination and gross motor skills develop. In addition, a lightweight bowling set is especially appealing, as throwing a ball and seeing objects fall down is exciting for this age group. At younger ages, children may try to knock over the pins using hands or feet instead of coordinating with a ball.

19-23 Months

Children's interests and abilities are similar to those at 12-18 months, but they need equipment that is bigger to accommodate their growth. Larger basketball hoops become more appropriate at this age as children begin to reach higher and have mastered the gross motor skills needed to throw a ball into a hoop.

2 Years

Two-year-old children are developing the gross motor skills that are used in games and sports. These include running, climbing, and balancing. Children can grasp, kick, and throw a ball. They are also interested in balls that make a sound when shaken, squeezed or thrown. Two-year-old children are still learning cause-and-effect relationships and have very uncertain control of their movements. Therefore, sports equipment for this age tends to be soft. Parents may be interested in purchasing replica sports equipment for children of this age.

3 Years

Children at the age of 3 begin to take a more active interest in sports skills. They begin to develop fundamental motor skills like kicking, striking, throwing, catching, collecting, carrying,

and dribbling. They can now put a ball in a basket or target from 4 to 5 feet away. Most 3-year-olds can participate in collective games that have few rules. Children in this age group begin to show interest in a variety of throw-and-catch activities. At this age, children can use Velcro pad mitts that can 'catch' a Velcro ball, as they finally have the coordination needed to align a mitt with a ball that is coming their way. They enjoy free movement and non-directive activities. Squishy yoyos with a bouncing string mechanism are also mastered at this age. Children at younger ages may use the squishy yoyo and bounce it up and down without putting their finger through the loop due to lack of fine motor skills. They also may not understand the concept of a yoyo and only use the toy as a ball. Younger children will also be tempted to bite and chew on the yoyo material. Sports equipment for this age includes smaller sized balls and games, soft balls, bats and clubs, bowling games, and goals or nets.

4 Through 5 Years

Starting at the age of 4, children can participate in organized sports activities like tee ball, kick ball, and soccer. However, they require modified equipment and rules. Children at this age enjoy throwing or kicking to goals, nets or other targets. They do enjoy table sports games like table hockey. They have the fine motor skills needed to align the figurines with the puck using levers if the table is set to the appropriate height for them. Given the peak of imaginative play at this age, children may even start to pretend that the players on the table game are interacting with each other and develop a pretend play scene centering on sports. Bean bag tosses are very appealing at this age. Children have the appropriate gross motor skills to aim when they throw bean bags and successfully make it into a net or hole by this age. If the net has a point value for different holes that the child hits, the child may start to count their total number of points. Parents frequently begin enrolling children in this age group in youth sports activities. Also popular for parents at this age are child-sized versions of adult equipment like golf clubs and tennis racquets.

Children at the age of 4 have a limited attention span for organized sports, so rules are often modified to reduce any reliance on strategy. Four-year-olds are egocentric or unaware of the participation of other players. Smaller sized balls, bats and gloves are appropriate for this age. Four-year-olds begin to develop the skill of hitting a moving ball with a bat or racquet. Because

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children in this age group are still developing coordination, soft or padded bats and balls are preferable.

6 Through 8 Years

Six-year-olds are very interested in active sports. They can understand most rules of a game or sport and have the physical skills needed to participate in most sports including baseball, softball, and football. Children at the age of 6 are developing the strength needed to handle full-size equipment including basketballs, footballs, and soccer balls. However, smaller sized equipment is generally preferred over adult sized equipment. For basketball the ball tends to be lighter and the nets lowered for younger children. Net games like volleyball require more advanced physical skills and are not introduced until age 7 or 8. Children have developed an ability to skate by the age of 6 and so they can participate in games of street or ice hockey. Children in this age group can swing a racquet and hit a moving object, but they require lightweight equipment. Many children at this age are introduced to golf using modified clubs. Other mallet games like croquet are also popular.

9 Through 12 Years

Nine- through twelve-year-olds are very interested in organized sports. They have all the physical skills required to participate in active sports and games and they understand the rules and strategies of these games. Children at this age enjoy training equipment that promotes skills like throwing at targets. They can also handle adult sized equipment.

SPORTS, RECREATIONAL, & OUTDOOR PLAY: **SPORTS EQUIPMENT**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	Small size for grasping or large for holding with 2 hands	--------------------------------→	--------------------------------→
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials	Soft materials, cloth, rubber, foam, plastic	--------------------------------→	--------------------------------→
Motor Skills Required*	Able to grasp a large ball with 2 hands Able to throw towards a target Able to kick a ball Able to hit a stationary ball with a bat or club	--------------------------------→ --------------------------------→ --------------------------------→ --------------------------------→ Able to grasp a small soft ball with 1 hand	--------------------------------→ --------------------------------→ --------------------------------→ --------------------------------→ --------------------------------→
Color/Contrast	Bright colors Colors that mimic adult sports equipment	--------------------------------→ --------------------------------→	--------------------------------→ --------------------------------→
Cause & Effect	Interested in balls that whistle or squeak	--------------------------------→	--------------------------------→
Sensory Elements	Enjoy balls of different textures	--------------------------------→	--------------------------------→
Level of Realism/Detail	Replica sports equipment	--------------------------------→	--------------------------------→

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Licensed theme			
Classic*	Parents begin to emphasize classic or traditional sports	----------------------------------→	----------------------------------→
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Able to throw and kick Fundamental movement phase No understanding of rules or game strategies Little interest in organized activities Prefer free-movement activities	----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→ Able to catch
Examples of Toys	Soft balls Soft, replica sports equipment Targets, nets or goals for throwing Bowling sets Small-size basketball, soccer goals	----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→ Larger basketball hoops Light up or noisemaking balls when bounced	----------------------------------→ ----------------------------------→ ----------------------------------→ ----------------------------------→ Large balls about 10" in diameter Soft bats or clubs

* One of the most influential characteristics for these toys.

SPORTS, RECREATIONAL, & OUTDOOR PLAY: **SPORTS EQUIPMENT**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Small size for grasping or large for holding with 2 hands (cont'd)	--------------------------------------→	Progressing from child-size to adult-size equipment	Able to use adult-size sports equipment
Shape of Parts				
Number of Parts				
Interlocking/Loose Parts				
Materials	Soft cloth, rubber, foam, or plastic (cont'd)	--------------------------------------→	Leather, hard balls & bats, wood, metal	--------------------------------------→
Motor Skills Required*	Can kick a ball hard Can catch a large ball Can throw a ball about 10 ft	Able to bounce a ball Can hit a moving ball with a bat or racquet Strong overhand throw Can kick a moving ball	Greater ease and control of bodily movement Able to catch a small ball Can bounce ball effectively Can play racquet and club sports	Developing adult like sports skills Can play net games like volleyball
Color/Contrast				
Cause & Effect	Interested in balls that whistle or squeak (cont'd)	Less interest in cause & effect		
Sensory Elements	Enjoy balls of different textures (cont'd)	Less interest in sensory elements		

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Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Level of Realism/Detail			Interested in real sports equipment	--→
Licensed theme*		Interested in licensed cartoon figures	Interested in licensed sports figures	--→
Classic*	Parents begin to emphasize classic or traditional sports	--→	Children begin to be more interested in classic or traditional sports	--→
Robotic/Smart Features				
Educational				Interested in skill-training equipment
Relevant Play/Behavior →	Little understanding of rules	--→ Often enrolled in youth sports like tee ball, junior golf & soccer	Growing understanding of rules & strategies Very interested in youth sports	Understanding of complex rules & strategies --→

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Examples of Toys	Soft balls Balls of all shapes & sizes Large balls about 10" in diameter Replica sports equipment that is soft Soft bats or clubs Targets, nets, or goals for throwing Small-size basketball, soccer goals Velcro pad mitts and compatible balls Squishy yoyos	--→ --→ --→ --→ --→ --→ --→ Bean bag toss net Table sports with levers that can manipulate puck	-------------------------------------→ Child-size sports balls (Footballs, baseballs, basketballs, soccer balls) Child-size racquets, bats, & clubs Child-size nets & goals Croquet equipment	--→ Adult-size sports balls (Footballs, baseballs, basketballs, soccer balls) Adult-size racquets, bats, & clubs Net or goal game equipment like basketball, volleyballs, badminton, table tennis --→

* One of the most influential characteristics for these toys.

MEDIA PLAY

Media Play involves children in the production of art or music through media of all types.

Arts & Crafts ([p. 196](#))

- All scissors
- Balloons
- Blunt-end scissors
- Camera and photography equipment
- Carving, bookbinding, block printing, flower pressing, calligraphy, sketching
- Chalk, chalkboard
- Clay or play dough, molds
- Coloring books
- Crayons, markers, brushes, color pencils
- Crochet, embroidery, knitting, needlepoint, sewing machines
- Easels
- Finger painting
- Glitter, yarn, pom-poms
- Kits (*e.g.*, jewelry, beading, soap, basket, candle, and modeling)
- Large beads on shoelace string
- Large size art or construction paper
- Large size or spherical crayons and markers
- Leatherwork and tools
- Magnetic shaving art boards
- Metal working
- Mosaic, ceramic
- Non-toxic tempera paint and large brushes
- Pastels, water colors
- Plaster of Paris and papier-mâché
- Pop beads
- Pre-gummed paper and scissors
- Printing equipment
- Puppetry, doll-making
- Sewing activities and kits, mini looms
- Smaller beads and string
- Stamps and non-toxic ink
- Tools for clay work
- Wood burners, screwdrivers, pliers

Musical Instruments ([p. 211](#))

- Blocks (scraping and tapping), triangles, rhythm sticks, cymbals
- Button activated electronic music makers and instruments
- Drums, electronic drum pads, bongos, tambourines
- Flute, recorder
- Horns, harmonica, whistle
- Musical interactive and smart toys (see also *Educational & Academic Play: Learning Toys* and *Technology Play: Smart Toys & Educational Software*)
- Musical mobiles and gyms (see also *Exploratory and Practice Play*)
- Small, light tambourines
- Tapes, records, CDs, videos (see also *Technology Play: Audiovisual Equipment*)
- Ukulele, violin, autoharp
- Wrist, ankle, and handheld bells
- Wrist, ankle, and handheld chimes
- Wrist, ankle, and handheld rattles
- Xylophones, keyboards, pianos, accordions, floor pianos

ARTS & CRAFTS

Arts and crafts are an integral part of children's total development. Nourishing the creative and expressive self is important to instilling self-assurance and enhancing both creative thinking and problem solving. This can be accomplished through activities in which the child can work with different types of artistic media and materials. Arts and crafts are generally not appropriate until about the age of 12 months. Beginning in toddlerhood, many children are given opportunities for free expression through art materials. Crafts play an important part in learning skills that are more work-related, such as sewing, knitting, block printing, bookbinding, and doll making.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of arts and crafts:

- Cause & Effect
- Sensory Elements
- Size of Parts
- Color/Contrast

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of arts and crafts are appropriate and how a particular age group plays with these media.

12 Through 18 Months

Children from 12 through 18 months of age are increasingly curious and love to explore, traits that are facilitated by their increasing walking skills. They have increasingly good balance at this age, and may begin making marks on the wall or an easel. They are working on fine motor coordination and can perform many manual functions including controlled grasping and releasing. They may even exhibit preference for a dominant hand close to 18 months of age. They are even more expansively exploring the world through all their senses: seeing, hearing, touching, tasting, and smelling. They are still interacting with the art materials in a

functional/exploratory way and have very short attention spans. They scribble either by imitation or spontaneously, and can make circular marks.

Suitable materials are appropriately sized to children's grips, and are lightweight but sturdy. Large easy-to-grip crayons and markers are appropriate for children in this age group, and large sheets of art and construction paper are best. Crayons in the shape of spheres and markers in the shape of chunky animals are easy for children to grip at this age. At this age, children's fine motor skills are rudimentary, but they are able to scribble with these chunky writing utensils instead of playing with crayons and markers as manipulative play objects, as they may at younger ages. Children who can remain in a standing position can use easels. Finger painting with non-toxic, mess free (*i.e.*, clear gel finger paint only activated on special paper) is appropriate at this age. Children can also hold tablets in their lap that have gel inside and can make designs using their finger or a stylus. Using fingers to make designs using either finger paint or a tablet filled with gel is appropriate at this age because it accommodates limited fine motor skills. Finally, although children at this age are too young to use conventional stickers (they may get put in the mouth and they require dexterity to use), children can use pre-gummed sticker pads and attach large, easy to grip items to them.

19 Through 23 Months

Representational and symbolic thinking emerges between 19 and 23 months; however, representational art is only in its infancy, even as they approach 2 years of age. Although their drawings look nonrepresentational and are not recognized as representational by adults, they represent something to children in this age group. By 2 years of age, some can draw simple angles. The fine motor movements of children in this age group are becoming more skillful. Their behaviors are goal-directed, and they like to experiment. Art in general, and scribbling in particular, provides them with a non-verbal means of expression. Furthermore, scribbling assists children in developing muscle control, which is needed for the next stage of development.

Suitable materials are appropriately sized to children's grips, and are lightweight but sturdy. Large easy-to-grip crayons and markers are appropriate for children in this age group, and large sheets of art and construction paper are best. Some children will choose easels for artwork. Since

children of this age have a propensity for exploring objects orally, paints are not recommended for this age. As they approach 2 years, children can string large beads on shoelace string.

2 Years

Two-year-olds are very interested in representational and symbolic play. Their fine motor movements are becoming more skillful, and their manual dexterity is improving. They also begin to represent through their art at this age. The range of art materials available to them greatly increases because of cognitive and physical developments, although they may still put objects in their mouths. They also love the texture of materials, and will use their hands to handle materials whenever possible. They love to finger paint. They can make color distinctions, move fingers independently of each other, and are beginning to cut with blunt-end scissors. They can scribble, draw circular marks and some vertical lines, and copy circles and crosses. Between 24 and 30 months they can add two parts to a human outline, after which this increases to three parts. The process of creating art is more important to them than the final art product.

As with materials for younger age groups, appropriate materials are appropriately sized to children's grips, and are lightweight but sturdy. Large easy-to-grip crayons and markers are appropriate for 2-year-old children, as are soft modeling clay and similar substances. Non-toxic tempera paints and large brushes work well for children in this age group, and large sheets of art and construction paper are still best for this age. Some children will choose easels for artwork. They can use blunt-end scissors and string large beads, and finger painting is also a popular art activity.

3 Years

Children 3 years of age refer to the symbolic aspects of their art when they talk about their art. They will make the same shapes and scribbles repeatedly, practicing and exploring through art. They are highly attracted by art materials that produce interesting effects and are tactually stimulating. They are less likely to mouth art and craft materials, making scented materials more appropriate. They are learning to handle scissors and glue, and their fine motor control continues

to improve. They can add four to five parts to the outline of a person, and can copy circles and squares. They can perceive distinctions in sizes. Some can use pop beads as intended.

Appropriate materials are appropriately sized to children's grips, and are lightweight but sturdy. Three-year-old children enjoy using large crayons, markers, and brushes that are easy to grip. Non-toxic tempera and finger paints work well for children in this age group, as do varying sizes and colors of art and construction paper. They can now begin to use clay and similar materials with molds to make shapes, whereas at younger ages, children may have only used the clay for manipulation instead of trying to make a specific shape using a mold. Children enjoy working at easels. Now that they can use round-nosed scissors and non-toxic glue, they can make collages and create scrapbooks. They can use pre-gummed paper pieces, stickers, glitter, yarn pieces, and small pom-poms in their creations. They can also string beads, manipulate clay and modeling dough, and write or draw on chalkboards with chalk. At this age, children are also good at manipulating boards with magnetic shavings controlled by knobs to make designs. Fine motor skills at this age allow children to maneuver both knobs at the same time.

4 Through 5 Years

At 4 and 5 years of age, children's art starts to resemble what it is meant to represent. Four-year-olds can add as many as seven parts to the outline of a human figure. They can string small beads and can copy bead order when stringing beads. They can cut along a line with scissors, and can copy squares, divided rectangles, ladder designs, letters, and numbers. As children approach the age of 5, their art is better defined and can represent either reality or fantasy. They are highly attracted by materials that create interesting effects and are tactually stimulating. Their drawings become more realistic-looking and more elaborate, including more details than ever before. They can copy circles, crosses, divided rectangles, triangles, and letters and numbers. They can use scissors well and can weave simple items. Children can begin to use looms with small loops for weaving. Their fine motor skills allow them to put small loops onto a loom and arrange them in an appropriate way for making bracelets and other items. Five-year-olds can now add nine parts to a human form.

Appropriate materials are appropriately sized to children's grips, and are lightweight but sturdy. Four- and five-year-old children enjoy using crayons, markers, brushes, and art and construction paper of all sizes. Non-toxic tempera, finger, and watercolor paints work well for children in this age group, as do easels. Now that they can use round-nosed scissors and non-toxic glue or tape with skill, they can make collages and create scrapbooks. They can use pre-gummed paper pieces, glitter, pieces of yarn, and small pom-poms in their creations. They can manipulate clay and modeling dough, use craft sticks and plastic tools for the clay, and write or draw on chalkboards with chalk. They can also string beads, complete simple sewing activities, use miniature looms, and use both stamps and non-toxic ink. Thinner-diameter, adult-sized crayons and color pencils begin to be usable at about 5 years of age.

6 Through 8 Years

Children 6 through 8 years of age are most interested in experimenting with and exploring through art. They find a high level of realism appealing and enjoy opportunities for arts and crafts with various materials. They are still highly attracted by materials with which they can produce complicated and interesting effects. Children about 8 years of age can follow directions included in a kit to complete an activity. At this age, arts and crafts for children become more adult-like, product-oriented, and mastery-oriented. Children become interested in craft projects that were previously thought of as folk art or work-related crafts, such as simple woodworking or sewing (with large needles). They become interested in photography and simple jewelry making like beadwork. They can now use color pencils, art chalk, pastels, water colors, sketch pads, stencils, sharper scissors, all kinds of art papers, printing equipment, cameras, miniature looms, plaster of Paris, papier-mâché, leather strips, and model-making, in addition to everything used by younger children. Children also have the patience and fine motor skills in this age group to properly use a loom that requires them to lace a string of yarn through teeth on a loom. Children can line up the yarn on the teeth and create a design. When children at younger ages wrap yarn around the loom, they often disregard the importance of putting the yarn in the teeth and are unable to complete the task.

Suitable materials are appropriately sized to children's grips, and are sturdy. Children in this age group are most interested in materials that are open-ended; that is, materials that do not dictate to

children how their art should look. Early elementary-aged children enjoy using crayons, markers, brushes, colored pencils, and art and construction paper of all sizes. Easels, and tempera or watercolor paints work well for children in this age group. They use scissors and non-toxic glue or tape expertly, and can make collages and create scrapbooks. Stencils, pre-gummed paper pieces, glitter, pieces of yarn, and small pom-poms are still popular art materials at this age. They can manipulate clay and modeling dough (including self-hardening and polymer clays), use craft sticks and plastic tools for clay, and engage in simple pottery activities. They can write or draw on chalkboards with chalk. Children can also use coloring books and follow the outlines when using standard sized crayons. At younger ages, children are still interested in coloring books, but they do not have the appropriate fine motor skills to follow the outline, particularly with standard sized crayons. In addition, at younger ages, children lack the inhibitory control to keep working on a single picture—they may flip through each page of the book and scribble something on each picture. Six- through eight-year-olds can also string beads, complete simple sewing kits, use miniature looms, and use stamps and non-toxic ink. Balloons are inappropriate for children less than 8 years old because of the choking hazard, and should never be given in whole or part to children under that age. Children in this age group can use kits that involve jewelry making, soap making, candle making, paper doll making, and copper enameling, but they may be unable to complete the activities as planned until they are closer to the age of 8 or 9 years. Children find other arts and craft activities, such as basketry, block printing, bookbinding, carving, leather working, braiding, weaving, photography, and flower pressing very enjoyable.

9 Through 12 Years

Children 9 through 12 years of age are ready for technical training in art if they wish. They are also more able to engage in detail-oriented art techniques. Their fine motor skills by this time are approaching those of adults, so they can engage in activities that require more meticulous work and attention. Their interests expand to include the activities listed above, and arts and crafts, such as calligraphy, sketching, crocheting, embroidery, knitting, needlepoint, puppetry, doll making, metalworking, mosaics, and ceramics. There is decreasing emphasis on hazards as children in this age group are more able to prevent injury to themselves as compared to younger children, and because involvement in the types of activities discussed here sometimes cannot

avoid the use of sharp instruments and tools. They can use machines and tools, such as sewing machines, wood burners, screwdrivers, and pliers.

MEDIA PLAY: **ARTS & CRAFTS**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts*			Appropriate for size of hand (large crayons and markers) Large sheets of paper
Shape of Parts			Rounded, no sharp edges
Number of Parts			Few
Interlocking/Loose Parts			
Materials			Lightweight Sturdy
Motor Skills Required			Grasping Hand-eye coordination developing Can put large crayons & markers to paper
Color/Contrast*			High contrast
Cause & Effect*			A clear cause-and-effect relationship

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Sensory Elements*			Visual Manual
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior			Like to explore objects manually & orally Can make marks on paper, but does not actively scribble or draw

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Examples of Toys			Large, easy-to-grip crayons & markers Large sheets of art & construction paper

* One of the most influential characteristics for these toys.

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	Appropriate for size of hand (large crayons & markers) (cont'd) Large sheets of paper (cont'd)	--------------------------------→ --------------------------------→	--------------------------------→ --------------------------------→
Shape of Parts	Rounded, no sharp edges (cont'd)	--------------------------------→	--------------------------------→
Number of Parts	Few (cont'd)	--------------------------------→	--------------------------------→
Interlocking/Loose Parts			
Materials	Lightweight (cont'd) Sturdy (cont'd)	--------------------------------→ --------------------------------→	--------------------------------→ --------------------------------→
Motor Skills Required	Grasping (cont'd) Hand-eye coordination (cont'd) Standing Balancing	--------------------------------→ --------------------------------→ --------------------------------→ --------------------------------→	--------------------------------→ --------------------------------→ --------------------------------→ --------------------------------→ Can move fingers independently of each other
Color/Contrast*	High contrast (cont'd)	--------------------------------→	Can make color distinctions
Cause & Effect*	A clear cause-and-effect relationship (cont'd)	--------------------------------→	--------------------------------→
Sensory Elements*	Visual (cont'd) Manual (cont'd)	--------------------------------→ --------------------------------→	--------------------------------→ --------------------------------→

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Like to explore objects manually & orally (cont'd) Likes to scribble	--→ --→ Representational & symbolic play emerges More skillful at fine motor coordination Behaviors are goal-directed Need non-verbal means of expression Can draw simple angles Can draw what adults consider to be non-representational drawings	--→ --→ Representational & symbolic play continues, & manifests in art Continual improvement in fine motor skill --→ --→ Can draw circular & vertical lines Can copy circles & crosses Can use blunt-end scissors Can add 2-3 parts to human outline Process of art is more important than art product
Examples of Toys	Large, easy-to-grip crayons & markers (cont'd) Large sheets of art & construction paper (cont'd) Easels for those who can stand Spherical crayons Animal shaped chunky markers Pads with gel that record impressions using a stylus or the child's hand/finger Non-toxic finger paints Pre-gummed sticky pads for large items to be stuck to	--→ --→ --→ Approaching 24 months; can string large beads on shoelace string --→ --→	--→ --→ --→ --→ Blunt-end scissors Soft modeling clay or dough --→ --→

* One of the most influential characteristics for these toys.

MEDIA PLAY: **ARTS & CRAFTS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Large, easy-to-grip crayons, markers, & brushes Various sizes of paper	-------------------------------------→ Adult-sized crayons, markers, color pencils, & brushes at 5 Smaller beads at about 5	All sizes	-------------------------------------→
Shape of Parts	Rounded, no sharp edges (cont'd)	-------------------------------------→	Various	-------------------------------------→
Number of Parts	Enough to provide a choice of materials & colors	-------------------------------------→	-------------------------------------→	-------------------------------------→
Interlocking/Loose Parts				
Materials	Lightweight (cont'd) Sturdy (cont'd)	-------------------------------------→ -------------------------------------→	 -------------------------------------→	-------------------------------------→ Can be of professional quality and detail
Motor Skills Required	Improving hand-eye coordination Can move fingers independently of each other (cont'd)	-------------------------------------→ -------------------------------------→ Uses adult grip Good fine motor coordination	 -------------------------------------→ -------------------------------------→	Fine motor skills increasingly adult-like -------------------------------------→
Color/Contrast*	A variety of colors	-------------------------------------→	-------------------------------------→	-------------------------------------→
Cause & Effect*	A clear cause-and-effect relationship (cont'd)	-------------------------------------→	Can understand delayed cause & effect	-------------------------------------→
Sensory Elements*	Visual (cont'd) Manual (cont'd) Scented (cont'd)	-------------------------------------→ -------------------------------------→ -------------------------------------→	-------------------------------------→ -------------------------------------→ -------------------------------------→	-------------------------------------→ -------------------------------------→ -------------------------------------→
Level of Realism/Detail			High level of realism appeals to this age group	-------------------------------------→

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Licensed theme				
Classic				
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Repeat shapes & scribbles Can string large beads Can use pop beads as intended Can cut, paste, & make collages Likes to manipulate clay & dough Can copy circle (cont'd) Can copy square Develops size perception	Art begins to resemble what it is meant to represent Can cut along a line Can draw a human figure & add 7 parts to figure Can copy square, divided rectangle, ladder design, some letters & numbers Can thread small beads 5's art is more well-defined, more realistic-looking & elaborate 5's can copy triangles as well 5's can weave simple items 5's can add 9 parts to human form	Experiment & explore through art Attracted to materials that produce complicated & interesting effects Prefer open-ended materials Become interested in woodworking, sewing (with large needle), photography, simple jewelry-making, pottery activities 8's can complete kits independently Art activities are more adult-like, product-oriented, & mastery-oriented	Ready for technical training Engage in detail-oriented art techniques

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Examples of Toys	Large crayons, markers, brushes Various sizes, colors, types of paper Finger & tempera paints Easels (cont'd) Non-toxic glue Blunt-end scissors Modeling clay or dough with molds Pop beads Large beads & shoestring (cont'd) Chalk & chalkboard Pre-gummed paper & stickers Glitter, yarn, pom-poms Boards with magnetic shavings	Smaller crayons, markers, brushes, & color pencils at 5 All papers --→ Watercolors --→ --→ --→ --→ Beads & string --→ --→ --→ --→ Tools for clay work Simple sewing with plastic needle Miniature looms with loops Stamps & non-toxic ink pads	Crayons, markers, brushes, & color pencils Coloring books --→ Pastels --→ Various scissors Self-hardening & polymer clay Beading/jewelry kits Soap, candle, basket kits --→ --→ --→ --→ Sewing kits, sewing with large needle Camera & photography equipment Yarn looms --→ Printing equipment Plaster of Paris, papier-mâché, & pottery activities Modeling kits Balloons (8 years) Leatherwork & tools Carving Book binding Block printing Flower pressing	All those for 6-9 Years Calligraphy Sketching Crochet Embroidery Knitting Needlepoint Puppetry Doll-making Metal working Mosaic Ceramic Sewing machines Wood burners Screwdrivers Pliers

* One of the most influential characteristics for these toys.

MUSICAL INSTRUMENTS

Music is an integral part of human life. Music and musical experiences are believed to enhance children's physical and psychological development through their creation of, responses to, and interaction with music. The learning skills that are developed with musical instruments are thought to transfer to other types of learning. It can teach children self-control through practice and can build self-esteem. Musical and rhythm instruments can be appropriate for children of all ages.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of musical instruments:

- Cause & Effect
- Materials
- Size of Parts
- Number of Parts

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of musical instruments are appropriate and how a particular age group plays with these toys.

Birth Through 3 Months

Children enjoy music at all ages. Musical instruments appropriate for children of this age range are rattles, bells, and chimes that can be strapped to the wrist or ankle when the child is unable to grasp them. Musical toys that make sounds when they are kicked are also suitable for this age. As they approach 4 months of age, children can grasp small-scale tambourines, handheld rattles, bells, and chimes. Appropriate musical instruments are small enough for the infant to handle, have rounded edges, and are both washable and sturdy. They can be brightly colored with a high degree of contrast to help children perceive them. Cause-and-effect relationships should be simple (for example, a bell rings when an arm is waved), and sensory elements should not be too loud, too bright, too sudden, or otherwise extreme. Rhythm instruments are most appropriate for

this age. Musical mobiles and gyms are also appropriate (see *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives* for more on mobiles and gyms).

4 Through 7 Months

At this age, movements progress from reflexes to outwardly oriented movements. Most children are now actively engaged with their environments, repeating actions that involve external objects. Most children now actively handle toys. Mouthing and teething are also very characteristic of this age group, although the time spent mouthing varies among individual children. They can sit unsupported at around 6 months of age.

Appropriate musical instruments for children of this age range include rattles, bells, chimes, and small-scale tambourines that fit in children's grasps. They are small and light enough for the infant to handle, have rounded edges, and are both washable and sturdy. They can be brightly colored with a high degree of contrast to help children perceive the instruments. Cause-and-effect relationships are simple (for example, a rattle makes a noise when shaken), and sensory elements are not too loud, too bright, too sudden, or otherwise extreme. Rhythm instruments are most appropriate for this age. At around 5 months of age, musical mobiles and gyms are no longer appropriate since children of this age can push up onto their hands and knees (see *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives*). Children in this age group are also are very interested in interactive toys and smart toys that have musical features (see *Educational & Academic Play*).

8 Through 11 Months

Children in this age group are becoming increasingly mobile as they progress through scooting, crawling, cruising, and walking. Their behaviors become more outwardly initiated and goal-oriented. Because of this increase in physical development and an increase in cognitive development, children around this age begin to understand simple cause-and-effect relationships. The motor skills of grasping and shaking combined with the cognitive skill of understanding cause and effect make musical instruments highly appealing for this age group. Children in this age range can hold two objects at once, but are unable to coordinate the different actions of each

appendage. They are practicing fine motor skills like grasping, pushing, pulling, squeezing, patting, poking, and shaking, and can be provided with musical instruments that fit these characteristics. Mouthing and teething are still very characteristic of this age group, although the time spent mouthing varies among individual children.

Suitable musical instruments for this age group have characteristics similar to the previous group. Mobiles are not appropriate. Musical instruments that are appropriate for children in this age range include handheld rattles, bells, chimes, and small tambourines that will fit appropriately in children's grasps. Children in this age group are also very interested in interactive toys and smart toys that have musical features (see the *Educational & Academic Play* category).

12 Through 18 Months

Children from 12 through 18 months of age are increasingly curious and love to explore, traits that are facilitated by their increasing walking skills. Because of this, children are beginning to self-select toys rather than playing with the items put within their reach. Although they are becoming more skilled at bipedal movement, they are still unsteady on their feet, and they frequently lose their balance. They are working on fine motor coordination and are capable of controlled grasping and releasing, pushing, pulling, squeezing, patting, poking, and shaking. They can also twist, turn, slide, and crank instruments. They are even more expansively exploring the world through all their senses: seeing, hearing, touching, tasting, and smelling. Musical developments include children moving their bodies to the music and playing with musical instruments in functional/exploratory ways.

Musical instruments appropriate for children in this age range include handheld rattles, bells, chimes, and small-scale tambourines that will fit appropriately into children's grasps. They are small and light enough for the toddler to handle, have rounded edges, and are washable and sturdy. Cause-and-effect relationships should be simple, and sensory elements should not be too loud or otherwise extreme. Rhythm instruments, such as xylophones, are most appropriate for this age because they provide an exciting cause and effect functionality and are easy to activate with limited fine motor skills. They are also very interested in interactive toys and smart toys that

have musical features, such as a plastic guitar activated by button pressing, which is easier for children with limited fine motor skills to operate at this age than a conventional guitar with strings (see also *Educational & Academic Play*), as well as instruments that they can use in functional/exploratory ways, such as pounding on drums or bongos. At this age, children can begin to learn how to blow into chunky whistles. While still learning, children may mimic a whistle sound using their own voice, while they pretend to blow into the whistle.

19 Through 23 Months

Children from 19 through 23 months of age are still curious and love to explore. Representational and symbolic thinking emerges during this time. This is also a time of great physical activity as children gain new strengths and skills in their gross motor development. They are becoming more confident and stable in walking, and are exploring other physical skills like balancing, jumping, and running. Their fine motor skills are also becoming more skillful. Social play is starting to emerge as children are more able to communicate with each other and begin to play alongside each other. Their fine and gross motor coordination continues to improve. Appropriate musical instruments for children in this age group are similar to those described in the previous age group, and include instruments that can be used in functional/exploratory ways (for example, pounding), such as drums or bongos.

2 Years

Music is related to other cognitive skills for all children. For the 2-year-old, music is inseparable from movement, and children at this age react to music by moving their bodies and parts of their bodies to music. Children are interested in the sounds different musical instruments make, and they can perceive changes in volume and recognize simple melodies. Children of this age like to sing phrases of songs and repeat their favorite songs often. They also enjoy rhythm instruments, and because their manual dexterity is improving, a whole new range of instruments is appropriate for them, including novelty musical instruments like horns (without buttons) and whistles.

Appropriate musical instruments are small and light enough for the toddler to handle, have rounded edges, and are washable and sturdy. Sensory elements that are too loud, bright, or otherwise extreme are inappropriate. The cause-and-effect relationships should be simple. Rhythm instruments are most appropriate for this age, although children have gained the ability to blow briefly into horns and whistles. They can also effectively use shakers of all kinds, tambourines, bells, drums and bongos, blocks (by scraping and tapping), triangles, and rhythm sticks.

3 Years

Three-year-old children learn through movement and have increased gross and fine motor skills. They can shake and tap instruments, and they keep faster tempos better than slow ones. They can sense the mood of musical pieces, can sing simple songs on their own key because of their limited vocal range, and they like to repeat songs.

Appropriate musical instruments are properly sized for the 3-year-old preschooler to handle, have rounded edges, and are sturdy. Multisensory elements and cause-and-effect relationships are very appealing. Musical instruments that 3-year-olds can use effectively include shakers of all kinds, tambourines, bells, drums and bongos, blocks (by scraping and tapping), triangles, rhythm sticks, and novelty musical instruments such as horns (with up to three buttons). Children at younger ages have trouble using a multistep horn that involves blowing and pressing buttons to change the tone.

4 Through 5 Years

Four- and five-year-olds may begin taking music lessons. Four-year-olds can copy simple rhythmic patterns, play steady beats while moving or marching, sing with others, imitate simple songs, and play an instrument along with simple music. Most 5-year-olds use instruments imaginatively, can recognize melody and reproduce it, have a more extensive vocabulary, can recite words rhythmically, maintain a steady beat while moving, express musical ideas in many different ways, and are involved in more musical improvisation. However, they cannot perform harmony yet. Children of this age also appreciate a high level of realism.

Suitable musical instruments are properly sized for the 4- and 5-year-old child to handle, have rounded edges, and are sturdy. Multisensory elements and cause-and-effect relationships are very appealing. Children this age also prefer adult-quality instruments over instruments made of plastic. Musical instruments (often packaged together as a band set) can be used effectively by children in this age group and include shakers of all kinds, maracas, castanets, tambourines, bells, drums and bongos, blocks (by scraping and tapping), triangles, kazoos, harmonicas, rhythm sticks, novelty musical instruments, cymbals, xylophones, keyboards, and pianos. Small guitars or ukuleles become appealing at this age because children this age have the fine motor skills to strum the strings properly, as well as possess the coordination needed to cradle the instrument properly in their arms while playing it. Children now have the cognitive skills needed to be able to follow along in a symbol booklet, which tells them what keys to press on a piano. In addition, children are able to follow the necessary steps to operate electronic drum pads, which allow the user to first set the tempo, and then beat along. Children in younger age groups are able to beat on drums, but they may not have the cognitive skills needed to engage in the auxiliary functions, such as rhythm-setting, which the electronic drum pad affords. Children of this age also enjoy wind-up music boxes, tapes, records, mp3s, and CDs (see *Technology Play: Audiovisual Equipment*).

6 Through 8 Years

Children in the early elementary years from 6 through 8 years old have developed rhythmic discrimination, are better at remembering melodies than younger children, can read music when instructed, prefer to play real instruments, show interest in formal music lessons, and can sing in groups. At around 8 years of age, the ability to keep harmony develops, and they begin to create musical forms through improvisation. Children of this age also appreciate a high level of realism.

Suitable musical instruments are appropriately sized for the 6- through 8-year-old elementary school child to handle. Children this age prefer adult quality instruments. Musical instruments that children in this age group can use effectively include shakers of all kinds, maracas, castanets, tambourines, bells, drums and bongos, blocks (by scraping and tapping), triangles, rhythm sticks, cymbals, xylophones, keyboards, and pianos. Accordions with two motions

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(button pressing and pulling apart), are also mastered at this age. Younger children may not have the combination of gross motor skills (pulling) and fine motor skills (button pressing) needed to activate the accordion. Floor pianos also become appealing at this age because children have the cognitive skills needed to understand that the floor pad is supposed to be stepped on to make individual notes. Younger children may roll on the mat but lack the ability to step on the keys in a meaningful way. They are also able to play more complicated instruments, such as the autoharp, ukulele, flute, violin, horns, and the harmonica. Children of this age enjoy wind-up music boxes, tapes, records, mp3s, and CDs (see also *Technology Play: Audiovisual Equipment*).

9 Through 12 Years

Children ages 9 years and up have developed rhythmic discrimination, are good at remembering melodies, can generally read music well, prefer to play real instruments, can take formal music lessons, can sing in groups, are continuing to improvise musically, and can keep harmony. Children of this age prefer adult-quality instruments. Musical instruments that 9- through 12-year-olds can use effectively include shakers of all kinds, maracas, castanets, tambourines, bells, drums and bongos, blocks (by scraping and tapping), triangles, rhythm sticks, cymbals, xylophones, keyboards, and pianos. They are also able to play more complicated instruments, such as the autoharp, ukulele, flute, violin, horns, and the harmonica. Children of this age enjoy wind-up music boxes, tapes, records, and CDs (see also *Technology Play: Audiovisual Equipment*).

MEDIA PLAY: **MUSICAL INSTRUMENTS**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts*	Small enough for infant to handle, if intended to be grasped	--→	--→
Shape of Parts	Rounded, no sharp edges	--→	--→
Number of Parts*	Few pieces or parts (<3)	--→	--→
Interlocking/Loose Parts			
Materials*	Lightweight Soft Sturdy Washable	--→ --→ --→ --→	--→ --→ --→ --→
Motor Skills Required	Reaching Grasping	--→ --→ Hand-eye coordination Able to sit up unsupported around 6 months	Increased mobility (scooting, crawling, cruising, walking) Can grasp & shake Practicing fine motor skills such as grasping, pushing, pulling, squeezing, patting, poking, & shaking
Color/Contrast	Brightly-colored with high contrast	--→	--→
Cause & Effect*	A simple, clear cause-and-effect relationship	--→	Beginning to understand cause-and-effect relationship
Sensory Elements	Auditory Visual Manual	--→ --→ --→	--→ --→ --→

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Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Finds multisensory elements very appealing	--→	--→
	Enjoy music	--→	--→
	Like to explore objects manually & orally	--→	--→
	Learn through reflexes		--→
	Able to reach & grasp around 3 mo.	Increasing interest in surroundings	--→
	At birth, focus is best about 8 inches from face; by end of this period can see several feet away	Actively handles toys Mouthing & teething	--→ --→ Can hold 2 objects at once but cannot coordinate between them
Examples of Toys	Musical mobiles & gyms (see *Exploratory and Practice Play*)	Mobiles (prior to 5 months)	
	Wrist, ankle, & handheld rattles & shakers	Rattles & shakers	--→
	Wrist, ankle, & handheld bells		
	Wrist, ankle, & handheld chimes	Bells	--→
	Small, light tambourines	Chimes	--→
	Instruments that makes sounds when kicked	Small, light tambourines	--→
		Musical interactive & smart toys (see *Educational & Academic Play: Learning Toys* and *Technology Play: Smart Toys & Educational Software*)	--→

* One of the most influential characteristics for these toys.

MEDIA PLAY: **MUSICAL INSTRUMENTS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts*	Small enough for a toddler to handle	--→	--→
Shape of Parts	Rounded, no sharp edges (cont'd)	--→	--→
Number of Parts*	Few pieces or parts (cont'd)	--→	--→
Interlocking/Loose Parts			
Materials*	Lightweight (cont'd) Soft (cont'd) Sturdy (cont'd) Washable (cont'd)	--→ --→ --→ --→	--→ --→ --→ --→

Motor Skills Required	Increasingly skilled at walking
	Working on fine motor coordination
	    (controlled grasping & releasing,
	    pushing, pulling, squeezing, patting,
	    poking, & shaking, twisting, turning,
	    sliding, & cranking)
		--→
		--→
			--→
			--→
			
			Can move fingers independently of each other

Color/Contrast	High contrast (cont'd)	--→	All colors
Cause & Effect*	A clear cause-and-effect relationship (cont'd)	--→	--→
Sensory Elements	Auditory (cont'd) Visual (cont'd) Manual (cont'd)	--→ --→ --→	--→ --→ --→

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Finds multisensory elements very appealing	---→	--→
	Likes to explore objects manually & orally (cont'd)	---→	Music is related to other cognitive skills
	Increasingly curious & love to explore	---→	Music is inseparable from movement
	Beginning to self-select toys	Can self-select toys	Interested in the sounds different musical instruments make
	Uses all senses to explore the world: seeing, hearing, touching, tasting, & smelling	---→	Can perceive changes in volume
	Functional/exploratory play with musical instruments	---→	Can recognize simple melodies
			Can sing phrases of songs
	Can move bodies to music	---→	
			--→
			Repeats favorite songs
			Enjoys rhythm instruments
Examples of Toys	Rattles & shakers(cont'd)	---→	--→
	Bells (cont'd)	---→	--→
	Chimes (cont'd)	---→	--→
	Small, light tambourines (cont'd)	---→	--→
	Musical interactive & smart toys activated by button pressing such as a guitar (see *Educational & Academic Play: Learning Toys* and *Technology Play: Smart Toys & Educational Software*) (cont'd)	---→	--→
	Drums	---→	--→
	Bongos	---→	--→
	Xylophones	---→	--→
	Chunky whistles	---→	Tambourines
			Blocks (scraping and tapping)
			Triangles
			Rhythm sticks
			Novelty musical instruments (including horns without buttons)

* One of the most influential characteristics for these toys.

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MEDIA PLAY: **MUSICAL INSTRUMENTS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Sized for the preschooler to handle All except for very large portable instruments	--→ --→	All sizes	--→
Shape of Parts	Rounded, no sharp edges (cont'd)	--→	Various	--→
Number of Parts*	Many	--→	--→	--→
Interlocking/Loose Parts				
Materials*	Lightweight (cont'd) Sturdy (cont'd)	--→ --→	--→ Prefers adult-quality instruments	--→ --→
Motor Skills Required	Improving hand-eye coordination Can move fingers independently of each other (cont'd)	--→ Uses adult grip Good fine motor coordination	--→ --→	Fine motor skills increasingly adult-like
Color/Contrast	A variety of colors	--→		
Cause & Effect*	A clear cause-and-effect relationship (cont'd)	--→	Can understand delayed cause & effect	--→
Sensory Elements	Auditory (cont'd) Visual (cont'd) Manual (cont'd)	--→ --→ --→	--→ --→ --→	--→ --→ --→
Level of Realism/Detail		Prefers high level of realism	--→	--→
Licensed theme				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Classic				
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Learns through movement Can shake & tap instruments Keeps faster tempos better Can discern affective mood of musical pieces Limited vocal range Can sing simple songs on own key Likes to repeat songs	May begin taking music lessons Can coordinate large and small muscle movements Can copy simple rhythmic patterns Can play steady beats while moving or marching Can sing with others Can imitate simple songs Can play instrument along with simple music 5's can use instruments imaginatively 5's can recognize melody & reproduce it 5's have more vocabulary 5's can recite words rhythmically 5's can maintain steady beat while moving 5's can express musical ideas in many different ways 5's are involved in more improvisation 5's cannot perform harmony yet	Rhythmic discrimination Better at remembering melodies than younger children Can read music Play real instruments Show interest in formal music lessons Can sing in groups By 8 years, create musical forms through improvisation At around 8 years, the ability to keep harmony develops	--→ Good at remembering melodies Can read music well --→ Can take formal music lessons Can sing in groups Musical improvisation continues Able to keep harmony
Examples of Toys	Rattles & shakers (cont'd) Bells (cont'd) Chimes (cont'd) Small, light tambourines (cont'd) Musical interactive & smart toys (see *Educational & Academic Play: Learning Toys* and *Technology Play: Smart Toys & Educational Software*) (cont'd) Drums (cont'd) Bongos (cont'd) Xylophones (cont'd) Tambourines (cont'd) Blocks (scraping & tapping) (cont'd) Triangles (cont'd) Rhythm sticks (cont'd) Novelty musical instruments (including horns & whistles with buttons) (cont'd) Electronic drum pads	All examples in previous age group Cymbals Keyboards Pianos Wind up music boxes Tapes, records, CDs, mp3s, videos (see *Technology Play: Audiovisual Equipment*) Kazoos Harmonicas Pianos with symbol booklets with instructions for what keys to press Ukuleles Floor pianos Accordions	All examples in previous age group Autoharp Flute Violin Horns	All examples in previous age group

* One of the most influential characteristics for these toys.

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EDUCATIONAL & ACADEMIC PLAY

Children's cognitive development may be fostered through various media and particular toys that are provided for children's play with the goal of cognitive gain. Educational and academic play is seen with books, science kits, and press and guess games. Toys designed for this type of play require specific levels of knowledge and motor skill, so most toys in this category are recommended for children 19 months and older. However, some parents may believe their children are advanced, or may desire to give their children a "head start" over others. Consequently, educational and academic toys might be given to children at younger ages than described in these Guidelines, even if they are inappropriate for children in this age group for developmental or safety reasons.

Books ()

- ABC & number
- Chapter
- Cloth- or plastic-covered
- Coloring
- Information
- Interactive
- Nursery rhymes
- Picture
- Pop-up
- Rhyming
- Simple stories
- Tactile
- Vocabulary

Learning Toys ()

- Abacuses
- Architecture kits
- Binoculars
- Cameras
- Chemistry sets
- Circuit boards
- Colors & shapes
- Electronic teacher toys
- Felt play boards
- Flashcards
- Machine building kits
- Magnetic letters & numbers
- Microscopes
- Press & guess toys
- Science sets
- Telescopes
- Wipe-off educational mats

BOOKS

Research strongly indicates that a child's success in reading largely hinges on early experiences with literature, particularly during preschool years at home and the first few years of school. Unless positive attitudes toward reading are developed during the early years, a child is unlikely to grow into an adult who enjoys reading.

Books are appropriate for children of most ages, but they are not used independently by children as sources of information or stories until they are around the age of 19 months. Before that, books serve as an object in the environment that can be mouthed, carried, torn, or given to someone else to make them read a story. Recent research indicates that reading to children as early as 1 month old can be beneficial to their auditory perception skills, emotional balance, and language comprehension and development. Some studies even encourage in-utero reading. Reading is a skill that comes to fruition around the ages of 5 to 7 years; so until that time, children interact with picture books by visually exploring the details of illustrations. They are not constrained by the written words, often making sounds that correspond to the pictures, naming objects, and inventing stories.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of books:

- Number of Parts (pages)
- Materials
- Size of Parts
- Sensory Elements
- Level of Realism/Detail
- Color/Contrast

The order of the characteristics listed above does not necessarily indicate priority, because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of books are appropriate, and how a particular age group plays with books. These descriptions, however, do not apply to books read to children by parents, teachers, or older peers because in those cases, the child is not handling the book or

reading on their own. These descriptions apply only to the interactions between children and books.

Birth Through 3 Months

Emerging research encourages parents to talk and to read to their children, even in-utero. However, children ages birth through 3 months lack the physical, cognitive, and visual abilities necessary for interacting with books.

4 Through 7 Months

At this age, children's movements are progressing from involuntary reflexes to deliberate outwardly oriented movements. As the children mature, grasping, reaching, shaking, and pulling become ways in which they can interact with the environment. Grasping is mastered around 6 months. Because of children's emerging abilities, caregivers can give children ages 4 through 7 months of age books.. Appropriate books have relatively few pages (no more than five) that are easy to turn, portray a simple, familiar image on each page, and have bright colors and high visual contrasts. Children use visual skills to engage in play. Research studies indicate that children prefer yellow and red, to blue and green, and favor patterns rather than solids by 3 months of age. Therefore, when they are given books by 4 months old, books that have bright yellow and red pictures with high visual contrasts and patterns, these books are likely to be more appealing to children in this age group. Infants can handle books that are small (no more than around 4 to 8 inches in any direction) and light, yet sturdy. Once a book is grasped, it is likely to be mouthed immediately. Therefore, books for children in this age group are usually made to endure wetness without tearing or falling apart, such as books made from cloth or non-toxic plastic. Cloth and light plastic books are suitable for children 6 months and older; cardboard may be too heavy and unwieldy for children in this age group. Motor skills are crude at this age; so books provided for the child must be large enough for them to grasp easily (around 4 to 8 inches). Soft books will make any erratic arm motions safer for their eyes and faces.

8 Through 11 Months

The behaviors of 8- through 11-month-olds become more deliberately outwardly oriented, and fine motor skills are becoming more controlled. Children at this age can easily turn pages in books, but their lack of motor control may result in torn pages. This age brings the cognitive ability to understand simple cause-and-effect relationships, and this makes interactive books highly appealing. Books with things to lift, open, or slide are appealing and cognitively stimulating. Children in this age group can handle books that are less than 6 or 8 inches in any direction, are lightweight, yet sturdy, and are washable, with no more than five easily turned pages. The pictures in these books are simple and clear, with bright colors and high contrast. The pictures typically represent familiar objects, animals, or people to aid language development; and each page includes only one or a few objects. Cloth and light plastic books are suitable for children in this age bracket, but cardboard may be too heavy and unwieldy.

12 Through 18 Months

Children's emerging interests in novelty and exploration characterize the 12- through 18-month period. Tactile books, much like the cause/effect books described above, are appealing for this age group because children can interact with the book in ways not possible with regular books. This is also a time of growing language capabilities; consequently, books that have rhymes, rhythm, and repetition are suitable for aiding in their developing skills. Children in this age group enjoy looking at books as a solitary activity, and will do so frequently given the opportunity. Cardboard, fabric, and non-toxic plastic are appropriate materials for books. They are colorful and contain simple pictures of things the child recognizes from the world around them, such as cats, dogs, and birds. Picture/vocabulary books, simple picture/story books, nursery rhyme books, and simple ABC and number books are pleasing to children. As children's one-word utterances expand during this age group, they will enjoy pointing to these familiar objects in books and labeling them aloud. Books containing five to seven pages are manageable for this age group.

19 Through 23 Months

During this period, the child develops concepts of how to care for books. They can turn pages carefully and work to avoid tearing them. The child realizes that the book has a front and back, and that pictures have a top and a bottom. Cognitive abilities are developed to the point that they can understand that the pictures tell a story and that what the adult is doing is called "reading." They now regularly name and point to familiar objects in books, and particularly enjoy listening to nursery rhymes and repeating them with adults. Therefore, picture books with simple stories, nursery rhymes, ABCs, and number books are appropriate. By around 19 months, children are ready for "touch me" and other tactile books, and books with heavy paper pages. Books containing 7 to 10 pages are appropriate.

2 Years

Children at this age love to hear the same story read repeatedly. They memorize the stories and then will use them to "read" the story to themselves later. Predictable story lines are appropriate because they lend themselves easily to the memorization tendency the children have toward stories. By age 30 months, they begin to ask questions about what is being read to them. Two-year-olds enjoy simple pictures with few details and clear color, and are particularly interested in rhymes and repetition. Children in this age group like having and looking at their own books, and now can use books with 10 to 12 pages. Pop-up and "dress me" books are highly fascinating with this age group as well. Large, colorful pictures and story lines of familiar objects and events are appropriate. Children this age also enjoy books with pictures hidden behind windows or doors, and these books reinforce object permanence comprehension. By age 2, children begin to show an awareness of print; they now recognize that something else appears on the page with the pictures.

3 Years

Three-year-old children enjoy listening to stories that pertain to events with which they are familiar. Their expanding attention span—now up to about 20 minutes—allows them to enjoy hearing the same story multiple times, but they insist on hearing it the same way each time. If

there is any deviation from the story line, they will correct the reader. They want to respond to questions about the stories, offer comments and observations, and ask "why" questions.

Humor is becoming more refined, so wildly silly stories are appealing. Children in this age group delight in jokes, humorous stories, nonsense rhymes, tall tales, and stories about adventures, the here and now, information, animals—particularly animals that act like people—and places like the zoo, fire station, and park. They prefer stories that involve familiar objects like telephones, trucks, and dogs, to help them assimilate their own experiences. They like complex illustrations rich with detail. They enjoy fantasy stories, even though the lines between life and fantasy are still fuzzy for this age group. The characters in the stories are interpreted as real, and the events in the story may make them feel happy, sad, or angry. Three-year-olds enjoy making up their own stories and enjoy making books with adults. They are interested in violent stories that include death, killing, and objects that crash, fall down, or break. They tell stories describing how they beat up the bad guy that came into their house, with them emerging as the hero. Ghosts and witches are also frequently present in their stories.

Children of this age also tend to mark in books. Because of this, coloring books or other books in which marking is acceptable become attractive. For personal interactions with books, appropriate attributes include: more complicated illustrations than present in books for 2-year-old children, more pages (10 to 15), and a few more words on each page. Children of this age are generally farsighted and are still developing their binocular vision. Therefore, children in this age group will find larger print easier to read than smaller print.

4 Through 5 Years

Children 4 and 5 years old enjoy hearing stories time and time again. Topics of great interest include "here and now" themes, reality-based story lines, poetry, comics, seasonal/holiday stories, and animals with human traits. Dramatic play is a high-frequency behavior in these years, and it emerges in their literacy activities. They enjoy acting out their favorite stories or making up ones with their peers. This age group finds stories that teach them something, like new words and their meanings, to be valuable. Exaggerated and fantasy stories are not valued as much at this age because those stories are not "true."

Like 3-year-olds, children of this age generally are farsighted and are still developing their binocular vision. Therefore, larger print is more appropriate than smaller print in books. Literacy skills are emerging as children enter preschool and kindergarten during these years. Books that contain simple phonetic structure words and two to four sentences per page allow children to practice their reading with success and relatively little frustration. About 10 pages are sufficient for beginning literacy books.

6 Through 8 Years

Page numbers, size of books, and book contents gradually become more complex as the child's reading fluency increases. During these years, children learn to read with increasing fluency, and develop individual reading habits and preferences. Once literacy skills are acquired and mastered, children set their own pace for reading.

Children from 6 through 8 years have different topic interests in the stories they choose. Individual literacy skills are becoming more frequent among children of this age bracket, and they derive great pleasure in choosing their own books from library stacks, although they still enjoy being read to by an adult. Some topics enjoyed in the preschool years are still enjoyed by children over 6 years, like poetry and comics; but children in this age group have a new interest in fantasy, which largely dominates over the pleasure of reading about reality. Stories about good magic, heroes, myths, legends, and fairy tales are popular with 6- and 7-year-olds. They enjoy stories about reality, if they are sensational, dramatic, or funny. They also enjoy non-fiction books about children, nature, science, and the Earth's elements.

Once children in this age group reach about 8-years-old, they have become more capable of navigating components of more complex books, like the table of contents, index, and glossary. Eight- and nine-year-olds are interested in books about travel, adventure, geography, and ancient times; thus, they find pleasure in stories about people who live far away, or who lived long ago. Topics that surround humanity, such as situational humor, biographies, folk tales, and legends, are highly appealing to children of this age. Mystical elements, like superstition and luck,

become more favorable to read about than stories of magic. Comics and humor continue to be appealing.

9 Through 12 Years

By ages 9 and 10, most children have a favorite "something" that they prefer to read. Some children may prefer reading about a particular animal, such as horses or dolphins, while other children may be interested in a particular author, books related to a specific television or movie series, or a specific genre of book, like westerns, romances, and mysteries. Regardless of their preference, which may be not to read at all, the significant point is individual taste. Books for this age group largely resemble adult books, typically being made up of chapters and more than 50 pages. Smaller books are deemed childish, boring, or stupid.

The subject-interest guidelines below are general and may not reflect all individual preferences. Popular topics for ages 10 through 12 include:

- adventure – exploration, frontier life, pirate and sailing stories, westerns, pioneers
- fantasy – Greek and Roman myths, but not fairy tales
- biography and historical fiction – sports figures, pirates, cowboys, explorers
- mysteries – detectives, action/excitement, suspense, but without horror and murder
- westerns – good guy wearing white hat always saves the day
- sports – stories of school athletics, emphasis on teamwork and fair play
- animal stories – information on both wild and domestic animals, but not fantasy
- scientific discovery – lives of inventors and their discoveries
- information and how-to-books
- media-based – stories tied to characters seen on television shows, movies, or videos.

EDUCATIONAL & ACADEMIC PLAY: **BOOKS**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts*		Easy to grasp (4-8 inches); no more than 6 or 8 inches in any direction	---→
Shape of Parts			
Number of Parts*		No more than 5 pages	---→
Interlocking/Loose Parts			
Materials*		Light but sturdy Washable; can endure wetness without tearing or falling apart Cloth & light plastic	---→ ---→ ---→
Motor Skills Required		Grasping & page turning	---→ Fine motor skills are becoming more controlled so turning pages in a book is a task handled with ease
Color/Contrast*		Bright yellow & red pictures Pictures with high visual contrasts & patterns	---→ ---→
Cause & Effect			Understand simple cause-and-effect relationships, which makes interactive books appealing. Books with things to lift, open, or slide are attractive & cognitively stimulating

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Sensory Elements			
Level of Realism/Detail		Pictures are simple & clear; they represent familiar objects, animals, or people	---→
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Lack physical, cognitive, & visual abilities necessary for interacting with books	Movements progressing to deliberate outwardly oriented movements, such as reaching, grasping, shaking, & pulling Use visual skills to engage in play Color receptors present; prefers red, yellow, & patterns Sucking reflex Crude motor skills; erratic arm motions	---→ Understand simple cause-and-effect relationships Controlled fine motor skills
Examples of Toys	Not appropriate	Plastic-coated foam books Cloth books Simple picture books Nursery rhymes Simple ABC and number books	---→ ---→ ---→ ---→ ---→ Interactive books

* One of the most influential characteristics for these toys.

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EDUCATIONAL & ACADEMIC PLAY: **BOOKS**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts			
Shape of Parts			
Number of Parts*	Books containing 5-7 pages	Books containing 7-10 pages	Books containing 10-12 pages
Interlocking/Loose Parts			
Materials*	Books made from cardboard, fabric, or plastic	--→ Heavy paper pages	---→ ---→
Motor Skills Required	Page turning; child has the fine motor skills to perform this task	Turns pages carefully; works to not tear them	---→
Color/Contrast*	Colorful pictures	--→	Large, colorful pictures with few details & clear color
Cause & Effect*	Interactive books	--→	---→ "Dress Me" books are highly fascinating
Sensory Elements*	Tactile books with which the child can interact & explore are appealing	--→ "Touch Me" books	Enjoy books with pictures hidden behind windows or doors ---→ Pop-Up Books

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Level of Realism/Detail	Pictures are simple & of things the child recognizes	--→	--→
Licensed theme			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Emerging interests in novelty & exploration Growing language capabilities Looking at books as a solitary activity is a high frequency behavior No notice is given to print	Develops concepts of good care of books Realizes books have a front & back and that pictures have a top & bottom Understand that pictures tell a story & that the adult is "reading" Regularly name & point to familiar objects in books Enjoy listening to nursery rhymes & repeating them with adults	Love to hear same story over & over Memorize stories to repeat later Ask questions about the story Enjoy simple pictures with few details They like having & looking at their own books --→ Enjoy pop-up books & books with pictures hidden behind windows & doors Show an awareness of print (something else on the page with the pictures)
Examples of Toys	Tactile books; interactive books Books that have rhymes, rhythm, & repetition Picture books Simple vocabulary/story books Nursery rhymes Simple ABC and number books	--→ --→ --→ --→ --→ --→ "Touch Me" books	--→ --→ --→ --→ --→ --→ --→ Predictable stories Pop-up books "Dress Me" books Hidden picture books

* One of the most influential characteristics for these toys.

EDUCATIONAL & ACADEMIC PLAY: **BOOKS**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts				
Shape of Parts				
Number of Parts*	10-15 pages	About 10 pages for literacy-development books Increase according to child's literacy abilities & preferences in books	--→	Largely resemble adult-type books, made up of chapters, about 50 pages
Interlocking/Loose Parts				
Materials				
Motor Skills Required				
Color/Contrast				
Cause & Effect				
Sensory Elements*	Binocular vision is still developing & children are generally farsighted, so larger print is more appropriate.	--→	Standard/normal-sized print	--→
Level of Realism/Detail*	Prefer complex illustrations rich with detail	--→	By age 8, able to use table of contents, index, & glossary	--→
Licensed theme				
Classic				

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	Enjoy stories about familiar events Want to hear stories multiple times, same way each time Want to answer questions, share comments, ask why Humor becoming refined; like fantasy Like complex illustrations; tendency to mark in books Generally farsighted; developing binocular vision Enjoy making up own stories	Enjoy acting out stories --------------------------------------→ Prefer true, reality-based stories to fantasy --------------------------------------→ --------------------------------------→	Different topic interests in books Literacy skills more frequently found in children Derive great pleasure in choosing books from library Enjoy being read to by an adult By age 8, ability to navigate table of contents, index, & glossary	--------------------------------------→ --------------------------------------→ --------------------------------------→ By age 10, most have a favorite "something" about which they prefer to read May prefer to not read at all Small books are seen as childish
Examples of Toys	Enjoy topics of jokes, tall tales, animals that act like humans, adventures, the here & now, information, places, & fantasy. Wildly silly stories, humorous stories, & nonsense rhymes Picture books Predictable books Nursery rhymes Coloring books Self-created story books	--------------------------------------→ --------------------------------------→ --------------------------------------→ --------------------------------------→ --------------------------------------→ --------------------------------------→ --------------------------------------→ Also enjoy topics of here-and-now themes, reality-based story lines, poetry, comics, seasonal/holiday stories, and animals with human traits. Information stories that teach new concepts like words & meanings.	Enjoy topics of: poetry, comics, fantasy, heroes, fairy tales, legends, good magic, myths, children, nature, sensational/dramatic/funny stories of reality, Earth elements, superstition & luck. Prefer information books, particularly science. 8-9-year-olds enjoy books on geography, travel, adventure, & ancient past. Books that tell about humanity, such as situational humor, biographies, folk tales & legends. Chapter books & adolescent/juvenile novels	--------------------------------------→ --------------------------------------→ --------------------------------------→ Also enjoy topics of: adventure, sports, scientific discovery, media-based stories, how-to books Series books to continue child's favorite "something" to read about: animal, author, TV/movie, genre, etc. --------------------------------------→

* One of the most influential characteristics for these

LEARNING TOYS

Cognitive abilities, those higher-order mental processes, like reasoning and problem solving, through which humans try to understand the world, are present at birth. Cognitive activity is particularly high with young children who are learning all-new information. Cognition is gained through sensory experiences with the environment first, then later through abstract reasoning and thought. However, just because learning occurs as early as birth, learning toys are not necessarily appropriate for newborn children. Learning toys have intended uses, specific goals, and particular types of learning objectives. Thus, learning toys are appropriate only for older children who are cognitively ready for such elements of play.

Children do not use learning toys for true learning (that is, as tools for gaining information or strengthening cognitive skills) on an independent level until they are around the age of 2 to 3 years. Before that, "learning toys" are more appropriately considered "exploratory toys" or "activity toys," and they mainly serve as objects with which children can learn about their senses, develop their motor skills, and learn about cause and effect (see *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives*). Therefore, giving a true learning toy to children younger than 2 years of age is often inappropriate because children of that age lack the physical, cognitive, and visual abilities necessary for interacting with the toy in most intended ways. Therefore, discussion for this subcategory begins with age 2 years. Computer learning software/applications are not included in this subcategory; these and other educational software topics are discussed in the next subcategory, *Smart Toys & Educational Software*.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of learning toys:
- Level of Realism/Detail
- Educational
- Materials

The order of these characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of learning toys are appropriate and how a particular age group plays with these toys.

2 Years

Two-year-olds are cognitively and physically capable of interacting with simple learning toys. They have developed the ability to remember past events up to a day, to concentrate and focus on one task for a limited time, and to attend to as many as three directions at once. The cause-and-effect relationships they began to understand at 12 months are now fully developed, so toys using this skill are engaging. Children in this age group can use four- or five-word sentences. They can recognize and identify almost all common objects and pictures, and enjoy matching or naming objects and shapes. Activities like these strengthen their visual discrimination skills. They also can understand the physical relationships between objects, such as knowing that something is "on" or "under" another object. The purpose of numbers in counting objects is starting to become understood, so they can now understand the concept of "two." Cognitively, the early math skill of ordering by size has developed (it emerges around 19 months of age), and by 2, children can readily sort and order nesting cups in a meaningful way. This is different than previous age groups, who may have used the cups out of order to build or stack. Children in this age group are also beginning to understand simple time concepts, such as knowing that one thing comes after another. Asking questions, generally in the form of "why," is a high-frequency behavior for this age group. Simple electronic-teacher and other learning toys that teach colors, shapes, animals, letters and sounds, and numbers are suitable, especially when activated by buttons or a child's hand movement. Children at younger ages may lack the cognitive skills to absorb the content produced through these electronic-teacher toys at younger ages, and may be too interested in the cause-and-effect functionality of the buttons to listen to what the machine is saying, instead of pausing to absorb the content.

3 Years

Like 2-year-olds, 3-year-olds often ask "why" things are as they are. They have mastered some basic rules of grammar and can speak in sentences of five or six words. They can name most familiar objects and now understand the concepts of "same" and "different." They can correctly name some colors. Children in this age group understand the concept of counting and may know a few numbers. Suitable learning toys teach colors, shapes, letters and sounds, and numbers.

4 Through 5 Years

Preschool children are ready for learning toys and all the cognitive goals they bring. Literacy skills are beginning to emerge around 5 years. Children in this age group understand the way in which the toy should be used, can decipher the meanings of the words used (if the learning toy is electronic), and know how to interact with the toy. Learning toys that pertain to various domains of knowledge are appropriate: colors, letter and sound recognition, letter writing, number identification, counting, matching quantities to numerals, shapes, comparison, directionality (concepts such as back/front, over/under, and in/on) and scientific thought, such as space or biology. Preschool children can mentally work through problems and questions and enjoy practicing their intellectual abilities and acquiring facts. Fine motor skills are well developed, so small pieces present relatively little challenge.

Appropriate learning toys for the preschool child include toys that teach colors and shapes, and simple letter and number concepts. For example, alphabet magnets and abacuses are appropriate. At this age, children will often search for the first letter of their name, or if they have practiced, may be able to spell their own name with alphabet magnets. At this age, children have the cognitive skills to enjoy counting and will slowly move beads on an abacus to practice numbers. At any younger age, children look at an abacus as a bead toy or maze (something that should be manipulated rather than counted). They also enjoy science materials, such as magnets, color-mixing equipment, magnifying glasses, flashlights, prisms, thermometers, scales, stethoscopes, speedometers, pedometers, compasses, models of the solar system, rock/shell collections or kits, animal habitats, telescopes, binoculars, see-through clocks with visible gears, simple calculators, alphabet ink stamps, and functioning toy typewriters. Science experiments with a few steps are manageable at this age group, as children are able to follow along with directions starting in this age group (no younger). Cameras with a viewfinder function can also be used properly at this age. Looking through the glass and pointing out objects is appealing. At younger ages, children lack the cognitive skills to understand which side of the camera is the proper side to look through.

6 Through 8 Years

Learning toys for elementary-age children are very much the same as those for preschoolers. The only difference is the level of complexity. Elementary-age children, particularly upper elementary, find realistic-looking learning toys more appealing than those that look like children's toys. They prefer to interact with real-world objects, rather than plastic replicas. Children in this age group are ready for skill-specific toys, rather than those that focus on broad concepts used by the preschoolers. Literacy is an emerging skill during these years; so toys that reinforce reading are appropriate. At age 6, children are still establishing the foundation of reading; by age 8 and 9, most are reading fluently and reading for content (see *Educational & Academic Play: Books*). Growing math skills include simple addition and subtraction in the early grades, and multiplication, division, and fractions in the later grades.

Children in this age group can use more sophisticated science and chemistry sets, microscopes, telescopes, and binoculars. They are interested in their own anatomy and elements in the world, so scientific exploration sets that allow dissecting and examining slides are highly attractive. Adult supervision is warranted, depending on the child, the type of equipment, and the particular use of the equipment (such as sharp edges/blades or chemicals in science sets). They may also find toys that focus on astronomy and the solar system, geography, or history interesting, such as educational mats with wipe-off crayons. Children at younger ages may only use mats with wipe-off crayons as coloring spaces instead of absorbing the content.

9 Through 12 Years

Skills that were being introduced in the prior age group are largely mastered by ages 9 through 12. Most children can read fluently, add, subtract, multiply, and divide. Their skills are approaching adult levels with increasing frequency. Nine-year-olds are realistic, able to plan, responsible, self-conscious, and competitive. They are interested in things beyond their environment, like people's biographies, ancient times, and other cultures. In addition, they are capable of independent, critical thinking. Similarly, 10-year-olds enjoy learning new things and memorizing facts. During this time, they begin to establish definite preferences for subject matter and reading material, largely due to subjects being explored more in-depth at school. By 11, definite preferences emerge for some school subjects over others. This trend continues through

age 12, when their thinking is more adult-like. Abilities to generalize and theorize are present, as are abilities to conduct scientific experiments.

In general, materials that were appropriate for 6- through 8-year-olds remain appropriate for 9- through 12-year-olds. Realistic items are preferred over those that resemble toys. Standard typewriters and calculators are acceptable.

EDUCATIONAL & ACADEMIC PLAY: **LEARNING TOYS**

Toy Characteristics	2 Years	3 Years
Size of Parts	Small enough to handle, if intended to be grasped	
Shape of Parts	Rounded, no sharp edges	
Number of Parts		
Interlocking/Loose Parts		
Materials*	Lightweight Sturdy Washable	
Motor Skills Required	Can push buttons	
Color/Contrast		
Cause & Effect		
Sensory Elements	Visual Manual Auditory	

Toy Characteristics	2 Years	3 Years
Level of Realism/Detail		
Licensed theme		
Classic		
Robotic/Smart Features		
Educational*	Matching colors, shapes, & pictures Naming objects, shapes, & pictures Basic physical & temporal relationships between objects Basic counting	Matching colors, shapes, & pictures (cont'd) Naming objects, shapes, pictures, & colors Basic rules of grammar Basic physical & temporal relationships between objects (cont'd) Numbers & counting
Relevant Play/Behavior	Cognitively & physically capable of interacting with simple learning toys Finds multisensory elements very appealing Can remember past events, concentrate & focus on tasks, & to attend to as many as 3 directions at once Fully developed understanding of cause-and-effect relationship Ask lots of "why" questions Can use 4- & 5-word sentences Can recognize, identify, & name common objects, pictures, & shapes Understands "on" & "under" Begins to understand purpose of numbers Understands the concept of "two" Begins to understand simple time concepts; *e.g.*, "after"	Ask lots of "why" questions Understands basic rules of grammar Can use 5- & 6-word sentences Can name most familiar objects, pictures, shapes, & colors Understands purpose of numbers; may name a few Understands concepts of "same" & "different"
Examples of Toys	Simple electronic-teacher toys Learning toys that teach colors, shapes, picture/object names, animals, letters & sounds, & numbers activated by buttons or child's hand Matching games	Simple electronic-teacher toys Learning toys that teach colors, shapes, letters & sounds, numbers & counting Matching games

* One of the most influential characteristics for these toys.

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EDUCATIONAL & ACADEMIC PLAY: **LEARNING TOYS**

Toy Characteristics	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts			
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials			
Motor Skills Required			
Color/Contrast			
Cause & Effect			
Sensory Elements			
Level of Realism/Detail*		Prefer realistic-looking toys Prefer real-world objects to plastic replicas	--------------------------------------→ --------------------------------------→
Licensed theme			
Classic			
Robotic/Smart Features			
Educational*	Understands concepts of: color, letter & sound recognition, letter writing, number identification, counting, matching quantities to numerals, shapes, comparison, science, & directionality	Ready for skill-specific toys such as literacy & math Interested in scientific exploration in anatomy, biology, chemistry and astronomy	Most read fluently & have mastered simple math computation skills Develop subject-specific preferences & aversions Capable of critical thinking

Toy Characteristics	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Relevant Play/Behavior	Literacy skills begin around age 5 Understand meaning of words used by toys Can mentally work through problems & questions Enjoy practicing intellectual abilities & acquiring facts Fine motor skills are well developed	Desires more complex & realistic-looking learning toys, rather than plastic replicas Ready for skill-specific toys Literacy & math calculations are emerging skills	9-year-olds are realistic, responsible, self-conscious & competitive; interested in biographies, ancient times & other cultures At 10, enjoy learning new things & memorizing facts; establish preferences for subjects At 11, preferences for subject matter is definite At 12, thinking is more adult-like; able to generalize and theorize; able to conduct scientific experiments
Examples of Toys	---→ ---→ Magnets, flashlights, scales, magnifying glasses & prisms Color mixing equipment, alphabet ink stamps Thermometers & stethoscopes Speedometers/pedometers Models of solar system; rock/shell collections or kits, animal habitats Telescopes, binoculars See-through clocks Simple calculators Functioning toy typewriters Science experiments with few steps Cameras with view finder function Alphabet magnets Abacuses	All examples from previous age group Learning toys that teach literacy, numeracy, & science Astronomy models Science kits: chemistry sets, weather forecasting kits Simple microscopes with slides & dissecting accessories Measuring tools like rulers, protractors, & compasses Educational mats/crayons with content about solar system, geography, history	All examples from previous age group History Geography Standard typewriters & calculators

* One of the most influential characteristics for these toys

TECHNOLOGY PLAY

Today, children are digital natives, with technology present in their lives from infancy through adolescence. In 2013, it was estimated that children between the ages of 0-8 spend more than 2 hours each day with television, DVDs, computers, video games, and mobile devices. It is through these devices that children are able to consume games, music, programming, as well as fully use features of toys that are compatible with these devices.

It should be noted that the 2016 American Academy of Pediatrics guidelines suggest that children under the age of 18 months should not use screen media (*i.e.*, mobile devices, television, computers, or video games), except for video chatting. Furthermore, it is suggested that children 18-24 months consume high-quality programming only with a parent. As such, parents should be prudent in regulating the amount of time that children spend with screens. Likewise, for children ages 5-18, the 2016 American Academy of Pediatrics guidelines suggest that parents should ensure that their child exercises for an hour a day and sleeps 8-12 hours a night, and to make sure that media use does not cut into those two essential activities. They also suggest that children and adolescents avoid screen use before bedtime or in the bedroom, and encourage parents to be involved in their child's online habits to prevent online predators.

Technology is rapidly changing. For example, between 2011 and 2013, the number of families with a tablet jumped from 8 percent to 40 percent. In 2011, 38 percent of 0- to 8-year-olds had used a smart mobile device, and in 2013, this statistic was 72 percent. As such, we recommend that this section be updated frequently as new technologies enter the market.

Smart Toys & Educational Software ()

- Academic software
- Computer games
- Digital manipulatives
- Interactive pets
- Internet connections

Audiovisual Equipment ()

- Audio Tapes/CDs/mp3s of lullabies or nursery rhymes
- Children's movies
- Children's tape players
- Folk/cultural, pop/rock, classical music
- Karaoke machines
- Music boxes
- Portable CD Players & headphones
- Silly songs/word plays/finger plays
- Sing-a-longs
- Television shows/streaming programming

Computer & Video Games ()

- Cartridge type consoles
- Hand held computers
- Internet games
- Mobile apps on touchscreen devices
- Software
- Traditional computer platforms

SMART TOYS & EDUCATIONAL SOFTWARE

The technology boom has brought to the toy market a new kind of toy: an interactive, electronic, computerized, "smart" toy. This technology has fostered a new kind of play. Smart toys are toys that can respond to the user's play actions through sound, voice recognition, visual effect, or movement. This new line of toys has various levels of sophistication, but essentially a smart toy is computer chip-based. Unlike simple battery-operated toys from past generations, smart toys and educational software/applications interact in more creative ways with the user. They also connect to computers through an Internet connection, or a cord right into the computer, for increased personalization and ability to respond to the user.

Cognitive abilities, those higher-order mental processes, like reasoning and problem solving, are present at birth. At first, understanding is gained through sensory experiences with the environment, then later, through abstract reasoning and thought. However, even though learning begins at birth, it does not mean that smart toys and computer software/applications are appropriate for newborn children. Some smart toys that record the child's voice and pass this information along to remote servers may not be appropriate at any age if parents are concerned about security. Like learning toys, smart toys and educational software/applications have intended uses, specific goals, and particular types of play objectives. They are appropriate only for children who have reached an appropriate level of cognition for such elements of play. Children younger than 2 years of age lack the physical, cognitive, and visual abilities necessary to interact with toys or computer software/applications in intended ways; toys for those children are discussed in *Exploratory and Practice Play: Mirrors, Mobiles, & Manipulatives* or *Technology Play: Computer & Video Games*.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of smart toys and educational software/applications:

- Sensory Elements
- Motor Skills Required
- Education
- Level of Realism/Detail
- Materials

The order of the characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of smart toys and educational software/applications are appropriate and how a particular age group plays with these toys.

2 Years

Two-year-olds are cognitively and physically capable of interacting with simple smart toys and software programs/applications. They have developed the ability to remember past events up to a day, to concentrate and focus on one task for a limited time, and to attend to as many as three directions at once. The cause-and-effect relationships they began to understand at 12 months are now fully developed, so toys using this skill are engaging. Children in this age group can use four- or five-word sentences. They can recognize and identify almost all common objects and pictures, and enjoy matching or naming objects and shapes. Activities like these strengthen their visual discrimination skills. They also can understand the physical relationships between objects, like knowing that something is "on" or "under" another object. The purpose of numbers in counting objects is starting to become understood, so they can now understand the concept of "two." Children in this age group are also beginning to understand simple time concepts, such as knowing that one thing comes after another. Asking questions, generally in the form of "why," is a high-frequency behavior for this age group. Children in this age group find enjoyable simple smart toys and software/applications that teach colors, shapes, animals, letters and sounds, and numbers.

Lovable characters from video and television are popular mobile applications or software packages for children in this age group because they have developed the ability to remember events. Children enjoy listening to simple stories at this age, so software or mobile applications that incorporate story lines are engaging. They also enjoy having an experience repeatedly, as such predictability provides a sense of security. Appropriate software or mobile applications for this age group include a great deal of music and visual engagement opportunities. Their interest is held longer when the software/application is energetic and rich with sensory elements, such as music, moving characters, blinking lights, and speech. Mobile applications that offer real-time,

contingent feedback to the child are even more engaging and can help the child learn content from the screen. Software programs and mobile applications that have big, brightly colored animation and require simple responses from the child (for example, using the space bar only, or touching large areas on a touchscreen) are appropriate. Hand-eye coordination is still developing, so software that employs a large, slow cursor or arrow indicator with a large margin of error for pointing accurately may be usable by children in this age group. However, it is best if children can access the software on a touchscreen device, which is easier for children to manipulate at this age.

Children of this age are interested in animals, vehicles, and places like the beach or the zoo. Software and applications that have heavy emphasis on traditionally formal academic areas (for example, literacy and numeracy) are inappropriate, but visual discrimination skills, such as matching colors and shapes, are appropriate. Children in this age group are generally farsighted and are still developing their binocular vision. Therefore, they can more easily view larger print and pictures. Because children prefer red and yellow colors, suitable visuals for these toys are bright and based on primary colors. Children's attention spans are short, so appropriate visuals in software are those that offer variety in what they are presenting the child through the use of lots of movement, large characters, or energetic sound effects. If children can bond with a character through the use of a plush toy (or a smart toy personalized for the child) before seeing them present content onscreen, children stand to learn more new skills from that character onscreen.

3 Years

Like 2-year-olds, 3-year-olds often ask "why" things are as they are. They have mastered some basic rules of grammar and can speak in sentences of five or six words. They can name most familiar objects and now understand the concepts of "same" and "different." They can correctly name some colors. Children in this age group understand the concept of counting and may know a few numbers. Suitable smart toys, software, and mobile applications teach colors, shapes, letters and sounds, and numbers.

Children in this age group also find lovable characters from video and television appealing, so software packages/applications associated with those characters tend to be popular. In this age

group, children will sometimes prefer an item with a licensed character than an undecorated item. Children in this age group enjoy software that incorporates story lines and enjoy having an experience repeated. As with 2-year-olds, children in this age group enjoy software and applications that allow for music and visual engagement opportunities. Their interest is held longer when the software is energetic and rich with sensory elements, such as music, moving characters, blinking lights, and speech. Software programs/applications that have big, brightly colored animation and require simple responses from the child are appropriate. Programs that can offer an immediate contingent response to the child's input are most appealing. Hand-eye coordination is still developing, so software that employs a large, slow cursor or arrow indicator with a large margin of error for pointing accurately may be usable by children in this age group. However, it is best if children can access the software on a touchscreen device, which is easier for children to manipulate at this age. Children of this age are commonly interested in animals, vehicles, and places like the beach or the zoo. As with younger children, software or applications that have heavy emphasis on traditionally formal academic areas (for example, literacy and numeracy) are inappropriate; but visual discrimination skills, such as matching or naming colors and shapes, are appropriate. Learning this type of content at this age has been found to be aided by a robot with a smart phone plugged into its head that is able to control the robot's movements to be more contingent to the child's input. Three-year-olds are generally farsighted and are still developing their binocular vision. Therefore, children in this age group can more easily view larger print and pictures. Due to their limited attention spans, appropriate software visuals offer variety in what they are presenting through the use of lots of movement, large characters, or energetic sound effects.

4 Through 5 Years

Preschool children are ready for smart toys and software/applications and all the cognitive goals and requirements they bring. Children in this age group can understand how the smart toy should be used and know how to interact with the toy; although they may not turn to the smart toy for help with problem solving and can become irritated by inappropriate or looped feedback. Dramatic play is at a high level, so interactive toys are appealing in that they "participate" in the play scenario. When playing with an electronic smart dog, about two-thirds of children in this age group attributed mental states, social report, and moral standing to the dog. Fine motor skills

are well developed, so small pieces that come with the toy present relatively little challenge. It should be noted that smart toys that connect to online services through computing networks should be checked for privacy concerns. Children will disclose information to technology blindly because they trust anthropomorphic toys, and children at this age have a poor understanding of what privacy means.

Formal academic skills are beginning to emerge around 5 years of age, so software that pertains to various domains of knowledge is appropriate. Concepts that are consistent with this age group's development include: colors, letter and sound recognition, letter writing, number identification, counting, matching quantities to numerals, shapes, comparison, directionality (concepts such as back/front, over/under, and in/on) and scientific thought about topics like space or biology. However, it should be noted that when parents read books to their children at this age, child comprehension of book content is often higher in a traditional paper format than an electronic format on a tablet. Preschool children can mentally work through problems and questions, so programs designed to have the user engage in logical thinking and classification are enjoyed. Children in this age group like to practice their intellectual abilities and acquire facts. Art-related software or applications are appealing. Drawing, coloring, and designing are largely enjoyed. Some programs for preschoolers may be aimed at familiarizing the child with the computer keyboard, or teaching musical concepts. Applications aimed at developing fine motor skills among this age group, however, have shown to be less effective than practicing with real objects that may help develop fine motor skills, such as scissors, threading, and lacing.

Preschoolers' interests are held longer when the software/application is energetic and rich with sensory stimulation like music, moving characters, blinking lights, contingent feedback, and speech. Software tied to television and movie media are enjoyed. Hand-eye coordination is well developed, so mouse use is appropriate. Like 3-year-olds, 4- and 5-year-olds are generally farsighted and are still developing their binocular vision. Therefore, children in this age group can more easily view larger print and pictures included in the software program. Viewing images can be different today, because a child could use the camera on a touchscreen tablet to look at a toy, and then "play" with the toy on the touchscreen device through a process called augmented

reality. At this age, children are able to master this type of application and enjoy playing with the game and will spend most of their time pointing, responding, and exploring.

6 Through 8 Years

Smart toy and educational software/application use with elementary-age children is very much the same as it is for preschoolers. The only difference is the level of complexity. Elementary-age children, particularly upper elementary, find realistic-looking smart toys more appealing than those that look like plastic toys for younger children. They prefer to interact with real-world objects rather than plastic replicas. At this age, children prefer smart toys that they can ask their own questions because they are aware if the toy appears to be repetitive or responding with looped audio.

Similar appeal applies to computer software and mobile device applications. The percentage of children in this age group using the Internet is growing; so software that has Internet tie-ins is appealing to them. Social interaction is a priority for elementary-age children; so software and applications that include friends, such as multiplayer games, are popular. Movies and music videos are high-interest items; so software/applications that include "trendy" and pop-culture elements are also desirable to children in this age group. Around age 7 or 8, many children develop a strong interest in competitive sports and games. Thus, computer sports games are appropriate. Children in this age group also have the fine motor skills and hand-eye coordination necessary for successfully participating in this type of software play.

Children in this age group are ready for skill-specific software programs/applications, rather than ones that focus on broad concepts used by preschoolers. Literacy is an emerging skill during these years, so software and applications that reinforce reading skills are appropriate. At age 6, children are still establishing the foundation of reading; by age 8, most are reading fluently and reading for content. Story-writing programs offer another option for developing literacy skills, but most word processing programs are too difficult for children in this age group to use. Simple programs/applications for learning to type are appropriate. Growing math skills include simple addition and subtraction in the early grades, multiplication, division, and fractions in the later grades. Software/applications aimed at working on math skills typically focus on these

mathematical functions. In addition, logical thinking, graphics, and music-writing programs are appropriate for the children who hold interests in these areas. If a child is interested in electronics and computer functioning, low-complexity software programs that teach the design of computing machines and familiarize the child with basic programming will be of interest.

9 Through 12 Years

Smart toys, mobile applications, and software that are appropriate for 6- to 9-year-olds remain appropriate for 9- through 12-year-olds. Most children in this age group can read fluently, add, subtract, multiply, and divide. With increasing frequency, their skills are approaching adult levels. Nine-year-olds are interested in things beyond their environment, like people's biographies, ancient times, and other cultures. In addition, they are capable of independent critical thinking. Similarly, 10-year-olds enjoy learning new things and memorizing facts. During this time, they begin to establish definite preferences for subject matter and reading material, largely due to subjects being explored more in-depth at school. By 11, definite preferences emerge for some school subjects over others. This trend continues through age 12, at which point their thinking is more adult-like. Software that extends on their specialized interests holds high levels of appeal. Abilities to generalize and theorize are present as well.

Children in this age group can use simple word processing programs. Special subject computer programs on spelling, geography, or political science may also interest them. High interests in computers may be addressed through software dealing with programming languages.

TECHNOLOGY PLAY: **SMART TOYS & EDUCATIONAL SOFTWARE**

Toy Characteristics	2 Years	3 Years
Size of Parts	Small enough to handle, if intended to be grasped	
Shape of Parts		
Number of Parts		
Interlocking/Loose Parts		
Materials*	Computers running software are electric; adult supervision is needed	Computers running software is electric; adult supervision is needed
Motor Skills Required*	Software that requires simple responses from the child (like large spaces for input on a tablet or using the space bar only on a traditional computer) is appropriate Hand-eye coordination is still developing, so mouse use should be kept at a minimum	Software/ or application that requires simple responses from the child (like large spaces for input on a tablet or using the space bar only on a traditional computer) (like using the space bar only) is appropriate Hand-eye coordination is still developing, so mouse use should be kept at a minimum
Color/Contrast	Big, brightly colored animation; preference for red & yellow colors (primary colors)	Big, brightly colored animation; preference for red & yellow colors (primary colors)
Cause & Effect	Understanding the cause-and-effect relationship is fully developed, so programs utilizing this skill are engaging and provide contingent feedback to children's input	Understanding the cause-and-effect relationship is fully developed, so programs utilizing this skill are engaging and provide contingent feedback to children's input
Sensory Elements*	Interest held longer when software or smart toy is energetic & rich with sensory elements like music, moving characters, blinking lights, & speech Includes a great deal of music & visual engagement	Interest held longer when software, application, or smart toy is energetic & rich with sensory elements like music, moving characters, blinking lights, & speech Includes a great deal of music & visual engagement
Level of Realism/Detail		

Toy Characteristics	2 Years	3 Years
Licensed theme	Lovable characters from video & TV are popular software and mobile application packages If children can bond with a character through the use of a plush toy (or a smart toy personalized for the child) before seeing them present content onscreen, children stand to learn more new skills from that character onscreen	Lovable characters from video & TV are popular software and application packages Children will sometimes prefer an item with a media character on it than a plain, undecorated item
Classic		
Robotic/Smart Features	Cognitively & physically capable of interacting with simple smart toys & software programs	Cognitively & physically capable of interacting with simple smart toys & software programs Learning is aided by a robot with a smart phone plugged into its head that is able to control the robot's movements to be more contingent to the child's input
Educational*	Matching colors, shapes, & pictures Naming objects, shapes, & pictures Basic physical & temporal relationships between objects Basic counting	Matching colors, shapes, & pictures Naming objects, shapes, pictures, & colors Basic rules of grammar Basic physical & temporal relationships between objects Numbers & counting
Relevant Play/Behavior	Developed ability to remember past events, to concentrate & focus on tasks, & to attend to as many as 3 directions at once Fully developed understanding of cause-and-effect relationship Interested in animals, small vehicle toys, & places (like beaches & zoos) Generally farsighted, still developing binocular vision Short attention spans Enjoy listening to stories Enjoy having experiences repeated over & over	Developed ability to remember past events, to concentrate & focus on tasks, & to attend to as many as 3 directions at once Fully developed understanding of cause-and-effect relationship Interested in animals, small vehicle toys, & places (like beaches and zoos) Generally farsighted, still developing binocular vision Short attention spans Enjoys listening to stories Understands basic rules of grammar Enjoys repeating experiences Understands numbers & knows a few

Toy Characteristics	2 Years	3 Years
Examples of Toys	Visual discrimination programs Simple smart toys Sing-along software Software and applications that teach colors, shapes, letters & sounds, & numbers Matching games/software Story-line software Software and applications that are related to transportation, animal, & place themes	Visual discrimination programs Simple smart toys Software that teaches colors, shapes, picture/object names, letters & sounds, & numbers Matching games Story-line software/ and applications Software that is related to animal, transportation, & place themes

* One of the most influential characteristics for these toys.

TECHNOLOGY PLAY: **SMART TOYS & EDUCATIONAL SOFTWARE**

Toy Characteristics	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts			
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials	-------------------------------------→	--------------------------------→	
Motor Skills Required*	Fine motor skills are well developed, so small pieces with smart toy present relatively little challenge Hand-eye coordination is well developed, so mouse use is appropriate	-------------------------------------→ -------------------------------------→	-------------------------------------→ -------------------------------------→
Color/Contrast			
Cause & Effect	-------------------------------------→		
Sensory Elements*	-------------------------------------→ -------------------------------------→	----------------------------→ ----------------------------→	
Level of Realism/Detail*	A child could use the camera on a touchscreen tablet to look at a toy, and then 'play' with the toy on the touchscreen device through a process called augmented reality. At this age, children are able to master this type of app an enjoy playing with the game and will spend most of their time pointing, responding, and exploring (YILMAZ, 2016).	Find realistic-looking toys appealing Prefer real-world objects to plastic replicas	-------------------------------------→ -------------------------------------→
Licensed theme	-------------------------------------→	--------------------------------→	-------------------------------------→
Classic			

Toy Characteristics	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Robotic/Smart Features	Capable of understanding the way in which the smart toy should be used & knowing how to interact with it Can become irritated by inappropriate or looped feedback. Begin to attribute mental states, social report, and moral standing to smart toys Smart toys that connect to online services through computing networks should be checked for privacy concerns. Children will disclose information to technology blindly because they trust anthropomorphic toys, and children at this age have a poor understanding of what privacy means	Capable of physically handling the components needed for playing software games, like sports activities ---→ Prefer smart toys that they can ask their own questions because they are aware if the toy appears to be repetitive or responding with looped audio	---→ ---→
Educational*	Capable of concepts of: color, letter & sound recognition, letter writing, number identification, counting, matching quantities to numerals, shapes, comparison, science, & directionality	Ready for skill-specific software such as literacy (reading & writing) & math (addition, subtraction, multiplication, etc.) Interested in scientific exploration in anatomy, biology, chemistry, & astronomy	Most read fluently & master math skills Develop subject-specific preferences & aversions Capable of independent, critical thinking
Relevant Play/Behavior	Literacy skills begin around 5 Understand meaning of words used by toys & software Can mentally work through problems & questions Enjoy practicing intellectual abilities & acquiring facts Fine motor skills are well developed Dramatic play is at a high level	Percentage of children in this age group using the Internet is growing Social interaction is a priority Strong interest in competitive sports & games (around age 7-8) Desire more complex & realistic-looking learning toys, rather than plastic replicas Ready for skill-specific toys Literacy & math calculations are emerging skills	9-year-olds are interested in biographies, ancient times, & other cultures 10-year-olds enjoy learning new things & memorizing facts; have preferences for subjects 11-year-olds' preferences for subject matter are definite 12-year-olds' thinking is more adult-like; able to generalize &theorize; able to conduct scientific experiments
Examples of Toys	Interactive pets Digital manipulatives Programs that have the user engage in logical thinking & classification. Action based (boys) & animal/ human based software/applications (girls) Art related software/applications (drawing, coloring, designing); music Computer keyboard orientation software	Internet tie-in software/applications Software/applications that include friends, such as games & sports ---→ Programs that teach: literacy, numeracy, science, writing, keyboard use, & music. Story writing programs ---→	All examples for previous age group Basic word processing programs Software/applications extending specialized interests Subject-specific computer programs on spelling, geography, or political science. Software/applications teaching programming languages for sports, games, & software

* One of the most influential characteristics for these toys

AUDIOVISUAL EQUIPMENT

Children play with audiovisual equipment differently at different ages. The volume level, length of the video program, visual images, language presentation, and content/theme represented in the music or show, determine the age for whom the audio and video elements are appropriate. Audiovisual equipment can be appropriate for children of all ages, but parents must operate this equipment for younger children. The following discussion describes in detail how various age groups engage in audio/video play and what types of music and visuals are appropriate for those ages. These descriptions do not, however, apply to computer or video games. Those types of visuals are addressed in the *Computer & Video Games* subcategory.

One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of audio/video equipment:

- Sensory Elements
- Length of Video or Audio Track
- Level of Realism/Detail
- Level of Complexity

The order of the above characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of audiovisual equipment are appropriate and how a particular age group plays with this equipment.

Birth Through 3 Months, 4 Through 7 Months

Much research has been conducted to discover what newborn children can hear. Children react with distressful behaviors to loud and sudden noises and to changes in the volume of audio/video equipment. Young children prefer to listen to sounds that fall within the frequency range of the human voice, so they will prefer listening to a human voice over a bell. Low tones are found to be more effective in quieting children, whereas higher tones tend to distress them. Children especially enjoy gentle repeated rhythms and exaggerated speech sounds. For example, children less than 3 months old enjoy "heartbeat" rhythms.

Children use their discriminative sensitivities to distinguish speech sounds as early as 1 month of age. Between the ages of 3 and 6 months, the infant can localize sounds, babble, and make singing sounds with adults. Children between 4 and 7 months of age can tell the difference between a lullaby and an adult-directed song, even when the song and lullaby came from a foreign culture. Seven-month-olds can discriminate sentence tunes, imitate sounds and sound sequences, and make singing sounds to music. Therefore, audio equipment with soft, rhythmic, or human voices are more appropriate than those with loud, jarring sounds. Audio equipment that includes language that children can imitate or accompany is appropriate. Children in this age group are attracted to Internet streaming audio, mp3s, records, tapes/cassettes, CDs, or other audio sources of lullabies, simple songs, rhythms or nursery rhymes that have gentle, predictable sounds and are played at low volumes. Music boxes wound by an adult are also appropriate.

A newborn's visual acuity is about 20/400 to 20/800, which means that a newborn sees the same level of detail at 20 feet that a normal-vision adult can see at 400 to 800 feet. By 3 months of age, acuity improves to around 20/100. Children younger than 1 month old have eye lenses that do not vary in their focus on distance, a process called visual accommodation. Rather, their lenses seem to be fixed for optimal focus at a distance of about 8 inches. Visual accommodation improves between 1 and 3 months of age and is almost adult-like by the time children are 6 months old. Research studies also explain that children can differentiate red from green—even at birth—and that by 2 months of age, all color receptors are functioning. By 3 months, children prefer yellow and red to blue and green and favor patterns over solids. Due to children developing vision capabilities and limited range of vision, video play is generally not appropriate. However, these children will watch television and videos that are geared toward them.

8 Through 11 Months

Eight- through 11-month-olds enjoy participating in finger-play, sing-song games, such as "So Big," "This Little Pig," and "Pat-a-Cake." Audio equipment that includes language that children can imitate or accompany is appropriate. Internet streaming audio, mp3s, records, tapes, CDs, and other audio sources of lullabies, simple songs, rhythms or nursery rhymes that have gentle,

predictable sounds and are played at low volumes are appealing. Music boxes wound by an adult are also appropriate.

12 Through 18 Months, 19 Through 23 Months

Children in this age group become increasingly mobile. Once they start walking, they start dancing; at earlier ages, this is mostly in the form of bouncing. With time, bouncing to music develops into running, twirling, hopping, clapping, and foot stamping. Children enjoy upbeat music that stimulates their internal drive to move, bounce, rock, and dance. Dancing also helps them develop physical coordination, balance, muscle strength, and dexterity. They enjoy moving to music, which makes finger-play songs, "point to" songs, and rhythm instruments popular.

Children in this age group's sensitivity to sounds has now improved to adult levels. While younger children can hear better at low than high frequencies, the auditory sensitivity of children in this age group has improved more for higher than for lower sounds and is as good as an adult's. Therefore, increasing the range of auditory stimuli is appropriate during this age. Around 12 months of age, children try to sing to themselves and can listen to rhymes and jingles. As they approach 2 years, they try to repeat nursery rhymes. Just as they were in infancy, children are interested in sounds and repetition. Children have developed the fine motor skills necessary to operate a hand-cranked music box, but they cannot manipulate wind-up models.

At this age, children are very interested in visual screens. They begin to learn how to use and manipulate the buttons on a mobile touchscreen device, and depending on the size of the device, be able to hold it in their hands to access programming. At this age, children especially enjoy the contingent interaction of video chatting.

2 Years

Two-year-olds enjoy participating in vocal activities, particularly singing. Although their efforts are often off-pitch, they try to sing along in nursery rhymes and songs. Audio play continues to be a time for them to dance, swing, run, gallop, twirl, bounce, clap, play instruments, and experiment with their voices. They like to perform by doing dances, somersaults, and "tricks."

They frequently seek attention for their dance moves by first saying, "Watch this!" They love music and playing along with rhythm instruments. They also enjoy simple stories read from picture books or records, CDs, tapes, Internet streaming audio, and mp3s.

Exposing children to a wide range of music styles is suitable to help them develop preferences and tastes. This is also a time of growing language capabilities; so music that has lyrical rhymes, simple rhythmic tunes, and repetitions of words and beats are appropriate to aid in their developing skills. Nursery and other simple rhyme records, CDs, tapes, Internet streaming audio, and mp3s are also appropriate. Children in this age group often listen to music and dance as a social activity; so appropriate music is danceable (that is, it has simple rhythms to move to), lyrical, and has a range of high and low frequencies.

Visual play for children is very much connected to their auditory play. Appropriate programs (available through broadcast television, streaming services, and DVDs) for this age group include a great deal of music and movement opportunities. Mobile touchscreen devices make access to these programs especially simple because they are portable and easy for children to hold and operate. Through these devices, children can access a wealth of audio and visual content through Internet streaming and subscription-based video and music services. Children may prefer red, yellow, and other primary colors, but suitable visuals can include pastels and other colors. Attention spans are short for children; so appropriate visual play media are those that offer variety in what they are presenting the child. For example, they may have the child spend some time moving, some time listening, and some time singing. Children have developed the ability to remember events, so media programming often focuses on lovable characters for children in this age group. These licensed characters are often available on toy store shelves, which is highly appealing to these children. Reading books based on these characters also becomes a favorite form of visual play. At this age, children enjoy listening to simple stories and looking at books by themselves, so these toys are appropriate (see *Educational & Academic Play: Books*). Children at this age love to watch the same program or video repeatedly, finding the predictability a security of their environment. They like to sing along with the show and will frequently sing the songs to themselves.

3 Years

During the preschool years, children are developing greater skills related to audiovisual play; as a result, they have a greater range of interests than younger children. Their sense of hearing is well developed by this age, but their ability to perceive subtle phonological distinctions in sounds, such as consonant blends (this is necessary for mastering the phonetic combinations of language), is not developed until about age 6 in most children. This is why words are frequently mispronounced, even with repeated correction by adults.

Music play is beneficial for children's developing auditory/language skills. Songs that have rhymes and word plays help them hear words in a variety of ways, and with repeated exposure they can self-correct their mispronunciation. Preschool children enjoy listening to songs that pertain to familiar events, and they enjoy hearing them repeatedly. Three-year-old children enjoy playing with words and silly rhymes and can remember the words of many songs.

Singing along, dancing, and playing instruments with the music are highly appealing activities. Preschoolers enjoy rhythm instruments and like dressing up for dancing. In addition, their sense of humor is becoming more refined, so silly songs are appealing. Folk songs, finger plays, rhythm music, music for dancing, and recorded stories about animals, adventures, and other places are popular among this age group. Preschoolers are cognitively and physically capable of operating mobile applications that play music and cassette/CD/mp3 players and radios that are designed for children. Microphones and blank tapes for personal recordings or karaoke machines are highly appealing as well. Children will enjoy singing tunes that they already know at this age and put on a show for any bystanders. They may also enjoy making announcements with the microphone instead of singing. Although these pieces of audio equipment are attractive and appropriate, children in this age group may use these toys inappropriately as they experiment with and investigate their use. For example, children in this age group might bang the toy on other surfaces, pry open compartments on the toy, or try inserting other objects into the toys. Preschool children have the fine motor skills necessary to manipulate wind-up music boxes, but adults must consider the appropriateness of individual music boxes because some are fragile and more suitable for older children.

Video play for preschoolers is very similar to that of younger children. They enjoy watching familiar programming that stars their favorite character. Three-year-olds' attention spans have increased, and they incorporate their love of music into their visual play. Appropriate shows use music as a primary way of communicating with these young viewers. Video programming targeted at this age group is leaning toward more academic content like counting, vocabulary, alphabet, and abstract concepts such as opposites. Three-year-olds enjoy repeating words to the characters they are watching and retelling what they watched, which strengthens comprehension and memory skills.

4 Through 5 Years

Four-year-olds can play simple singing games, can recognize and sing songs in their entirety, show an increase in voice control, and are more able to sing on pitch than younger children. Four-year-olds also find dramatic songs appealing and will make up songs during their play. They love to move to music and may give dramatic performances. Five-year-olds recite or sing rhymes, jingles, television commercials, and other songs, enjoy the mastery of melodies and tunes, sing well, work together, follow the beat of music, act out a story in dance form, and enjoy dressing up while dancing.

This age group enjoys watching familiar video programming that stars their favorite character. Their attention span has increased, so visual things can move a little slower. Appropriate shows use music as a primary way of communicating with these young viewers. Video programing targeted at 4- and 5-year-olds leans toward more academic content, such as counting, vocabulary, alphabet, and abstract concepts like opposites. Four- and five-year-olds enjoy problem-solving questions presented during the shows. Action-based shows are highly popular, and action heroes who are victorious over the "bad guys" and can be personified in dramatic play carry a great deal of appeal. Preschoolers begin to understand that television commercials are methods of advertising, and they can discriminate between them and the shows they are watching. Birthday and holiday wish lists are frequently composed from their television, movie, and commercial viewing. Video equipment related to video games is discussed in *Technology Play: Computer & Video Games*.

6 Through 8 Years, 9 Through 12 Years

Elementary-age children have qualitatively different music preferences than preschoolers. By 6 and 7 years of age, interest shifts from nursery-rhyme, sing-a-long type music, to pop/rock music, rhythm band activities, and singing in a group. Songs sung in kindergarten classrooms are considered "babyish" to first graders, who are largely interested in the latest pop star's music or more adult-appropriate varieties of music. This trend continues, although music taste and preference tends to change throughout childhood. Individual preferences in music are the rule; some children like popular music, some like classical music, some like folk music, some like musical comedies, some like "introduction to orchestra" music, and some like none. They all, however, largely enjoy dancing. Because they now have the cognitive capabilities for abstract thought, they can participate in interpretive dance, like representing fire, storm, and birds, through their movements. Other forms of appealing music are also connected to dance: folk songs for folk dance, songs with clapping and shouting, and fast music for skipping, galloping, and step clapping. Music or dance lessons and exposure to different kinds of music may affect the child's interest. Plastic audio players are replaced with "real" audio equipment, including digital music players, compact disc players, headphones, and stereo equipment. Appropriate music for children in this age group depends on their tastes, although lyric consideration is warranted. Digital recording and playback capabilities for children to record their own stories, songs, instrument playing, or variations of all three, are also appealing. Children in this age bracket are cognitively and physically capable of operating audio equipment to make their recordings. For general audio play, children in this age group can operate digital or Internet-connected music players. Instruction by adults may be necessary for more complicated systems.

Books and long stories on tape are also appealing because children at this age still enjoy being "read" a story (see also *Educational & Academic Play: Books*). Listening to these tapes is beneficial because it increases their auditory perception abilities and their auditory receptivity; that is, being able to remember things they hear rather than see. Appealing books for them to listen to are often based on themes. Fairy tales and make-believe are popular with the early elementary-grade children, while topics of magic, the world, animals, mysteries, and "kids just like them" are appealing to older elementary-grade children.

As with music, video play varies according to children's interests. Also like music, adult supervision is necessary to determine appropriateness. The television and movie industry put age recommendations on their products according to content, but viewing approval within those age levels varies from household to household. Viewing preferences with school-age children tend to move from animation to actors and from cartoons to humans. Content matter also changes. They enjoy watching adventure-based stories, situational comedies/dilemmas, and characters close to their own ages. Children in this age group can operate televisions, streaming services, VCRs, and DVD systems with proper adult instruction. See the *Technology Play: Computer & Video Games* for video equipment related to video games.

TECHNOLOGY PLAY: **AUDIOVISUAL EQUIPMENT**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts			
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials			
Motor Skills Required			
Color/Contrast	By 3 months, children prefer yellow & red to blue & green; prefer patterns to solids.	--→	--→
Cause & Effect			
Sensory Elements*	Prefer sounds that fall within the frequency range of the human voice. Low tones are effective in quieting babies; high tones are distressful. Enjoy gentle repeated rhythms, like heartbeats, & exaggerated speech sounds. React in distressful behaviors to changes in volume & sudden loud noises.	--→ --→ Can differentiate between a lullaby & an adult-directed song (even if from foreign culture).	--→ --→ Can differentiate sentence tunes, imitate sounds & sound sequences.
Level of Realism/Detail			
Licensed theme			
Classic			

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Robotic/Smart Features			
Educational			
Relevant Play/Behavior*	Sensitive to sounds due to fluid in middle ear.	--→	
	Capable of distinguishing speech sounds as early as 1 mo.		Can discriminate sentence tunes, imitate sounds, & sound sequences.
	Beginning to localize sounds, babble, & make singing sounds with adults by 3 mo.	Fully capable of localizing sounds, babbling, & making singing sounds with adults.	Makes singing sounds to music; enjoys finger-plays & sing-songs.
	Visual acuity at birth is 20/400-20/800; by 3 mo. improves to around 20/100	Visual accommodation is almost adult-like by 6 mo.	
	At birth, focus is best about 8 inches from face; by end of this period can see several feet away		
	By 2 mo., all color receptors (blue, red, & green) are functioning.		
Examples of Toys	Audio that includes language that can be imitated	--→	--→
	Lullabies, simple songs, rhythms, nursery rhymes	--→	--→
	Gentle, predictable sounds played at low volumes	--→	--→
	Music boxes (wound by adults)	--→	--→
	Video equipment not appropriate but will watch television & videos	--→	--→

* One of the most influential characteristics for these toys.

TECHNOLOGY PLAY: **AUDIOVISUAL EQUIPMENT**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts			
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts	Loose parts that can be used in their dancing & singing (like instruments)	--→	--→
Materials	Enjoy having a variety of materials to use in their audio play like rhythm instruments.	--→	--→
Motor Skills Required	Has the fine motor skill needed to operate a hand-cranked music box, but not the wind-up kind.	--→	--→
Color/Contrast	Prefers red & yellow; visuals are bright & based on primary colors.		
Cause & Effect			
Sensory Elements*	Enjoys upbeat music that stimulates their internal drive to move, bounce, rock, & dance.	--→	--→
	Hearing capabilities are at adult levels, so increasing range of auditory stimuli appropriate.	--→	--→
	Interested in sounds & repetition.	--→	--→
	Auditory elements need to be present in visual play.	--→	--→
Level of Realism/Detail			

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Licensed theme	Children have developed the ability to remember events, so they desire toys representing characters from video & TV programming	--→	--→
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior*	Emerging mobility = dancing/bouncing.	Dancing = bouncing, running, twirling, hopping, clapping, foot stamping.	Likes to perform dances & somersaults.
	Enjoy finger-play & "point to" songs.	--→	--→
	Rhythm instruments are appealing to include in play.	--→	--→
	Around 13 months they try to sing to self.	--→	Sings along in nursery rhymes & songs.
	Listens to rhymes & jingles	--→	--→
	Interested in sounds & repetition.	--→	Enjoys vocal activities, particularly singing.
	Can physically manage hand-cranked music box.	--→	--→
	Growing language capabilities.	--→	--→
	Visual play connected to auditory play.	--→	--→
	Capable of remembering events.	--→	--→
	Enjoy listening to simple stories & looking at books by themselves.	--→	--→
	Want to watch the same program repeatedly; find predictability as a security.	--→	--→
	Begin to learn how to use and manipulate the buttons on a mobile touchscreen device	--→	--→
Examples of Toys	Danceable, lyrical music that has a range of high & low frequencies.	--→	--→
	Simple stories on tape.	--→	--→
	Hand-cranked music box.	--→	--→
	Musical rhythm instruments	--→	--→
	Sing-a-longs, nursery rhymes & lullabies	--→	--→
	Videos that feature "lovable" characters	--→	--→

* One of the most influential characteristics for these toys.

TECHNOLOGY PLAY: **AUDIOVISUAL EQUIPMENT**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts				
Shape of Parts				
Number of Parts				
Interlocking/Loose Parts	Loose parts: instruments, music boxes, portable equipment	----------------------------------→	----------------------------------→	----------------------------------→
Materials				
Motor Skills Required	Has the fine motor skills necessary to manipulate wind up music boxes Physically capable of operating tape players, CD players, digital music players/applications, & radios	----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→	----------------------------------→ ----------------------------------→
Color/Contrast				
Cause & Effect				
Sensory Elements*	Hearing is well developed Inability to perceive subtle phonological distinctions in sounds, such as consonant blends	----------------------------------→ ----------------------------------→	----------------------------------→ Able to perceive subtle phonological distinctions	----------------------------------→ ----------------------------------→
Level of Realism/Detail*			Prefer "real" equipment & live actors	----------------------------------→
Licensed theme	Popular TV & video characters	----------------------------------→	Popular TV, video, movie, music stars	----------------------------------→
Classic				
Robotic/Smart Features				

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Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Educational				
Relevant Play/Behavior*	Enjoy singing, dancing, & playing instruments	--→	Shift in music interests	--→
	Sense of humor; enjoy word play & silly rhymes	--→	Capable of abstract thought, so can perform interpretive dance	--→
	Capable of operating simple tape or digital music players & microphones	--→	Desire "real" audio equipment.	--→
			Enjoy books on tape	--→
	Enjoy repeated exposure to songs & videos	--→	Movies, TV & music videos are appealing	--→
	Remember the words of many songs		Enjoy watching adventure-based stories, situational comedies/dilemmas, & characters close to their own ages	--→
	Develop favorite characters in shows	Can play simple singing games; find dramatic songs appealing		
	Increased attention span	Can recognize, recite, & sing songs, rhymes, TV commercials, jingles, etc., in their entirety		
	Repeat & retell events; enjoy repeating words to characters on TV/video		Capable of operating television, streaming video, VCR, & DVD systems	--→
	Understand commercial advertising	Enjoy the mastery of melodies & tunes	Enjoy dancing	--→
		Show an increase in voice control & are more capable of singing on pitch than younger children		
		Make up songs during play		
		Love to move to music, act out a story in dance form, & give dramatic performances		
		Follow beat of music; enjoy dressing up while dancing		
		Like to answer problem-solving questions on video programming		
Examples of Toys	Folk/cultural music	--→	All examples in previous age group.	All examples in previous age group
	Silly songs, word plays, finger plays, action songs	--→	Pop/rock, rhythm band, & group singing music	
	Recorded stories	--→	Books on tape	
	Simple tape/CD players & radios	--→	Portable CD/digital music players & headphones	
	Microphones & blank tapes, karaoke	--→	Interpretive dance costumes	
	Musical instruments, wind up music boxes	--→	Situational comedies, music videos, live actors	
	Performance costumes	--→	Digital recording and playback capabilities, for children to record their own stories, songs, instrument playing, or variations of all three, are also appealing	
	Public television shows, Walt Disney movies, cartoons	--→		
	Action-based shows	--→		

* One of the most influential characteristics for these toys.

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COMPUTER & VIDEO GAMES

Computer-based products are very popular for adults and children, and those designed for children are evolving quickly. Therefore, the Guidelines for these particular toys may require regular updates and include information on both current and potential applications of computer technology. As of 2016, the American Academy of Pediatrics suggested that children under the age of 18 months not use screen media (*i.e.*, mobile devices, television, computers, or video games) except for video chatting. Furthermore, they suggested children 18-24 months consume high-quality media programming only with a parent, and children older than age 2 not consume more than an hour of screen time each day. With that said, children's products and toys in this category for infants and toddlers will continue to exist, and as such, we have included some guidelines here.

Computers are often used to play games, but they also can be used to produce a wide variety of responses, such as playing digital music and films, as well as playing with a wide range of software. All are attractive to a wide age range of children. Since computer technology is changing rapidly, these guidelines define a computer rather broadly to cover the wide range of potential computer uses for children. A computer consists of three basic elements: an input device, an output device, and a processor to adjust the output based on the input, all of which can be part of a single device like a tablet, or multiple, separate parts, like a computer with a separate monitor, keyboard, and mouse.

An input device for a desktop or laptop computer is typically a keyboard and mouse. An input device for a touchscreen tablet or mobile device are the user's fingers and hands. However, computers are easily modifiable to adjust to nearly all users. Extremely sensitive input devices that detect small movements exist to make computers accessible for all ages. For example, an input device incorporated into an infant's pacifier can detect sucking and change the output, depending on whether the sucking has started or stopped. Input devices for computers can be in remote locations away from the computer and can take a number of forms, like a plush animal or figurine. For more complex activities, the input device will be more sophisticated. Keyboards and joysticks allow for more complex input. These become more appropriate for older children who have the physical and cognitive skills required to use them. The output device is typically a screen

(for visual output) or speakers (for audio output). The processor for a computer generally is based on the software or mobile applications in use on the computer. Software and applications for children may include simple cause-and-effect activities, games, observational programs, and educational software.

Computer-based products have multiple appeals. They are interactive and multisensory, so they will appeal to children in a number of ways. Some scholars argue that a touch-screen tablet device has most of the features of traditional toys (they can respond to something the child has done, they can promote joint attention between child and parent, and they are highly portable). The scholars also mention that a touchscreen tablet has features that traditional toys do not usually have (*i.e*., they are tailorable to the child's needs and preferences, and the child can stop playing and easily arrive where he/she left off). Additionally, some parents view certain computer-based products as educational, which appeals to parents who want their children engaged in an activity that can promote learning. One should place primary emphasis or importance on the following characteristics when determining the age appropriateness of computer and video games:

- Sensory Elements
- Cause & Effect
- Licensed theme
- Motor Skills Required
- Educational

The order of these characteristics does not necessarily indicate priority because this can change with age. The remaining discussion describes the relationship between the characteristics of these toys and the characteristics of children in various age groups. This includes a description of what types of computer and video games are appropriate and how a particular age group plays with these games. Parental supervision is generally required for children under 3 years of age because most computers have been designed for use by adults, not by children.

Birth Through 3 Months

At this age, children learn mostly through reflexes, such as spontaneous kicking and arm movements. Input devices that can detect the movements and reflex actions of this age group—like arm and leg movements, sucking, or sounds like crying—can be used to adjust output

devices. Output for this age group could include sound systems that play recorded sounds like the mother's voice or other soothing sounds based on reception from the input device. Other appropriate output could include projection screens that display slow-moving, distinct-colored patterns in the infant's visual range—about 8 inches from the face in the first month, and several feet away by the end of this age period—or that focus and un-focus, depending on the actions of the infant. The most appealing projection patterns would emphasize high-contrast colors that children birth through 3 months of age can differentiate, such as red and green, or black and white. Faces also are especially attractive to children in this age group. Appropriate output devices are limited to one or two events to let children make the connection between their actions and the response of the output device.

4 Through 7 Months

Children ages 4 through 7 months are engaging with the environment in more systematic ways. Their movements are also much more sophisticated, which allows for a greater range of input devices. Input devices that allow for patting, grasping, pulling, and squeezing can be appropriate for this age. These input devices can be embedded in plush toys; such a device could adjust a screen, turn on lights, or play recorded sounds. Mouthing is also a characteristic of this age group, so input devices that can detect and react to mouthing are appropriate for this age group. A low number of output events will minimize confusion about cause-and-effect relationships for children in this age group.

8 Through 11 Months

Computers could be designed to take advantage of the increased mobility of 8 through 11 month-old children. These children can hold and shake an input device. Devices that adjust their response, depending on the child's input, can challenge an infant to be persistent in trying new action schemes on the device. Mouthing is still common at this age, so appropriate input devices are designed to be mouthed and may even respond to mouthing. Children of this age are beginning to understand cause-and-effect relationships. Therefore, the number of potential output events can be increased, so individual changes in input can be associated with individual outputs. For example, banging may bring a sound, while shaking may cause the projection of different

patterns of colors. Children in this age group can sit unsupported and stand with support, so projection screens can be moved to the vertical position.

12 Through 18 Months

Children 12 through 18 months of age are very curious and are interested in exploring their environment. Most children begin walking unsupported at this age and can approach popular and familiar objects, which could include computer projection screens. Input devices for this age group can have multiple buttons that produce different responses when pressed. Suitable input devices are durable and are able to withstand heavy use. Vertical screens are appropriate for this age, as are output devices that produce sounds, smells, and movements.

19 Through 23 Months

Children 19 through 23 months of age are more coordinated walkers. They have mastered cause-and-effect responses and are very interested in coordinated multisensory responses, including sound, movement, and visual responses. Symbolic play begins to emerge at this age, which allows for computer outputs that have some sort of pretend element. Computer characters that talk and act, based on inputs, are appropriate for this age. Children are becoming aware of familiar licensed characters and will respond to them. A child at this age may also be able to respond to simple commands from the computer. For example, if the input device is a turtle, the computer could request, "Pat the head of the turtle." The child could then respond to this action. Children in this age group are also comfortable using touchscreen devices and are able to respond easily to touch-sensitive areas on a screen.

2 Years

Two-year-old children are increasingly social, so interactive programs that can respond to children's actions are appropriate. Children in this age group can recognize and are attracted to popular characters from television and videos. They can follow simple instructions from an interactive computer. In addition, they enjoy watching projected stories and can use input devices to start and restart story-reading programs, mobile applications, and DVDs. Children at this age can insert compact disks into desktop and laptop computers, but the program needs to self-start

because the typical 2-year-old will not be able to complete more than two or three simple commands on the computer and cannot perform sequential actions. Because children interact with computers without concern for consequences, software for children should not allow the child to reset computer settings. Children in this age group continue to be able to use touchscreen tablet devices and are able to use their fingers to provide input.

3 Years

Three-year-olds are beginning to take an interest in computer games. They enjoy looking at action on the screen. Computer games that involve reading are generally inappropriate since most 3-year-olds cannot read. Children in this age group can use a mouse, but double- and triple-clicking or differentiating right and left mouse-button clicking is difficult for this age group. However, children in this age group can activate touchscreen devices with ease using their fingers as an input device. In general, 3-year-olds cannot use a traditional keyboard to input information to the computer other than having the keyboard respond to all key presses in the same way. Three-year-olds understand basic rules of games, like turn taking. However, activity games without a specific goal are best for this age group. Painting and drawing games are popular as well. Book reading programs and simple matching games are also appropriate for this age. Children at this age are interested in cause-and-effect games like "what happens when I push this button." Most children can interact with simple academic type games at this age although children in this age group do not prefer them. Games based on popular licensed characters are also appealing. Parents prefer characters that are based on "safe harbor characters," which are non-violent, non-sexual, and are often based on children's cartoons or books.

4 Through 5 Years

Four- to five-year-old children have a growing interest in computers. Four-year-olds exhibit greater skills with the mouse and can recognize simple icons like 'page turning' and 'quit' to navigate a program. Although most 4- and 5-year-olds are developing their reading abilities, they generally cannot use written directions. Activity games with a physical component are still very popular with this age group. Four- and five-year-olds can use keyboards, along with a mouse, to navigate, but this is often a slow method of input. Touchscreen devices continue to be easier to

use than a computer with a keyboard and mouse as input devices. Children in this age group remain interested in simple painting and drawing programs, book-reading programs, and simple multimedia development. Prototypical toys show children in this age group enjoy interacting with a laptop, if a toy goes along with it as the input device instead (*e.g*., an RFID tag inserted into the toy it that would activate the images on the laptop), with children intrigued by the immediate contingency of the plush toys to something onscreen. This age group is interested in the creative aspect of computers, like drawing or painting; and they are also interested in the fantasy or pretend element in computers, like interacting with story characters. Children at this age have the fine motor skills and visual discrimination to use simple console and handheld computer games, but they find it difficult to coordinate movement between their two hands; they can focus on only one hand and one aspect at the same time.

6 Through 8 Years

Computer games for children in this age group are increasingly sophisticated. Children in this age group can use a joystick to avoid moving objects, and can use both nested navigational systems and exploratory programs. Six- through 8-year-olds are very attracted to console and handheld games. They can use both hands to use separate functions on the computer, and they can focus on more than one element at a time. Games that have multiple players are also popular with this age group. They continue to enjoy creative games like drawing and painting and multimedia creation. They enjoy both technological games and narrative games with a pretend or fantasy element, especially action characters and games based on popular licensed characters from cartoons. They also enjoy traditional games converted to computer play, like chess and checkers. Research suggests that comprehension of new facts at this age is the same, regardless of whether the child played the game on a touchscreen tablet application or face-to-face with a researcher. Children in this age group are beginning to learn to navigate the Web, so games with Web elements may be appropriate.

9 Through 12 Years

Nine- through 12-year-olds are interested in complex games with complex subjects. This age group is interested in fashion, art- and music-creation games, and educational games like

multimedia activities. They enjoy games based on popular sports and activities, like skating, and complex fantasy games. They can navigate the Web easily, and depending on their experience, can have very sophisticated computer skills. Children 9 through 12 years old can use adult-type software like word-processing and multimedia-development software.

TECHNOLOGY PLAY: **COMPUTER & VIDEO GAMES**

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Size of Parts	Small enough for infant to handle, if intended to be grasped	---→	---→
Shape of Parts	Rounded, no sharp edges	---→	---→
Number of Parts			
Interlocking/Loose Parts			
Materials	Lightweight Soft Sturdy Washable	---→ ---→ ---→ ---→	---→ ---→ ---→ ---→
Motor Skills Required*	Reaching Grasping Mouthing/Sucking	---→ ---→ ---→ Hand-eye coordination Able to sit up unsupported around 6 months Palmar grasping Can pass objects from hand to hand	Increased mobility (scooting, crawling, cruising, walking) ---→ Practicing fine motor skills such as grasping, pushing, pulling, squeezing, patting, poking, & shaking Can grasp & shake Emergence of neat pincer grasp (thumb & index finger)
Color/Contrast	Brightly-colored with high contrast (*e.g.*, black & white, red & green)	---→	---→

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Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Cause & Effect*	Cannot fully understand cause & effect, but can still enjoy it; prefers simple cause-and-effect relationships	--→	Beginning to understand cause-and-effect relationship; simple, clear cause-and-effect relationships are still best
Sensory Elements*	Visual Manual Auditory	--→ --→ --→	--→ --→ --→
Level of Realism/Detail			
Licensed theme			
Classic			
Robotic/Smart Features			
Educational*	Programs that claim cognitive benefits (*e.g.*, classical music, foreign languages) appeal to parents	--→	--→

Toy Characteristics	Birth Through 3 Months	4 Through 7 Months	8 Through 11 Months
Relevant Play/Behavior	Finds multisensory elements very appealing	--→	---→
	Enjoys music	--→	---→
	Likes to explore objects manually & orally	--→	---→
	At birth, focus is best about 8 inches from face; by end of this period can see several feet away	Increasing interest in surroundings Actively handles toys Mouthing & teething --→	---→ ---→ ---→ ---→
	Learns through reflexes		Can hold 2 objects at once but cannot coordinate between them
	Interested in faces		
	Able to reach & grasp at around 3 months		
Examples of Toys	Simple cause-and-effect programs	--→ Push buttons that create responses Remove input devices embedded in a plush toy or crib toy	Cause-and-effect programs using either sound or visual ---→
	Screens with slowly moving patterns		
	Input devices using a movement sensor or related to children natural reflexes, like sucking	--→ Horizontal & vertical screens	---→ Vertical screens
	Music & language programs		
	Horizontal projections		

* One of the most influential characteristics for these toys.

TECHNOLOGY PLAY: **COMPUTER & VIDEO GAMES**

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts	Small enough for a toddler to handle	--→	--→
Shape of Parts	Rounded, no sharp edges (cont'd)	--→	--→
Number of Parts			
Interlocking/Loose Parts			
Materials	Lightweight (cont'd) Soft (cont'd) Sturdy (cont'd) Washable (cont'd)	--→ --→ --→ --→	--→ --→ --→ --→
Motor Skills Required*	Increasingly skilled at walking Working on fine motor coordination Can push buttons	--→ --→ Can push buttons on keyboard if all have same response Can activate input areas on touchscreen device	--→ --→ --→ Can move a mouse; may have trouble clicking on small objects --→
Color/Contrast	High contrast (cont'd)	--→	All colors

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Cause & Effect*	A clear cause-and-effect relationship (cont'd)	--→	--→
Sensory Elements*	Visual (cont'd) Manual (cont'd) Auditory (cont'd)	--→ --→ --→	--→ --→ --→
Level of Realism/Detail			
Licensed theme*		Awareness of familiar licensed characters	Interest in familiar licensed characters
Classic			
Robotic/Smart Features			
Educational*	Parents are attracted to programs that offer educational benefits such as word recognition	Parents are attracted to programs that encourage engagement with the computer for educational benefits	--→

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Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 Years
Relevant Play/Behavior	Finds multisensory elements very appealing	--→	--→
	Like to explore objects manually & orally (cont'd)	--→	--→
	Increasingly curious & loves to explore	--→	--→
	Uses all senses to explore the world: seeing, hearing, touching, tasting, & smelling	--→ Social play; aware of others' interest in computer	--→ Social play; interest in play with parents & peers on computer Beginning to grow beyond Exploratory and Practice toys
Examples of Toys	Simple cause-and-effect programs with characters	--→	--→
	Can have multiple responses to interactions	--→	--→
	Input device is remote from the screen	Can use a keyboard if all keys create the same response Interactive programs that ask for specific responses. Touchscreen devices	--→ --→ Simple story-reading programs --→

* One of the most influential characteristics for these toys.

TECHNOLOGY PLAY: **COMPUTER & VIDEO GAMES**

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts				
Shape of Parts				
Number of Parts				
Interlocking/Loose Parts				
Materials	Can interact with traditional computer equipment	---------------------------------→	---------------------------------→	---------------------------------→
Motor Skills Required*	Can use a mouse	---------------------------------→	---------------------------------→	---------------------------------→
			Can use both hands at the same time	---------------------------------→
		Able to right/left click and multiple click	---------------------------------→	---------------------------------→
	Can activate input areas on touchscreen device (cont'd)	---------------------------------→	---------------------------------→	---------------------------------→
Color/Contrast				
Cause & Effect*	Enjoy point & click games	---------------------------------→	Less interested in point & click games	

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Sensory Elements*	Enjoy music & sound games	--→	Bright lights, sounds	Popular music
Level of Realism/Detail				
Licensed theme*	Enjoy popular cartoon characters	Interested in popular cartoon & action characters	Interested in action characters & sports figures	--→
Classic				
Robotic/Smart Features		Enjoy interacting with a laptop if a toy goes along with it as the input device instead (*e.g.*, an RFID tag inserted into the toy it that would activate the images on the laptop), with children intrigued by the immediate contingency of the plush toys to something onscreen.		
Educational*	Parents like educational games like letter & number recognition	Parents like educational games like reading & mathematics games	Interested in learning games like science & nature software Can use encyclopedia software to search for information Comprehension of new facts at this age is the same regardless of whether the child played the game on a touchscreen tablet app or face to face with a researcher.	Interested in adult topics, trivia & historical games --→

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Relevant Play/Behavior	Understands input devices like joysticks & mice Difficulty navigating, can get lost in a program Cannot use reading other than simple ABCs	Can use a keyboard to input Able to navigate, but avoid multiple layers of navigation Reading is difficult Enjoys hand held games Has some understanding of rules	Very proficient with input devices Can use a map to navigate a game Can read & follow complex instructions --→ Understands rules & game strategy Can play multi-player games Can navigate the internet Interested in sports, fantasy, & adventure games	--→ --→ --→ --→ --→ Enjoys multi-player games --→ --→ Interested in hidden features of games Enjoys sophisticated long-term games
Examples of Toys	Drawing & painting software Book reading programs Exploratory non-goal-oriented games Simple cause-and-effect games Games on touchscreen devices	--→ Simple multimedia-development software --→ Beginning interest in more sophistocated goal-oriented games Simple hand held or console games --→	Adult software like word processing, photo, & multimedia-processing software Adventure games Sports games Board-game software like chess & checkers Sophisticated handheld or console games --→	--→ --→ --→ --→ Interactive games Simulation games --→ --→

*One of the most influential characteristics for these toys

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TOY INDEX

This index has been expanded to cover most major types of toys and to lead the reader to the toy subcategory that most closely fits that toy type. While toys may be used in a wide variety of contexts and in different ways for multiple purposes and benefits, each subcategory was chosen because it is most representative of how the toy appeals to and is used by children. Some toys are cross-listed because they represent two subcategories in significant ways.