

**AGE DETERMINATION GUIDELINES:
Relating Children's Ages To
Toy Characteristics and Play Behavior**

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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. The Commission’s mission is to protect the public against unreasonable risks of injury and death associated with consumer products. As part of its responsibilities, CPSC administers the Federal Hazardous Substances Act (FHSA), under which it regulates toys and other children’s products. One major regulation issued under this Act is the Small Parts Regulation, which bans any toy or other article—hereafter referred to as a “toy”—intended for use by children under 3 years of age if it presents a choking, aspiration, or ingestion hazard because of small parts. To determine the applicability of this regulation, CPSC staff members often perform age determinations on toy samples. These determinations involve the staff examining a sample toy to determine for what age children it is commonly recognized as being intended. 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 Regulation¹

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 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 their 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 if a toy presents a choking, aspiration, or ingestion hazard because the article itself, or any part that could

¹ 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.

be detached or broken off during normal or reasonably foreseeable use and abuse, is a small part. The equipment includes a hollow truncated cylinder having an interior diameter of 1.25 inches, a minimum interior depth of 1 inch, and a maximum interior depth or 2.25 inches (see 16 CFR Section 1501.4). 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. Any toy that has undergone use and abuse testing with resulting 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 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.

	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

Firms are not required to test their products under the Small Parts Regulation. However, the manufacturer, importer, or retailer is responsible for assuring that the toys they import, distribute,

and sell comply with the Small Parts Regulation, and testing is a means of assuring compliance. The Commission staff recommends that manufacturers establish a quality control program that includes design specifications and both in-line and finished-product testing. Establishing a quality control program that includes testing will help ensure that noncomplying products are detected before distribution and that marketed toys are in compliance with CPSC regulations. Firms should also ensure that products meet all applicable voluntary industry standards.

Age Labeling and Determinations

Age labeling provides parents and other consumers guidance for selecting proper toys for children. CPSC staff, therefore, encourages age labeling. However, age labeling must be accurate. It is to the manufacturers' or importers' advantage to accurately determine the appropriate age category for their toys, and to label, promote, and market those toys to that age group. 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 subject to the Small Parts Regulation regardless of its age labeling.

For a firm to know if 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 perform 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 such as this may be considered as being 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 child for whom a toy is commonly recognized as being intended, and does not preclude the possibility that CPSC staff would determine that the toy is intended for children under the age of 3. Rather, one must consider 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.

Age Determination Guidelines

Until now, the primary reference CPSC staff used when performing age determinations on toys to determine the applicability of the Small Parts Regulation was the *Guidelines for Relating Children's Ages to Toy Characteristics*, written in 1985. That document merged information on child development (for children under 12 years of age) and toy characteristics so the staff could make quicker, more precise, and more consistent age determinations than was previously possible. Since 1985, though, many toys discussed in that document have evolved and children's exposure to various toys might have changed. Additionally, new types of toys have arisen since that time and they are obviously not discussed in that document.

This document, *Age Determination Guidelines: Relating Children's Ages to Toy Characteristics and Play Behavior*, replaces the 1985 guidelines. It is based on a four-phase research endeavor performed under contract by Play Today.² Phase I included a review of more than 200 articles; these were the most representative research literature written since 1985 on the topics of play, toys, materials, and the developmental behaviors of children. Phase II was a research study into the toy purchasing decisions of adults, and Phase III was a research study involving the observations of children interacting with carefully selected toys. Phase IV involved the writing of a research document and new, replacement guidelines. The *Age Determination Guidelines*

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should be viewed as a working document, which requires regular updates 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 their play experiences. Their 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 they design, manufacture, package, sell, or purchase play items such as toys.

Format of the Guidelines

The primary content of the *Age Determination Guidelines* 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

This document is organized into seven main categories, which serve as the primary structure of the guidelines. The main categories apply to the various play behaviors in which children engage and how they use toys during play. In approximate developmental order, the main categories are: Early Exploratory/Practice Play, Construction Play, Pretend & Role Play, Game & Activity Play, Sports & Recreational Play, Media Play, and Educational & Academic Play. These seven categories provide the largest organizational strategy for the guidelines, and essentially represent the “chapters” of the document, as is evident from the *Contents*. As discussed below, these are

apportioned into subcategories of toys to permit more specific discussions of the various types of toys within those categories.

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

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 four years of childhood contain seven of the ten 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. Since this period of life includes dramatic variation in performance in a relatively short time, considerable space has been dedicated to reviewing it 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. 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 ten 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 show that the feature in question is also characteristic of future age groups.

In the introductory narrative for each subcategory, a bullet 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, since 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 since 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. These act in concert with the primary characteristics to help explain how each age group relates differently to the given subcategory of toys. With some notable exceptions, the toy characteristics in this document closely resemble those used in the 1985 guidelines.

In general, 14 characteristics of toys have the potential to appeal to toy consumers, and should be used to analyze toys and to 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, licensing, 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 & Shape of Parts	The dimensions of a toy or parts of toys. The size and 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 larger, rounded 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.
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.

Characteristic(s)	Definition
Interlocking/Loose Parts	Whether a toy includes more than one piece, and how those pieces interact. This characteristic largely pertains to construction 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.
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 and gender issues play 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.
Licensing	Toys with ties to outside influences—primarily media—contain a licensing characteristic. 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.

Characteristic(s)	Definition
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 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 295, 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 between 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 earlier, each toy subcategory presents the relevant information in both narrative and chart form. While 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 fully understand 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, since 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 with respect to 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 identifies appropriate and appealing toy characteristics that are generally consistent among all subcategories of toys. With this information, the reader will be better able 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 since learning occurs mostly through the reflexive actions of the child, such as spontaneous kicking or arm movements. 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 those that remain still or are too loud, too sudden, or otherwise extreme. Much of these infants' play 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 towards 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. 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. Mobiles or images with bright, highly contrasting colors and patterns are appealing, as are mirrors that securely attach to the side of a crib.

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, so mobiles and suspended crib gyms are no longer appropriate at this age. They have mastered the ability to grasp and manipulate a dangling object by 6 months, and 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, though 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, infants 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. Hand-held objects, like simple musical toys, should be sized so these children can easily grasp and manipulate them. Books and images with bright pictures and high-contrast images are appealing, as are mirrors.

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. 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 older infants can make inferences about novel objects. For example, these children may infer what functions may operate beneath the surface of an object. They explore objects from every angle, and this often involves mouthing. Therefore, suitable toys are washable.

Many of these infants begin to use items in typical relational patterns; for example, 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. Infants 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; though 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. Since they are 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 now they enjoy a variety of actions with objects, such as pressing, pushing, pulling, rolling, pounding, beating, clanging, fitting (for example, fitting a round peg into a round hole), stacking, 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 by the use of, for example, various sounds, blinking lights, and spinning wheels.

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, or putting on a hat—but only in brief, sporadic episodes. 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.

19 Through 23 Months

These children 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 on and off 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. These children 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.

Representational and symbolic thinking emerges during this timeframe, and children understand that some toys represent other objects. 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.

Rudimentary pretend and role-play emerge; these toddlers can pretend to be asleep and can role-play a variety of commonly observed actions. As they approach 2 years of age, they may make dolls or stuffed animals assume roles, expecting them to eat pretend food. Though they still use trial and error, these toddlers 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. Simple remote controls are also usable.

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. These 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. Two-year-olds can now engage in true construction play. They understand that pictures can depict pretend objects, and scribbles gradually become more representational pictures during this period, though 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.

Toddlers 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 they 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 are entering the time of peak pretend play, and like to use replica objects as the actors in themes they sequence. 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, like a realistic toy telephone, 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. Gender preferences also become more evident. Girls typically choose dolls, household props, dress-up activities, and art materials, while boys tend to play more with blocks and small vehicle toys, and will engage in more aggressive or rough-and-tumble play.

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. For example, they can now put a ball in a basket or target from 4 to 5 feet away. They now have the fine-motor skills to take on the

challenge of more complex construction play, piecing together smaller puzzle pieces, cutting, pasting, and other art activities. Children at this age are still interested in different ways of manipulating a given art medium and learning about its properties, rather than creating a finished product. They start using lines to represent boundaries; this fosters the ability to draw people.

4 Through 5 Years

Drama and pretend 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 better understand story lines. 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 better understand these roles, to make them less scary, or to fulfill wishes and express a broad range of emotions. Gentle television characters begin to lose their popularity as superheroes and other more action-oriented characters begin to replace them. Toys that are based on popular programs 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. They are learning to ride small bicycles, first with and then without training wheels. They are much more able to cut with scissors, paste, trace, draw, color, and string beads than 3-year-olds. They also have enough dexterity and coordination to start using a computer keyboard.

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. Common games outside include hide-n-seek, cops and robbers, capture and escape, tag, and sports of all kinds. 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, jacks, snapping fingers, tying a bow, constructing models, operating hand puppets, needlepoint, sewing, weaving, and braiding. 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. As children approach 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.

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 woodworking, manipulating marionettes, making pottery, staging plays, 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. Children in this age group like to emulate popular teen characters, sports stars, and musicians by using licensed products in which they are featured. The decisions they make are much more subject to media and peer influences than was previously the case.

EARLY EXPLORATORY/PRACTICE PLAY

Early exploratory/practice play toys, such as mirrors, mobiles, manipulatives, push toys, and pull toys, help infants and toddlers 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. 23)

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

Push & Pull Toys (p. 35)

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

MIRRORS, MOBILES, & MANIPULATIVES

Early exploratory/practice mirrors, mobiles, and manipulatives are most useful for infants and toddlers, 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 the above characteristics does not necessarily indicate priority, however, 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, infants 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, infants 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 infants 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, infants 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. One- through three-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 towards and grasping objects. When infants can grasp toys, they learn to manipulate them both manually and orally.

Suitable mirrors and manipulative toys for these infants fit completely within their visual field, have rounded edges, and are lightweight but sturdy if meant to be grasped. These children prefer brightly colored toys dominated by yellows, reds, and high-contrast patterns, and graspable toys are washable since these children will mouth them. Cause-and-effect relationships are simple. For example, a toy that makes sounds when kicked or shaken would be suitable for these children. Sensory elements should not be too loud, too bright, too sudden, or otherwise extreme. Examples of manipulative toys for infants 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 multi-sensory infant toys, activity gyms, play mats, cloth toys, and plush toys. Mirrors and activity gyms should securely attach to the crib or wall, or be well balanced enough to remain standing on the floor as the child interacts with it. Mobiles should be designed for hanging directly above the infant so the suspended elements are oriented towards the infant—rather than being angled so their profiles are directed towards the infant—and so each element will fit within the infant’s visual field. Mobiles should remain outside an infant’s reach since 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 infants are externally oriented, actively engaging with their environments, and repeating simple actions that involve objects such as toys, clothing, and other people. Most infants 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. These children 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 hand-held mirrors.

Suitable manipulative toys for infants 4 through 7 months of age have characteristics similar to those for younger infants. Children can now manipulate objects themselves, so they prefer soft, lightweight toys. Since these children prefer to mouth toys, any toy they grasp will most likely proceed towards their faces. Toys with flaps, spinners, and rattling objects for exploration are of interest to these children. 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 multi-sensory 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 since they can pose a strangulation hazard. Mirrors may be attached to a crib or wall. Hand-held 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, infants 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 multi-sensory toys highly appealing for this age group. Infants of this age can hold two objects at once, but are unable to coordinate the different actions of each hand. Since their physical abilities are increasing but they lack the coordination to completely control their own actions, their potential for getting injured increases. These children 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, these children know the toy still exists and did not simply disappear.

Suitable manipulative and mirror toys for infants 8 through 11 months old have characteristics similar to those for younger infants. 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 these children include mirrors, teething toys, lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multi-sensory infant toys, manipulative panels, activity gyms, cloth toys, plush toys, squeeze and squeak toys, nesting 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 child to lift, hold, and carry are good choices for this age group. These children 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. Hand-held mirrors are small, have soft edges, and include an appropriately sized handle. Children of this age are actively engaged with simple stacking, sorting, and nesting. 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

Toddlers 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, toddlers 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. They are even more expansively exploring the world through all their senses: seeing, hearing, touching, tasting, and smelling.

Suitable manipulative and mirror toys for toddlers 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 these children. 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 these children can now manipulate objects themselves. They also are likely to taste any toy they grasp since 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 multi-sensory toys, mirrors, manipulative panels, activity centers, cloth toys, plush toys, squeeze and squeak toys, nesting toys, sorting toys, stacking toys, pop-up toys, rocking toys, tunnels, and inflatable toys. Full-length mirrors are suitable because these children are increasingly self-aware. Appropriate hand-held mirrors are small, have soft edges, and have handles that fit into the hand of these children. These children can now engage more actively with stacking, sorting, and nesting. 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 like to use simple bubble wands, but may be frustrated if they cannot produce bubbles on their own.

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 toddlers 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 hand-held, wall-mounted, and fun house mirrors, lightweight balls (such as musical, chiming, grasping, special effects, and textured balls), multi-textured and multi-sensory toys, manipulative panels, activity centers, cloth toys, plush toys, squeeze and squeak toys, rocking toys, tunnels, and inflatable toys. Mirrors that are hand-held are 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 nest toys with more skill, so nesting, sorting, and stacking toys are also appropriate for this age group. 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 try to blow bubbles with the help of an adult. Lacing and stringing toys are also appropriate for these children, 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 strengths 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 early exploratory/practice toys. Instead, they are increasingly interested in encapsulated spaces such as tunnels, 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 Play: Ride-On Toys* and *Sports & Recreational Play: Recreational Equipment*).

Manipulative and mirror toys for 2-year-old toddlers 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 multi-sensory 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, tunnels, and large lacing and stringing toys. Hand-held mirrors are 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. These children become more successful at blowing bubbles, and enjoy doing so; they are starting to use bubble wands and bubble pipes.

After the age of 2, most children engage predominantly in symbolic play, which includes dramatic and construction play. Therefore, Early Exploratory/Practice Play toys are no longer appropriate for most of them. For information on balls for older children, please see *Sports & Recreational Play: Recreational Equipment* and *Sports & Recreational Play: Sports Equipment*. For information on mirrors for older children, please see *Pretend & Role Play: Dress-Up Materials*.

EARLY EXPLORATORY/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
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 -----> ----->

EARLY EXPLORATORY/PRACTICE PLAY: MIRRORS, MOBILES, & MANIPULATIVES

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 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, 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
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
Cause & Effect*	A clear cause-and-effect relationship (cont'd)	-----→	-----→
Sensory Elements	Visual: lights, actions Manual Sounds Not too loud, sudden, or extreme (cont'd)	-----→ -----→ -----→ -----→	-----→ -----→ -----→ -----→

Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	<p>Finds multi-sensory elements very appealing</p> <p>Like to explore objects manually & orally (cont'd)</p> <p>Increasingly curious & loves to explore</p> <p>Beginning to self-select toys</p> <p>Uses all senses to explore the world: seeing, hearing, touching, tasting, & smelling</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>Can self-select toys</p> <p>-----></p> <p>Social play alongside each other (parallel play)</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>Social play (buddy & group)</p> <p>Beginning to grow beyond early exploratory/practice toys</p> <p>Increasingly interested in encapsulated spaces, role-playing, & riding toys</p>
33 Examples of Toys	<p>Mirrors that securely attach to a wall (cont'd)</p> <p>Appropriately sized hand-held mirrors (cont'd)</p> <p>Lightweight balls (musical, chiming, grasping, special effects, & textured) (cont'd)</p> <p>Multi-textured toys (cont'd)</p> <p>Multi-sensory toys (cont'd)</p> <p>Manipulative panels (cont'd)</p> <p>Activity centers (cont'd)</p> <p>Cloth & plush toys (cont'd)</p> <p>Squeeze & squeak toys (cont'd)</p> <p>Nesting, sorting, & stacking toys (cont'd)</p> <p>Pop-up toys (cont'd)</p> <p>Inflatable toys</p> <p>Sand & water toys</p> <p>Rocking toys</p> <p>Tunnels</p> <p>Bubbles (blown by an adult)</p>	<p>All examples from the previous age group</p> <p>Lacing & stringing toys</p>	<p>All examples from the previous age group</p> <p>(For information on mirrors for older children, please see <i>Pretend & Role Play: Dress-Up Materials</i>)</p> <p>(For more on balls for older children, please see <i>Sports & Recreational Play: Recreational Equipment</i>)</p>

* 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, however, 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 infants are externally oriented, actively engaging with their environments, and repeating simple actions that involve objects including toys, clothing, and other people. Most infants 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 these children generally lack the fine-motor skills to use toys that use handles and strings.

8 Through 11 Months

As these infants 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, infants 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 multi-sensory 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 infants 8 through 11 months old generally have characteristics similar to those for younger infants. 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

Toddlers from 12 through 18 months of age are increasingly curious and love to explore, and these children's increasing walking skill facilitates such traits. Because of this, toddlers 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 often engaged in activities that develop their strength.

In general, push and pull toys for toddlers 12 through 18 months old have characteristics similar to those for younger infants. However, these children 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. They are not yet able to use pull toys with cords if the child must stand to use them since 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 toddlers 19 through 23 months old can have some realistic detail, and may include rigid handles or cords for pushing or pulling. These children's 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 life-sized wheeled vehicles (see *Sports & Recreational Play: Recreational Equipment*).

Push and pull toys for 2-year-old toddlers 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 these children. 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 Play: Ride-On Toys*.

EARLY EXPLORATORY/PRACTICE PLAY: PUSH & PULL TOYS

Toy Characteristics	Birth Through 3 Months	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

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Sensory Elements		Visual Manual Auditory: gentle, soothing sounds Not too loud, sudden, or extreme	-----→ -----→ -----→ -----→
Level of Realism/Detail*		Realistic detail not preferred or necessary	-----→
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior		Finds multi-sensory 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.

EARLY EXPLORATORY/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
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
Licensing			
Classic			
Robotic/Smart Features			
Educational			
43 Relevant Play/Behavior	Finds multi-sensory 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
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 <i>Pretend & Role Play: Small Vehicle Toys</i> or <i>Sports & Recreational Play: Ride-On Toys</i>)

* One of the most influential characteristics for these toys.

CONSTRUCTION PLAY

Around 19 months of age, children demonstrate their symbolic understanding of the world through their play, a construct known as representational play. Construction 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 construction play at about 19 months. With each passing year, their structures increase in complexity. Around the age of 6 years, interest in construction play shifts from blocks to more complex interlocking materials.

Blocks (p. 47)

- Foam Cube Blocks
- Hollow Blocks
- Letter & Number 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 (p. 61)

- Brick Connecting Pieces
- Foam Puzzle Mats
- Holes/Slats/Casing Connecting Sets
- Model Kits
- Nuts & Bolts
- Snap-Lock Beads
- Wooden Log Connecting Sets

BLOCKS

Construction play contributes to learning and development, and increases the competence of the child. Construction play can be characterized by the lack of a single organizational format; the materials largely determine the organization of the play. Simply defined, construction play involves using materials such as blocks to build something. True construction play generally begins in early childhood around 2 years 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, however, 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, infant 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 infants do not have the physical abilities to grasp or manipulate objects. During the first months of life, infants use visual observation to engage in play. Research studies find that infants can differentiate red from green, even at birth, and that by 2 months of age, all color receptors are functioning. By 3 months, infants 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 these children. Blocks made of soft/plush materials (like foam or pillow blocks) or covered in plastic or cloth are appropriate for these infants. 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 infant matures, grasping, reaching, shaking and pulling become ways in which to interact with the environment. Grasping is mastered around 6 months, so infants can now handle toy blocks. Grasping a block triggers the sucking reflex, so these children 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 these children safer for their eyes and faces. Visually, this age group's abilities are consistent with younger infants, preferring red and yellow and patterns. Since 4- through 7-month-old infants use blocks in exploratory play rather than true construction 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 these children, 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 construction play materials, so providing them as manipulatives to aid in their development is appropriate (see *Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives*). Infants need only a few blocks rather than a wide assortment.

As infants' dexterity increases, their potential for injury increases. Infants 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 multi-sensory. These children 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 children'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 these children 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, plush cloth, sponge, or rubber-like materials also work well for meeting this need. 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.

These children are becoming capable of making combinations of two to three objects, which makes nesting blocks appealing. Toddlers 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. The exploration interest of infants/toddlers 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 these children. 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 infant are also appropriate for the 12- through 18-month toddler. 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 construction play. These children 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 these children 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 since they are more difficult to manipulate. These children 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, 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. As stated above, cardboard and foam blocks are also appealing and appropriate for this age group. Sets of blocks that include 20 to 40 pieces are sufficient for the construction in which these children engage.

2 Years

Construction play for 2-year-olds is very much the same as construction play for 19- through 23-month-olds. They use their constructions 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 these children as they build. They work through problems of relative size, volume, space, and weight. These children 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 such as these are attractive because they lack color and are simple geometric forms without complicated structures. This gives these children 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 construction 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. These children 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 construction 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. These children can handle sets with 80 to 100 pieces. Attributes such as these provide these children 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 construction play lies with sets that have interlocking pieces, as discussed in the next subcategory, *Interlocking Building Materials*.

CONSTRUCTION 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			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
55 Relevant Play/Behavior	<p>Exercises involuntary reflexes</p> <p>Blocks used for exploration, not construction</p> <p>Begins grasping by about 3 months</p>	<p>Performs deliberate, outwardly oriented movements</p> <p>Grasping is mastered around 6 months</p> <p>Handles & mouths blocks</p> <p>Crude motor skills; erratic arm motions</p>	<p>Capable of holding 2 objects at once</p> <p>Squeezing & banging often occur</p> <p>More coordinated</p> <p>Understands simple cause-and-effect relationships</p>
Examples of Toys	<p>Small sets of plastic-coated soft cubes, foam cube blocks, & pillow blocks</p>		<p>Motorized bumble, bounce, & vibrate blocks</p> <p>Rattle/Jingle blocks & plastic air squeak blocks</p>

* One of the most influential characteristics for these toys.

CONSTRUCTION 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 not capable of manipulating interlocking parts	Can start using interlocking sets with simple connecting systems (see <i>Construction Play: Interlocking Building Materials</i>)	
Materials*	Soft, plush cloth, sponge, or rubber-like materials Lightweight wood or plastic Not heavy wood	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			
Cause & Effect			

Sensory Elements			
Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	<p>Emerging interests in novelty & exploration Ability to walk Decreased frequency of mouthing toys Solves problems via trial & error Curious nature</p>	<p>Representational & symbolic thinking True construction play becomes a way of using blocks. Knocking down block structures is a popular activity.</p>	<p>-----> -----> -----></p>
Examples of Toys	<p>Talking blocks Problem-solving blocks Nesting blocks</p>	<p>Stacking Blocks Table Blocks -----></p>	<p>-----> -----> -----></p>

* One of the most influential characteristics for these toys.

CONSTRUCTION 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	----->	----->
58 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				

Sensory Elements				
Level of Realism/Detail	No color or complex structures	----->	----->	----->
Licensing				
Classic				
Robotic/Smart Features				
Educational				
59 Relevant Play/Behavior	<p>More advanced constructions than 2-year-olds</p> <p>Analyze component parts of what they want to build</p> <p>Visualize parts in relationship to the others</p> <p>Work through problems of size, volume, space, & weight</p>	<p>Even more progressed structures</p> <p>Dramatic story lines added to constructions.</p> <p>Loose parts combined with blocks</p>	<p>-----></p> <p>-----></p> <p>-----></p>	<p>-----></p> <p>-----></p> <p>-----></p>
Examples of Toys	<p>Wooden kindergarten blocks</p> <p>Number & letter blocks</p> <p>Table blocks</p> <p>Hollow blocks</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p>

* One of the most influential characteristics for these toys.

INTERLOCKING BUILDING MATERIALS

Interlocking building materials foster construction 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 construction play begins around 2 years of age and continues into adulthood. This play is linked to children's development because engaging in construction 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, however, 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 construction play emerges as a result. Because these children can manipulate toys with more ease due to their ever-increasing fine-motor skills, interlocking block sets with simple connecting systems are suitable for this age group. 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 these children. Interlocking construction 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 such as 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 such as notched logs are appropriate. 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 these children. Simple sets that use rods and spool-like connector pieces are suitable.

4 Through 5 Years

During this preschool period, construction 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, inserting flat pieces into slots, using nuts and bolts, connecting straws, and popping tubes together. Interlocking building materials that are plastic or wood, and come in a variety of sizes, shapes, and lengths are appropriate for preschool children. A larger number of parts (80 to 100) is also appropriate. Preschool children want their creations to become more realistic-looking, so variety in materials (for example, wheels, textures, miniature people, and model trees) is appealing. These children's motor skills are developed to a sufficient degree to use smaller (less than 1 inch in length) and simple snap-together construction toys. However, for more complicated tasks like using nuts and bolts, larger pieces are more suitable. Most preschool children do not understand how to hook up or use battery-powered construction sets.

6 Through 8 Years, 9 Through 12 Years

Early elementary age children find building with interlocking pieces highly interesting, much more so than construction 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 step sequences, so working on 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, 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 these children 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 these children. By age 7 and 8 years, some children can build structures using sets with moving, motorized, or computer chip-based components. Around age 9, model sets that include cement are appropriate. However, adult help may be required to ensure proper use of materials.

CONSTRUCTION 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			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	<p>Emerging interests in novelty & exploration</p> <p>Solves problems via trial & error</p> <p>Fine-motor skills more developed, but not ready for joining connectors.</p>	<p>Representational & symbolic thinking</p> <p>Construction play becomes a way of using building materials</p> <p>More refined fine-motor skills</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>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</p>
Examples of Toys	<p>Generally not appropriate</p>	<p>Snap-lock beads</p> <p>Large, chunky interlocking bricks/blocks</p>	<p>-----></p> <p>Large interlocking bricks/blocks</p> <p>Interlocking foam puzzle mats</p>

* One of the most influential characteristics for these toys.

CONSTRUCTION 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	2-3 inches for more complicated designs like nuts & bolts <1 inch for simple designs like bricks	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, rods & connectors, notched logs, & nesting	-----> Interlocking cogs, slot inserts, large nuts & bolts, connecting straws, popping tubes together	-----> -----> Tiny screws, nuts, 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				
Cause & Effect				
Sensory Elements				

Level of Realism/Detail		Want their creations to become more realistic-looking	Want kits that produce realistic, detailed models	----->
Licensing			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 construction sets	By age 7-8, capable of sets that have moving, motorized, &/or computer chip-based components	----->
Educational				
Relevant Play/Behavior	Uses interlocking materials in intended ways, which usually involves stacking in an upward direction Has the fine-motor skills necessary to manipulate most interlocking designs Lacks the cognitive ability to follow model kit assembly directions. Enjoys open-ended materials that allow them to create their own ideas	Construction play is a dominant activity -----> -----> Enjoys realistic-looking materials for their creations	Finds building with interlocking pieces highly interesting, much more so than non-interlocking building sets -----> Has cognitive abilities to follow directions & step sequence in model kits Enjoys realistic, detailed models & theme/movie based kits	-----> -----> -----> ----->
Examples of Toys	Snap-lock beads Smaller interlocking bricks Notched logs Sets using rods/dowels and spool-like connector pieces Work Bench Screws	-----> -----> -----> Large nuts & bolts	All examples from 4 Through 5 Years Sets using irregularly shaped or swiveling connector pieces Sets that build realistic, detailed, or transforming models Sets that teach concepts of simple machines like wheels & axles, gears, levers, and pulleys Snap-together model car kits Small nuts, bolts, & screws	-----> -----> -----> -----> Cement-based model car kits ----->

* One of the most influential characteristics for these toys.

PRETEND & ROLE PLAY

As infants and young toddlers 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 at 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. 71)

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

Play Scenes & Puppets (p. 85)

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

Dress-Up Materials (p. 95)

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

Small Vehicle Toys (p. 105)

- Boats
- Cars
- Motorcycles
- Trains
- Planes

Tools & Props (p. 117)

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

DOLLS & STUFFED TOYS

Dolls and stuffed toys can be appropriate for children of all ages. They often become a child's first sensory objects. Older infants and toddlers 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 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
- Licensing
- Color/Contrast

The order of the above characteristics does not necessarily indicate priority, however, 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

Infants this age mostly enjoy sensing and feeling objects. They lack fine-motor control, so dolls and stuffed toys that are very lightweight ($\frac{1}{2}$ to 2 ounces) and have an easy-to-grip size—for example, with limbs $\frac{1}{4}$ 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 they are mouthing most objects, dolls and stuffed toys for these children are 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 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 infants, these children 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. These children 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, infants 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 of up to 3 to 6 ounces and within the 8- to 12-inch range. Because these children 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 infants are also appropriate for young toddlers. 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, these children like manipulating extremities or heads to create different postures and looks.

Because young toddlers 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 these children 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

Toddlers 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 *Early Exploratory/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 baby bottle or blanket are appropriate. As they approach 2 years of age, toddlers 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 these children 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). These children 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. These children 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 bottle, blanket, or bone. Appropriate dolls and stuffed toys are easily carried, non-threatening, and familiar looking with a friendly appearance. Characteristics such as these are important for these children to initiate pretend episodes and to practice being friends or caring partners. As these children 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 awake. 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. These children 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 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. 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. These children 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 these children 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. These children 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 these children 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. 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. These children 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. These children are also able to handle slightly heavier (12 to 18 ounces) and larger (16 to 20 inches) dolls and stuffed animals than toddlers can.

4 Through 5 Years

These children 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 these children 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 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. 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 *Educational & Academic Play: Smart Toys & Educational Software*).

6 Through 8 Years

Young school-aged children engage in fewer pretend episodes than pre-schoolers, 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. These children enjoy life-sized or oversized dolls and stuffed animals that have many accessories. 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 these children to manipulate most small parts, such as fingers that move and small levers or buttons that activate features.

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. Realistic toys, however, are not necessary. 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

<p>Level of Realism/Detail*</p>	<p>Friendly looking features, especially face Highly contrasting facial features, or hand-sewn No eyes that move</p>	<p>-----> -----> -----></p>	<p>-----> -----> -----></p>
<p>Licensing *</p>		<p>Start to recognize familiar characters from media & domestic context</p>	<p>-----></p>
<p>Classic</p>			
<p>Robotic/Smart Features</p>			
<p>Educational</p>			
<p>Relevant Play/Behavior</p>	<p>High tendency to mouth objects Sensing & feeling objects</p>	<p>-----> -----> Begins sitting & later crawling Begins to recognize oft-repeated words</p>	<p>-----> -----> Established crawlers & climbers Beginning walkers Awareness of object permanence & symbolic representation</p>
<p>Examples of Toys</p>	<p>Small dolls (baby, bean bag, rag dolls) Small stuffed or plush animals Music dolls & stuffed toys Grab-on soft toys</p>	<p>-----> -----> -----> -----></p>	<p>-----> -----> -----> -----></p>

* 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)	----->	Bottle, 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
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)	

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
Licensing*	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
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	-----> -----> -----> Simple dress-me dolls -----> Combinations like mother & baby ----->

* One of the most influential characteristics for these toys.

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	----->	----->
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
Licensing*	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
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)	-----> -----> -----> -----> Oversized dolls & stuffed toys Unusual, unique dolls & stuffed toys ----->	-----> -----> -----> ----->

* 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. Toddlers 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 toddlers reach about 19 months of age, adults may model play with puppets or play scenes. At 19 months, toddlers 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, however, 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 these children.

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, toddlers 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 these children 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. These children 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, these children 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 these children 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 $\frac{1}{2}$ inch in size. Licensed play scenes start to become important to these children. 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 these children for the relatively private space they provide so children can carry out intensive pretend play.

Puppetry reaches its zenith with 4- and 5-year-olds. These children 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

These children 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.

These children 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. These children 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			

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
Licensing			
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
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.

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				

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

* 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
- Licensing
- Materials
- Motor Skills Required

The order of the above characteristics does not necessarily indicate priority, however, 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 toddlers 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). These children 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

Toddlers 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, lacing cubes or boards with large holes, 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 such as shoes, hats, headscarves, other hair accessories, snap-on ties, bracelets, and necklaces. They prefer a simple level of detail such as 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. Hand-held mirrors, especially those with a familiar fantasy theme like Cinderella, appeal to these children 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 either rich, vibrant colors or pastel colors. Due to their increased dexterity, fine-motor control, and problem-solving abilities, these children 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 fire fighting, and accessories like wigs and masks. Jewelry, such as 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, these children 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 these children 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.

These children 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. They 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 such activities like more complex hand looms, or sewing, knitting, embroidery, needle point, plastic braiding, and leather kits. These children 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. These children 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	----->	----->

Level of Realism/Detail*			Low degree of realistic detail
Licensing*		Licensed costumes & accessories begin to appeal	Stronger connection with licensed costumes & accessories
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	<p>Imitative Very simple pretend & symbolic thinking</p> <p>Babbles, some words Exploring Feeling textures Mouths objects most of the time</p>	<p>-----></p> <p>Simple pretend & symbolic connections</p> <p>Words & short phrases</p> <p>-----></p> <p>-----></p> <p>Mouths objects much of the time</p>	<p>-----></p> <p>More, increasingly complex symbolic transformations</p> <p>Increase in vocabulary Values independent functioning</p> <p>Some mouthing of objects</p>
Examples of Toys	<p>Very simple costumes Necklaces, bracelets with low tension elastic, no rings/earrings</p> <p>Hair accessories (scarves, clips) Braided or plastic "string"</p> <p>Beads (up to 10)</p>	<p>Simple costumes</p> <p>-----></p> <p>-----></p> <p>Shoes, hats, snap-on ties Beads (up to 20)</p> <p>Lacing cubes or boards with thick blunt spindles</p>	<p>-----></p> <p>-----></p> <p>Hand-held mirrors with fantasy theme Simple wigs</p> <p>-----></p> <p>-----></p> <p>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</p>

* One of the most influential characteristics for these toys.

PRETEND & ROLE PLAY: DRESS-UP MATERIALS

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

* One of the most influential characteristics for these toys.

SMALL VEHICLE TOYS

Infants and toddlers 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 *Early Exploratory/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 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
- Licensing
- Color/Contrast
- Cause & Effect

The order of the above characteristics does not necessarily indicate priority, however, 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 word comprehension. Therefore, young toddlers 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 these children 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.

These children are mostly attracted to rich vibrant colors with simple details that may be realistic or fantasy-oriented in nature. These children enjoy small vehicle toys that are simple, easy to recognize, and of one-piece construction, though the wheels may spin. Because of these children'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 toddlers also enjoy small vehicle toys with a small degree of cause and effect, such as vehicles on wheels that spin (see also *Early Exploratory/Practice Play: Push & Pull Toys*) or those with push buttons that produce simple sounds, lights, and actions. Small vehicle toys for these children 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, these children 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 these children 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.

19 Through 23 Months

Around 19 months of age, toddlers 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. They enjoy relatively large, simple, workable parts—like hinged doors or hoods, dumpers, hoses, sails, rudders, 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 *Early Exploratory/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 toddlers begin more simple pretend play with small vehicle toys, more so as they approach 2 years. Small vehicles with removable or loose parts are inappropriate since these children still mouth toys, though they do so to a lesser degree. Vehicles should be washable or easily cleaned, and 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, these children are more adept at pushing buttons, manipulating parts, and operating simple remote devices. Again, tracks are not appropriate, but these children 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

While they still imitate domestic and media-based themes a great deal, children at age 2 start to pretend more often because of 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 toddlers. They are attracted to small vehicle toys that have a low to moderate level

of cause-and-effect functionality such 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, these children 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. These children 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. As they approach 30 months of age, they are increasingly aware of licensed vehicles, 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. These children 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 breaking or pulling apart, and are typically made with thick, rounded edges. Washable or easy-to-clean toys are desirable.

These children 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 used 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, these children 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. These children 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 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 have licenses popularized by various media begin to appeal to these children. 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 these children because they derive a sense of completion and accomplishment when putting objects together.

4 Through 5 Years

These children enjoy small vehicle toys the most 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.

These children enjoy rich vibrant colors and more realistic colors, as well as a moderate to high level of realistic detail such as proportional design, movable parts, functionality, and more detailed decorations or wording. 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, such as 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 have licenses 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. These children 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. 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.

These children 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. 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 these children 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 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	-----→	-----→

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)
Licensing*		Starts to recognize licensed vehicles	Readily recognizes several licensed vehicles
Classic			
Robotic/Smart Features		Able to use simple remote controls & devices	----->
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 ----->
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

* 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 Small (1-8 in.) or large (12-24 in.) for pushing No more than 6-8 oz. if designed to be picked up during use	Both small & large working parts Small (1-12 in.) or large (24-36 in.) No more than 10 oz. if designed to be picked up during use	-----> All sizes 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 & parts	----->
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 More adept at using buttons & joy sticks More adept at using simple couplings Simple multiple-turn winders with large key & low tension	Able to manipulate small pieces effectively Begins to master most remote devices Able to use more complex couplings Medium to small keys on low to medium tension wind-ups	Moderate to high degree of dexterity, & fine-motor skills Masters most remote devices Couplings of moderate complexity to fasten & detach Small key for medium tension wind-ups	-----> -----> Small key, high tension wind-ups
Color/Contrast*	Rich, vibrant colors (cont'd) Bright pastel & realistic colors	----->	Standard & unique colors	----->
Cause & Effect	Pushing buttons on simple remote control produces more complex effects			
Sensory Elements				

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
Licensing*	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 ----->	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.

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 *Early Exploratory/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, however, 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 toddlers 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 toddlers 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 also like the cause-and-effect stimuli from pushing buttons and making sounds (see also *Early Exploratory/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 small vacuum-like or lawnmower-like toys. They can use sets with up to six separate parts. Rounded toys that are constructed from cleanable, thick, and sturdy material and structure—so toddlers 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 in 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 toddlers 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, these children are attracted to slightly more complex tools and props, including telephones, cash registers, medical kits, kitchen/cooking sets, low-power water guns, and mobile communication devices such as cellular phones and pagers. 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. These children begin to develop a greater interest in toy shovels and trowels, rakes, wheelbarrows (see also *Early Exploratory/Practice Play: Push & Pull Toys*), and buckets for sand and water play. They are also attracted to tools and props that are somewhat realistic, including vacuums, lawnmowers, kitchen toys, or cleaning tools like brooms, mops, dustpans, and carpet sweepers.

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 toddlers. These children are attracted to tools and props that have a low to moderate level of cause and effect, are a bit more realistic in detail, have rich vibrant colors, and require a moderate degree of fine-motor dexterity and control. Examples of appropriate toys include cash registers and play money, kitchen/cooking sets, medical kits, telephones, plastic construction tools, low-power water guns, and mobile communication devices such as cellular phones and pagers. They develop a greater interest in toy shovels and trowels, rakes, and buckets for sand and water play, and maintain an interest in vacuums, lawnmowers, kitchen toys and dishes, and toy house cleaning tools (like brooms, mops, dustpans, and carpet sweepers) that have low to moderately realistic detail. Tools and props that come in sets tend to have no more than 10 pieces.

As they 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 ($\frac{1}{2}$ pound) tools and props. Suitable toys for older toddlers 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. These children are attracted to props that exhibit a cause-and-effect stimulus to help support various simple dramatic themes. Appropriate toys include more realistic cash registers and play money, medical kits, kitchen/cooking sets, telephones and mobile communication devices, toy guns, holsters, helmets, low-power water guns, and small bow and arrow sets with suction-cup tipped ends. Sets generally have no more than 10 pieces. These children also begin to have more interest in realistic colors such as black, white, beige, and gray.

They retain an interest in toy shovels, trowels, rakes, and buckets for sand and water play, and are also interested in vacuums, lawnmowers, kitchen toys and dishes, and cleaning tools (for example, brooms, mops, dustpans, and carpet sweepers) with a moderate to high level of realistic detail. 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, these children enjoy phones with buttons that, when pressed, ask questions or make comments with basic language that they can understand.

4 Through 5 Years

These children 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 these children 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 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. These children 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. These children 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. Appropriate toys for this age group include cash registers and play money, medical kits, kitchen/cooking sets, telephones and mobile communication devices, toy guns, holsters, helmets, low-power water guns, and medium-size bow and arrows with suction-cups.

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. These children 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			

Level of Realism/Detail*	Low level of realistic detail	----->	Low to moderate level of realistic detail
Licensing			
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
Examples of Toys	Rakes, shovels, buckets & trowels Small vacuum-like, lawnmower-like toys House cleaning tools Kitchen/cooking & tea sets	-----> 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
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
Licensing		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 ----->	-----> -----> -----> ----->
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	-----> -----> -----> -----> -----> -----> -----> -----> -----> Light hammers	-----> -----> -----> -----> -----> -----> -----> -----> -----> ----->	-----> -----> -----> -----> -----> -----> -----> -----> -----> Authentic, adult-like tools & props

* One of the most influential characteristics for these toys.

GAME & ACTIVITY PLAY

Children begin to enjoy puzzles 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. 131)

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

Computer & Video Games (p.151)

- Adult type software
- Cartridge type consoles
- Hand held computers
- Internet games
- Software
- Traditional computer platforms

Card, Floor, Board, & Table Games (p. 141)

- Activity games
- Backgammon
- Bingo games
- Card games
- Checkers
- Chess
- Chinese checkers
- Cooperative games
- Dominoes
- Dice games
- Fantasy adventure games
- Lotto 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 *Early Exploratory/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
- Licensing
- Motor Skills Required
- Size of Parts
- Interlocking/Loose Parts

The order of the above characteristics does not necessarily indicate priority, however, 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.

12 Through 18 Months

These children 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 and other similar activities can be given to this age group, but these children are still primarily focusing on sensory-motor experiences so they approach puzzles by grasping them, mouthing them, banging them, and throwing the pieces.

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. 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, and that have only one clear solution. Inset puzzles based on familiar pictures and characters are also very simple. These children are interested in familiar forms and characters, as well as abstract shapes. 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 such as 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. 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 these children 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	-----→

Level of Realism/Detail		Abstract shapes more than realistic detail	Interested in realistic-looking objects
Licensing*			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		Shape sorters Nesting toys Form boards	-----> -----> -----> Inset puzzles with knobs & large pieces

* 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				

Level of Realism/Detail	Increasing interest in realistic details	----->	Like puzzles with photographs or other scenes	----->
Licensing *	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	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.

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, however, 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, these children will often use games of this sort as learning or educational toys (see *Educational & Academic 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 these children. 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. These children 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. These children are developing the fine-motor skills to make pick-up-sticks, games that require balancing pieces on one another, and similar games appealing. 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 for about 20 years or more, 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 the activity. 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.

Parents often buy nostalgic or traditional games—that is, games that have been around for about 20 years or more—for children in 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 labyrinth or maze games that require maneuvering a marble along a pathway, and 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. These children 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	12 Through 18 Months	19 Through 23 Months	2 Years
Size of Parts			Parts are large enough to handle easily
Shape of Parts			
Number of Parts			
Interlocking/Loose Parts			
Materials			
Motor Skills Required*			Can manage magnetic fishing-rod games Can press a lever and flip a marker into a hole
Color/Contrast			Bright, primary colors
Cause & Effect			
Sensory Elements			

Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational*			Parents like games that teach simple concepts, such as colors, shapes, & pictures
Relevant Play/Behavior*	Emerging interests in novelty & exploration, thus dominant play form is exploration play	----->	Will play alone in exploratory ways, or can play with one other person Can match simple colors, shapes, & pictures Vocabulary allows for naming pictures
	Lack cognitive abilities necessary for interacting in the intended way with the toy	----->	Lacks the cognitive skills & attention span necessary to participate in true game play with rules or turn-taking
Examples of Toys	Not appropriate	----->	Simple matching or lotto-type games Giant picture dominoes Simple action games Magnetic fishing games

* One of the most influential characteristics for these toys.

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

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts	Parts are large enough to handle easily			
Shape of Parts				
Number of Parts	No more than 5 or 6 loose parts			
Interlocking/Loose Parts				
Materials	Sturdy pieces			
Motor Skills Required*	Difficulty holding cards	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	Games can have sound elements, like music or beeping	----->	----->	Popular music
Level of Realism/Detail				

Licensing	Enjoy popular cartoon characters	Interested in popular cartoon & action characters	Interested in action characters & sports figures	----->
Classic*	Parents like to buy classic or nostalgic games	----->	----->	----->
Robotic/Smart Features				
Educational*	Parents like educational games like letter & number-recognition games	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 ----->
Relevant Play/Behavior*	Little understanding of games & strategies Unaware of other players Can only use simple ABCs & numbers in games	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 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	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	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	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	Interactive games Simulation games Sports games Abstract & academic content area games -----> Trivia games Labyrinth games -----> ----->

* One of the most influential characteristics for these toys.

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. 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 range of children. Computer devices generally come in three different platforms: traditional computer platforms, cartridge-type game consoles, and hand-held computer games. 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.

An input device for a computer is typically a keyboard and mouse. However, computers are easily modifiable to adjust to nearly all users. Extremely sensitive input devices that detect small movements exist to make computers accessible at 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 from the computer and can take a number of forms, like a plush animal. 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 processing for a computer generally is based on the software for the computer. Software for children may include simple cause-and-effect activities, games, educational software and adult programs.

Computer-based products have multiple appeals. They are interactive and multisensory, so they will appeal to children in a number of ways. Also, computer-based products are often seen as educational, which appeals to parents who want their children engaged in productive activities. Finally, unlike most other types of toys, parents and other adults also use computers. Computers

will attract children interested in emulating their parents and will be a source of interaction between parents and children.

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
- Licensing
- Motor Skills Required
- Educational

The order of the above characteristics does not necessarily indicate priority, however, 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. Parents will also need to insert software disks, start and stop programs, and turn on and off computers for these children.

Birth Through 3 Months

At this age, infants 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 such as 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 unfocus depending on the actions of the infant. The most appealing projection patterns would emphasize high-contrast colors that infants birth through 3 months of age can differentiate, such as red and green or black and white. Faces also are especially attractive to these children. Appropriate output devices are limited to

one or two events to let infants make the connection between their actions and the response of the output device.

4 Through 7 Months

Infants of 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 crib toys such as 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 these children's confusion about cause-and-effect relationships.

8 Through 11 Months

Computers appropriate for infants 8 through 11 months of age could take advantage of the increased mobility of this age group. These infants 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. Infants 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. These children can sit unsupported and stand with support, so projection screens can be moved to the vertical position.

12 Through 18 Months

Toddlers 12 through 18 months of age are very curious and 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 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

Toddlers 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. Toddlers are becoming aware of familiar licensed characters and will respond to them. The toddler 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 computer could then respond to this action.

2 Years

Two-year-old children are increasingly social so interactive programs that can respond to the toddlers' actions are appropriate. These children 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 and DVDs. Children at this age can insert compact disks, 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 to 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.

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. These children can use a mouse, but double- and triple-clicking or differentiating right and left mouse-button clicking is difficult for this age group. 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 these children 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. They continue to be interested in simple painting and drawing programs, book reading programs, and simple multimedia development. 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 hand held 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. These children can use a joystick to avoid moving objects, and can use both nested navigational systems and exploratory programs. Six- through eight-year-olds are very attracted to console and hand held 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. These children are beginning to learn to navigate the web, so games with web elements may be appropriate.

9 Through 12 Years

Nine- through twelve-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.

GAME & ACTIVITY 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 (scototing, 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)	----->	----->
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			
Licensing			
Classic			
Robotic/Smart Features			
Educational*	Programs that claim cognitive benefits (e.g., classical music, foreign languages) appeal to parents	----->	----->
Relevant Play/Behavior	<p>Finds multi-sensory elements very appealing</p> <p>Enjoys music</p> <p>Likes to explore objects manually & orally</p> <p>At birth, focus is best about 8 inches from face; by end of this period can see several feet away</p> <p>Learns through reflexes</p> <p>Interested in faces</p> <p>Able to reach & grasp at around 3 months</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>Increasing interest in surroundings</p> <p>Actively handles toys</p> <p>Mouthing & teething</p> <p>-----></p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>Can hold 2 objects at once but cannot coordinate between them</p>
Examples of Toys	<p>Simple cause-and-effect programs</p> <p>Screens with slowly moving patterns</p> <p>Input devices using a movement sensor or related to infants natural reflexes, like sucking</p> <p>Music & language programs</p> <p>Horizontal projections</p>	<p>-----></p> <p>Push buttons that create responses</p> <p>Remove input devices embedded in a push toy or crib toy</p> <p>-----></p> <p>Horizontal & vertical screens</p>	<p>Cause-and-effect programs using either sound or visual</p> <p>-----></p> <p>-----></p> <p>Vertical screens</p>

* One of the most influential characteristics for these toys.

GAME & ACTIVITY 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)	-----→ -----→ -----→ -----→	-----→ -----→ -----→ -----→
160 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 move a mouse; may have trouble clicking on small objects
Color/Contrast	High contrast (cont'd)	-----→	All colors
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			
Licensing*		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	----->
Relevant Play/Behavior	<p>Finds multi-sensory elements very appealing</p> <p>Like to explore objects manually & orally (cont'd)</p> <p>Increasingly curious & loves to explore</p> <p>Uses all senses to explore the world: seeing, hearing, touching, tasting, & smelling</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>Social play; aware of others' interest in computer</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>Social play; interest in play with parents & peers on computer</p> <p>Beginning to grow beyond early exploratory/practice toys</p>
Examples of Toys	<p>Simple cause-and-effect programs with characters</p> <p>Can have multiple responses to interactions</p> <p>Input device is remote from the screen</p>	<p>-----></p> <p>-----></p> <p>Can use a keyboard if all keys create the same response</p> <p>Interactive programs that ask for specific responses</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>Simple story-reading programs</p>

* One of the most influential characteristics for these toys.

GAME & ACTIVITY 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	-----> Able to right/left click and multiple click	-----> Can use both hands at the same time ----->	-----> -----> ----->
Color/Contrast				
Cause & Effect*	Enjoy point & click games	----->	Less interested in point & click games	
Sensory Elements*	Enjoy music & sound games	----->	Bright lights, sounds	Popular music
Level of Realism/Detail				
Licensing*	Enjoy popular cartoon characters	Interested in popular cartoon & action characters	Interested in action characters & sports figures	----->

Classic				
Robotic/Smart Features				
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	Interested in adult topics, trivia & historical games ----->
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	-----> Simple multimedia-development software -----> Beginning interest in more sophisticated 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 hand-held or console games	-----> -----> -----> -----> Interactive games Simulation games ----->

* One of the most influential characteristics for these toys.

SPORTS & RECREATIONAL 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 (p. 167)

- Bicycles
- Motorized vehicles
- Ride-on toys
- Rocking horses
- Scooters
- Skateboards
- Tricycles

Recreational Equipment (p. 177)

- Aerobic dance materials
- Air guns
- BB guns
- Ball guns
- Ball pits
- Beach balls
- Climbers
- Cork guns
- Creative movement equipment (bean bags, hoops, umbrellas, ribbons)
- Dart guns
- Diving toys
- 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
- Table tennis equipment
- Playground equipment
- Pools
- Projectiles from action figures
- Propelled rockets
- Rafts and boats
- Roller skates
- Scarves
- See-saws (teeter-totters)
- Skis
- Sleds
- Slides
- Snorkels
- Sprinklers
- Swings
- Toboggans
- Trampolines
- Weightlifting equipment

Sports Equipment (p. 191)

- Bats & Clubs
- 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
- Licensing
- Level of Realism/Detail

The order of the above characteristics does not necessarily indicate priority, however, 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. These children, 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 toddlers may not be able to use them effectively. Simple rocking horses may be introduced. Suitable ones 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.

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 toddlers 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. These

children 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 these children 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 these children. 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 these children 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. These children 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 these children. They can use a small

bicycle with training wheels, but foot brakes are preferred because these children 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, these children 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.

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 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	-----> ----->	-----> ----->
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
Licensing*	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

SPORTS & RECREATIONAL PLAY: RIDE-ON TOYS

Toy Characteristics	3 Years	4 Through 5 Years	6 Through 8 Years	9 Through 12 Years
Size of Parts*	Tricycles 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				

Level of Realism/Detail*	Like realistic-looking vehicles like fire engines, tractors, & motorcycles	----->	Less interested in realistic-looking vehicles	
Licensing*	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

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 include skates, projectile toys, backyard play equipment, and 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 *Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives*. For safety guidelines and more information on playground equipment, please refer to CPSC's *Handbook for Public Playground Safety*.

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, however, 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.

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 equipment does not have protrusions and is washable since children in this age group frequently mouths objects.

12 Through 18 Months

Children aged 12 through 18 months are gaining confidence as climbers and walkers, and most of these children 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 of this age enjoy bouncing balls. 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.

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 tot swings that surround 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 with 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, these children 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 such as beach balls, scarves, ribbons, parachutes, and plastic hoops in their creative movement. 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

Children by the age of 4 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. These children 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 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.

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. These children 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. These children 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. These children 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 also start to become interested in athletics for their own sake. Children of this age 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. These children 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 twelve-year-olds are very interested in winter sports. Depending on experience, most children can ski, ice skate, and sled. These children are

developing some understanding of projectiles. They can use air-propelled projectiles like rockets, cork guns, and small plastic disks. Although products like BB guns, which fire penetrating projectiles, are sometimes labeled for and used by children under age 12, they are inappropriate for these children and should only be used with adult supervision.

SPORTS & RECREATIONAL 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

Level of Realism/Detail			
Licensing			
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 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 & kicking for 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			
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
Licensing			
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
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 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		
Licensing		Interested in licensing of cartoon characters	Interested in licensing 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
Examples of Toys	Pools (with adult supervision) Sprinklers Low-movement roller skates (not inline skates) Inflatable bouncers Playground equipment like climbers, slides, & unsupported swings Creative movement materials, hoops, scarves, beach balls, ribbons, parachutes, flying disks Sleds	-----> Low-movement roller skates and double runner ice skates Playground equipment including overhead equipment and fire poles Creative movement materials, bean bags, umbrellas Small-size ski equipment Sleds: disks, toboggans, plastic sheets Soft, very lightweight projectiles that fly less than 12 inches Marbles Soft horseshoes Flying disks	Water play equipment, diving equipment, flippers, goggles, snorkels Roller skates, inline skates Gymnastics equipment, rings, trampolines Sleds with steering mechanisms, hand brakes, toboggans, skis, single runner skates Water guns Soft, lightweight projectiles like table tennis balls, soft darts, & soft foam projectiles; also helicopter-type projectiles Cameras Jump ropes -----> Horseshoes ----->	Air propelled rockets, & other projectiles Kites Hiking equipment Weightlifting equipment Aerobic & dance activities 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+

* One of the most influential characteristics for these toys.

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 take part in organized activities like sports, they must understand the rules. However, children enjoy interacting with sports equipment before they understand the rules needed to participate in an organized sport. The cognitive ability to effectively play sports usually develops around age 6. These children have an interest in playing games with rules and have the cognitive ability to strategize about games. Due to the specialized physical skills and understanding of rules required for active sports and games, sports equipment is not appropriate for children under 2 years of age. Balls for exploratory play that are associated with active sports and games are included in *Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives* and *Sports & Recreational 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
- Licensing
- Motor Skills Required

The order of the above characteristics does not necessarily indicate priority, however, 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.

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. Most 3-year-olds can participate in collective games that have few rules. These children begin to show interest in a variety of throw-and-catch activities. They enjoy free movement and non-directive activities. 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. Parents frequently begin enrolling these children 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 have little interest in scoring, and 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 these children 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. These children 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 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*	Sports activities require advanced motor skills that are beyond the capabilities of toddlers.	----->	Able to grasp a small soft ball with 1 hand 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
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
Licensing			
Classic*			Parents begin to emphasize classic or traditional sports
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	Sports require advanced motor & cognitive skills. Sports equipment is typically not appropriate for toddlers.	----->	Interested in throwing, catching, & kicking Able to throw, catch, & kick Fundamental movement phase No understanding of rules or game strategies Little interest in organized activities Prefer free-movement activities
Examples of Toys			Soft balls Balls of all shapes & sizes Large balls about 10" in diameter Soft, replica sports equipment Soft bats or clubs Targets, nets or goals for throwing Small-size basketball, soccer goals

* One of the most influential characteristics for these toys.

SPORTS & RECREATIONAL 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		

Level of Realism/Detail			Interested in real sports equipment ----->	
Licensing*		Interested in cartoon figures for licensing	Interested in sports figures for licensing ----->	
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 ----->
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	-----> -----> -----> -----> -----> -----> -----> ----->	-----> 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. It also includes interaction with created media.

Arts & Crafts (p. 201)

- Large size crayons and markers
- Large size art or construction paper
- Easels
- Large beads on shoelace string
- Non-toxic tempera paint and large brushes
- Blunt-end scissors
- Finger painting
- Clay or play dough
- Pop beads
- Chalk, Chalkboard
- Pre-gummed paper and scissors
- Glitter, yarn, pom-poms
- Crayons, markers, brushes, color pencils
- Pastels, Water colors
- Coloring books
- Smaller beads and string
- Tools for clay work
- Sewing activities and kits, Mini looms
- Stamps and non-toxic ink
- All scissors
- Kits (e.g., jewelry, beading, soap, basket, candle, and modeling)
- Camera and photography equipment
- Printing equipment
- Plaster of Paris and papier-mâché
- Balloons
- Leatherwork and tools
- Carving, Bookbinding, Block printing, Flower pressing, Calligraphy, Sketching
- Crochet, Embroidery, Knitting, Needlepoint, Sewing machines
- Puppetry, Doll-making
- Metal working
- Mosaic, Ceramic
- Wood burners, Screwdrivers, Pliers

Audiovisual Equipment (p. 215)

- Audio Tapes/CDs of Lullabies or Nursery Rhymes
- Children's Movies
- Children's Tape Players
- Folk/Cultural, Pop/Rock, Classical Music
- Music Boxes
- Portable CD Players & Headphones
- Public Television Shows
- Silly Songs/Word Plays/Finger Plays
- Sing-a-Longs

Musical Instruments (p. 229)

- Musical mobiles and gyms (see also *Early Exploratory/Practice Play*)
- Wrist, ankle, and hand-held rattles
- Wrist, ankle, and hand-held bells
- Wrist, ankle, and hand-held chimes
- Small, light tambourines
- Musical interactive and smart toys (see also *Educational & Academic Play: Learning Toys* and *Educational & Academic Play: Smart Toys & Educational Software*)
- Drums, Bongos, Tambourines
- Blocks (scraping and tapping), Triangles, Rhythm sticks, Cymbals
- Xylophones, Keyboards, Pianos
- Wind-up music boxes
- Tapes, records, CDs, videos (see also *Media Play: Audiovisual Equipment*)
- Ukulele, Violin, Autoharp
- Flute
- Horns, Harmonica

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, however, 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.

8 Through 11 Months

From 8 through 11 months of age, infants become more mobile and their behaviors become more coordinated and outwardly initiated. Because of this increase in physical and cognitive development, infants around this age are beginning to understand simple cause-and-effect relationships. This makes art materials somewhat attractive for children of this age, but only in a functional/exploratory way. These children can grasp large, easy-to-grip crayons and markers and can make marks on a piece of paper. However, these children do not generally draw or scribble until they reach 1 year old. Since children of this age have a propensity for exploring objects orally, paints are not recommended.

12 Through 18 Months

Toddlers 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 these children, and large sheets of art and construction are best. Children who can remain in a standing position can use easels. Since children of this age have a propensity for exploring objects orally, paints are not recommended.

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 these children. By 2 years of age, some can draw simple angles. The fine-motor movements of these children 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 these children, 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 previous 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 these children, 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 these children, as do varying sizes and colors of art and construction paper. 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.

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 more well 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. 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 these children, 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.

Suitable materials are appropriately sized to children's grips, and are sturdy. These children 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 these children. 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. 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, and should never be given in whole or part to children under that age. These children 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 art 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 these children 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
Sensory Elements*			Visual Manual

Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior			<p>Like to explore objects manually & orally</p> <p>Can make marks on paper, but does not actively scribble or draw</p>
Examples of Toys			<p>Large, easy-to-grip crayons & markers</p> <p>Large sheets of art & construction paper</p>

* One of the most influential characteristics for these toys.

MEDIA PLAY: ARTS & CRAFTS

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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)	-----> ----->	-----> ----->

Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	<p>Like to explore objects manually & orally (cont'd) Likes to scribble</p>	<p>-----> -----> 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</p>	<p>-----> -----> 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</p>
Examples of Toys	<p>Large, easy-to-grip crayons & markers (cont'd) Large sheets of art & construction paper (cont'd) Easels for those who can stand</p>	<p>-----> -----> -----> Approaching 24 months; can string large beads on shoelace string</p>	<p>-----> -----> -----> -----> Blunt-end scissors Finger painting Soft modeling clay or dough</p>

* 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	----->

Licensing				
Classic				
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	<p>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</p>	<p>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</p>	<p>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</p>	<p>Ready for technical training Engage in detail-oriented art techniques</p>
Examples of Toys	<p>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 Pop beads Large beads & shoestring (cont'd) Chalk & chalkboard Pre-gummed paper & stickers Glitter, yarn, pom poms</p>	<p>Smaller crayons, markers, brushes, & color pencils at 5 All papers & coloring books Watercolors Beads & string Tools for clay work Simple sewing with plastic needle Miniature looms Stamps & non-toxic ink pads</p>	<p>Crayons, markers, brushes, & color pencils Pastels Various scissors Self-hardening & polymer clay Beading/jewelry kits Soap, candle, basket kits Sewing kits, sewing with large needle Camera & photography equipment Printing equipment Plaster of Paris, papier-mâché, & pottery activities Modeling kits Balloons (8 years) Leatherwork & tools Carving Book binding Block printing Flower pressing</p>	<p>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</p>

* 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 determines 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 *Game & Activity Play* and *Educational & Academic Play* categories.

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, however, 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 infants can hear. Infants react with distressful behaviors to loud and sudden noises, and to changes in the volume of audio/video equipment. Young infants 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 infants, whereas higher tones tend to distress them. Infants especially enjoy gentle repeated rhythms and exaggerated speech sounds. For example, children less than 3 months old enjoy “heartbeat” rhythms.

Infants 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. Infants 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. These children are attracted to 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. Infants 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 they are 6 months old. Research studies also explain that infants can differentiate red from green—even at birth—and that by 2 months of age, all color receptors are functioning. By 3 months, infants prefer yellow and red to blue and green and patterns to solids. Due to infants' 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 towards them.

8 Through 11 Months

Eight- through eleven-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. 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

These children become increasingly mobile and advance from the “infant” label to the “toddler” label. 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. Toddlers 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.

These children’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 these children has improved more for higher than for lower sounds and is as good as that of an adult. 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, toddlers are interested in sounds and repetition. Toddlers have developed the fine-motor skills necessary to operate a hand-cranked music box, but they cannot manipulate wind-up models.

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, and tapes.

Exposing toddlers 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 beat are appropriate to aid in their developing skills. Nursery and other simple rhyme records, CDs, and tapes are also appropriate. These children 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 toddlers is very much connected to their auditory play. Appropriate television shows and videos for this age group include a great deal of music and movement opportunities. Toddlers may prefer red, yellow, and other primary colors, but suitable visuals can include pastels and other colors. Attention spans are short for toddlers, 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. Toddlers have developed the ability to remember events, so video and television often focus on lovable characters for these children. These characters are often available on toy store shelves, which creates a licensing appeal to visual play. 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 events with which they are familiar 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 cassette/CD players and radios that are designed for children; microphones and blank tapes for personal recordings are highly appealing as well. 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, these children 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 as some are fragile and more suitable for older children.

Video play for preschoolers is very similar to that of toddlers. They enjoy watching familiar television shows and videos that star their favorite character. Three-year-olds' attention span has increased, and like toddlers, these children incorporate their love of music into their visual play. Appropriate shows use music as a primary way of communicating with these young viewers. Television shows targeted at this age group are leaning toward more academic content, such as 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 television shows and videos that star 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. Television shows targeted at 4- and 5-year-olds are leaning toward more academic content, such as counting, vocabulary, alphabet, and abstract concepts such as 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 *Game & Activity 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 changes, throughout childhood. Individual preferences in music are the rule; some 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 tape players are replaced with "real" audio equipment, including compact disc players, headphones, and stereo equipment. Appropriate music for these children depends on their tastes, although lyric consideration is warranted. Blank tapes, 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 such as tape recorders to make their recordings. For general audio play, these children can operate CD players, record players, radios, and stereo equipment. Instruction by adults may be necessary for more complicated systems.

Books and long stories on tape are also appealing, for they 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. These children can operate television, VCR, and DVD systems with proper adult instruction. See the *Game & Activity Play: Computer & Video Games* for video equipment related to video games.

MEDIA 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, infants 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.

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Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior*	<p>Sensitive to sounds due to fluid in middle ear. Capable of distinguishing speech sounds as early as 1 mo. Beginning to localize sounds, babble, & make singing sounds with adults by 3 mo. Visual acuity at birth is 20/400-20/800; by 3 mo. improves to around 20/100 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.</p>	<p>-----> Fully capable of localizing sounds, babbling, & making singing sounds with adults. Visual accommodation is almost adult-like by 6 mo.</p>	<p>Can discriminate sentence tunes, imitate sounds, & sound sequences. Makes singing sounds to music; enjoys finger-plays & sing-songs.</p>
Examples of Toys	<p>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</p>	<p>-----> -----> -----> -----> -----></p>	<p>-----> -----> -----> -----> -----></p>

* One of the most influential characteristics for these toys.

MEDIA 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 wind-up kinds.	----->	----->
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			

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

* One of the most influential characteristics for these toys.

MEDIA 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, & 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	----->
Licensing	Popular TV & video characters	----->	Popular TV, video, movie, music stars	----->

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, however, 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. Infants younger than 4 months old learn mostly through their reflexes. Between 3 and 4 months of age, infants begin to reach towards and grasp objects. When infants can grasp toys, they learn to manipulate them manually and orally. At birth, infants' focus is best at a distance of 8 inches from the face. Research demonstrates that infants 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, infants prefer yellow and red to blue and green, and patterns to solids; they now can see objects several feet away.

Musical instruments appropriate for infants 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, infants can grasp small-scale tambourines, hand-held 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 infants perceive them. Cause-and-effect relationships are simple (for example, a bell rings when an arm is waved), and sensory elements are not 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 *Early Exploratory/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 infants are now actively engaged with their environments, repeating actions that involve external objects. Most infants 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 infants of this age range include rattles, bells, chimes, and small-scale tambourines that fit in infants' 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 infants 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 *Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives*). Infants in this age group are also 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, infants 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. Infants 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 such as 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 infants of this age range include hand-held rattles, bells, chimes, and small tambourines that will fit appropriately in infants' grasps. Infants 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

Toddlers 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, toddlers 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 toddlers of this age range include hand-held rattles, bells, chimes, and small-scale tambourines that will fit appropriately into infants' grasps. They are small and light enough for the toddler to handle, have rounded edges, and are washable and sturdy. Cause-and-effect relationships are simple, and sensory elements are not too loud or otherwise extreme. Rhythm instruments are most appropriate for this age. They are also very interested in interactive toys and smart toys that have musical features (see also *Educational & Academic Play*), as well as instruments that they can use in functional/exploratory ways such as pounding on drums or bongos.

19 Through 23 Months

Toddlers 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 such as 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 in this age range 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. These children 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 such as horns and whistles.

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

3 Years

3-year-old preschoolers 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 like to repeat songs.

Appropriate musical instruments are properly sized for the 3-year-old preschooler to handle, have rounded edges, and are sturdy. Multi-sensory 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.

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 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 preschooler to handle, have rounded edges, and are sturdy. Multi-sensory elements and cause-and-effect relationships are very appealing. They also prefer adult quality instruments over those made of plastic.

Musical instruments that these children can use effectively include shakers of all kinds, maracas, castanets, tambourines, bells, drums and bongos, blocks (by scraping and tapping), triangles, rhythm sticks, novelty musical instruments, cymbals, xylophones, keyboards, and pianos.

Children of this age also enjoy wind-up music boxes, tapes, records, and CDs (see *Media Play: Audiovisual Equipment*).

6 Through 8 Years

Children in the early elementary years from 6 through 8 have developed rhythmic discrimination, are better at remembering melodies than younger children, can read music when instructed in doing so, 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. They prefer adult quality instruments. Musical instruments that these children 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 *Media 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 *Media 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	-----> -----> ----->	-----> -----> ----->

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

* 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)	-----> -----> ----->	-----> -----> ----->

Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational			
Relevant Play/Behavior	<p>Finds multi-sensory elements very appealing</p> <p>Likes to explore objects manually & orally (cont'd)</p> <p>Increasingly curious & love to explore</p> <p>Beginning to self-select toys</p> <p>Uses all senses to explore the world: seeing, hearing, touching, tasting, & smelling</p> <p>Functional/exploratory play with musical instruments</p> <p>Can move bodies to music</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p>	<p>-----></p> <p>Music is related to other cognitive skills</p> <p>Music is inseparable from movement</p> <p>Interested in the sounds different musical instruments make</p> <p>Can perceive changes in volume</p> <p>Can recognize simple melodies</p> <p>Can sing phrases of songs</p> <p>-----></p> <p>Repeats favorite songs</p> <p>Enjoys rhythm instruments</p>
Examples of Toys	<p>Rattles & shakers(cont'd)</p> <p>Bells (cont'd)</p> <p>Chimes (cont'd)</p> <p>Small, light tambourines (cont'd)</p> <p>Musical interactive & smart toys (see <i>Educational & Academic Play: Learning Toys and Educational & Academic Play: Smart Toys & Educational Software</i>) (cont'd)</p> <p>Drums</p> <p>Bongos</p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p>	<p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>-----></p> <p>Tambourines</p> <p>Blocks (scraping and tapping)</p> <p>Triangles</p> <p>-----></p> <p>Rhythm sticks</p> <p>Novelty musical instruments (including horns & whistles)</p>

* One of the most influential characteristics for these toys.

MEDIA PLAY: MUSICAL INSTRUMENTS

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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	----->	----->
Licensing				

Classic				
Robotic/Smart Features				
Educational				
Relevant Play/Behavior	<p>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</p>	<p>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</p>	<p>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</p>	<p>-----> Good at remembering melodies Can read music well -----> Can take formal music lessons Can sing in groups Musical improvisation continues Able to keep harmony</p>
Examples of Toys	<p>Rattles & shakers (cont'd) Bells (cont'd) Chimes (cont'd) Small, light tambourines (cont'd) Musical interactive & smart toys (see <i>Educational & Academic Play: Learning Toys and Educational & Academic Play: Smart Toys & Educational Software</i>)(cont'd) Drums (cont'd) Bongos (cont'd) Tambourines (cont'd) Blocks (scraping & tapping) (cont'd) Triangles (cont'd) Rhythm sticks (cont'd) Novelty musical instruments (including horns & whistles) (cont'd)</p>	<p>All examples in previous age group Cymbals Xylophones Keyboards Pianos Wind-up music boxes Tapes, records, CDs, videos (see <i>Media Play: Audiovisual Equipment</i>)</p>	<p>All examples in previous age group Autoharp Ukulele Flute Violin Horns Harmonica</p>	<p>All examples in previous age group</p>

* One of the most influential characteristics for these toys.

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, press and guess games, and computer programs. 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 and above average, 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 these children for developmental or safety reasons.

Books (p. 245)

- ABC & Number
- Chapter
- Cloth- or Plastic-Covered
- Coloring
- Information
- Interactive
- Nursery Rhymes
- Picture
- Pop-Up
- Rhyming
- Simple Stories
- Tactile

Learning Toys (p. 259)

- Binoculars
- Chemistry Sets
- Colors & Shapes
- Electronic Teacher Toys
- Felt Playboards
- Flashcards
- Magnetic Letters & Numbers
- Press & Guess Toys
- Science Sets
- Telescopes

Smart Toys & Educational Software (p. 269)

- Academic Software
- Computer Games
- Digital Manipulatives
- Interactive Pets
- Internet Connections

BOOKS

Research strongly indicates that a human'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 are developed during the early years toward reading, 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 tell a story. Recent research indicates that reading to children as early as 1 month 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 above characteristics does not necessarily indicate priority, however, 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 do not, however, apply to books read to infants and 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 read to their children, even in-utero. However, these infants lack the physical, cognitive, and visual abilities necessary for interacting with books.

4 Through 7 Months

At this age, infants' movements are progressing from involuntary reflexes to deliberate outwardly oriented movements. As the infants mature, grasping, reaching, shaking and pulling become ways in which they can interact with the environment. Grasping is mastered around 6 months. Because of their emerging abilities, books may be given to them. 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. Infants use visual skills to engage in play. Research studies indicate that infants prefer yellow and red to blue and green and patterns over solids by 3 months of age. Therefore, by 4 months when they are given books, books that have bright yellow and red pictures with high visual contrasts and patterns are likely to be more appealing to these children. Infants can handle books that are small (no more than around 4 or 6 inches in any direction) and light yet sturdy. Once a book is grasped, it is likely to be mouthed immediately. Therefore, books for these children are usually made to endure wetness without tearing or falling apart, such as those 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 these children. Motor skills are crude at this age, so books provided for the child must be large enough for them to grasp easily (around 6 and 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. They 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. These children 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, so books that have rhymes, rhythm, and repetition are suitable for aiding in their developing skills. These children enjoy looking at books as a solitary activity, and will do so frequently if provided an opportunity to do so. 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 books, simple picture/story books, nursery rhyme books, and simple ABC and number books are pleasing to toddlers. Books containing five to seven pages are sufficient 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 not tear 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, ABC, 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. These children 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. They 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. These children 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, these children 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 because they are not “true.”

Like 3-year-olds, children of this age are generally 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.

Early-elementary age 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 these children have a new interest in fantasy, which largely dominates 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 books about children, nature, and the Earth elements. Boys tend to prefer information books, particularly those that pertain to science themes.

Once these children 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, so 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. Mystic 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 to not 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

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

* One of the most influential characteristics for these toys.

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

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

* 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	----->
Licensing				
Classic				

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

* One of the most influential characteristics for these toys.

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 infants. 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 mainly serve as objects with which children can learn about their senses, develop their motor skills, and learn about cause and effect (see *Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives*). Therefore, giving a true learning toy to children younger than 2 years of age is often inappropriate because they 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/programs are not included in this subcategory; these and other educational software 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 the above characteristics does not necessarily indicate priority, however, 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 utilizing this skill are engaging. These children 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 such as 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.” These children 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, letters and sounds, and numbers are suitable.

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. These children 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. These children 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. 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, microscopes, telescopes, binoculars, see-through clocks with visible gears, simple calculators, alphabet ink stamps, and functioning toy typewriters.

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. These children 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, telescopes, and binoculars. They are interested in their own anatomy and elements in the world, so scientific exploration sets that allow dissecting and slide examination 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 interesting.

9 Through 12 Years

Skills that were being introduced in the prior age group are largely mastered by age 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, ten-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. 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	12 Through 18 Months	19 Through 23 Months	2 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

Level of Realism/Detail			
Licensing			
Classic			
Robotic/Smart Features			
Educational*			<p>Matching colors, shapes, & pictures Naming objects, shapes, & pictures Basic physical & temporal relationships between objects Basic counting</p>
Relevant Play/Behavior	<p>Emerging interests in novelty & exploration, thus dominant play form is exploration play</p>	----->	<p>Cognitively & physically capable of interacting with simple learning toys Finds multi-sensory 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"</p>
Examples of Toys	<p>See <i>Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives</i></p>	----->	<p>Simple electronic-teacher toys Learning toys that teach colors, shapes, picture/object names, letters & sounds, & numbers Matching games</p>

* One of the most influential characteristics for these toys.

EDUCATIONAL & ACADEMIC PLAY: LEARNING TOYS

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				
Motor Skills Required				
Color/Contrast				
Cause & Effect				
Sensory Elements				
Level of Realism/Detail*			Prefer realistic-looking toys Prefer real-world objects to plastic replicas	-----> ----->
Licensing				
Classic				
Robotic/Smart Features				

Educational*	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	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
Relevant Play/Behavior	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"	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	Simple electronic-teacher toys Learning toys that teach colors, shapes, letters & sounds, numbers & counting Matching games	-----> -----> 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 Microscopes, telescopes, binoculars See-through clocks Simple calculators Functioning toy typewriters	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	All examples from previous age group History Geography Standard typewriters & calculators

* One of the most influential characteristics for these toys.

SMART TOYS & EDUCATIONAL SOFTWARE

The past decade 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 either through sound, 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 interact in more creative ways with 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 are appropriate for newborn infants. Like learning toys, smart toys and educational software have intended uses, specific goals, and particular types of play objectives. They are appropriate only for children past the toddler years, 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 in intended ways; toys for those children are discussed in *Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives* or *Game & Activity 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:

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

The order of the above characteristics does not necessarily indicate priority, however, 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 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. 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 utilizing this skill are engaging. These children 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 such as 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.” These children 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 simple smart toys and software that teach colors, shapes, letters and sounds, and numbers enjoyable.

Lovable characters from video and television are popular software packages for these children since they have developed the ability to remember events. Such software is frequently available on store shelves, and this creates a licensing appeal for software. Children enjoy listening to simple stories at this age, so software that incorporates story lines is engaging. They also enjoy having an experience repeatedly, as such predictability provides a sense of security. Appropriate software for this age group includes a great deal of 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 that have big, brightly colored animation and require simple responses from the child (for example, using the space bar only) 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 these children.

Children of this age are interested in animals, vehicles, and places like the beach or the zoo. Software that has heavy emphasis on traditionally formal academic areas (for example, literacy and numeracy) is inappropriate, but visual discrimination skills, such as matching colors and shapes, are appropriate. These children are generally farsighted and are still developing their binocular vision. Therefore, they can more easily view larger print and pictures. Because toddlers prefer red and yellow colors, suitable visuals for these toys are bright and based on primary colors. Toddlers' 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.

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. These children understand the concept of counting and may know a few numbers. Suitable smart toys and software teach colors, shapes, letters and sounds, and numbers.

These children also find lovable characters from video and television popular, so software packages associated with those characters tend to be popular. These children enjoy software that incorporates story lines and enjoy having an experience repeated. As with 2-year-olds, these children enjoy software that allows 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 that have big, brightly colored animation and require simple responses from the child 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 these children. Children of this age are commonly interested in animals, vehicles, and places like the beach or the zoo. As with younger children, software that has heavy emphasis on traditionally formal academic areas (for example, literacy and numeracy) is inappropriate, but visual discrimination skills, such as matching or naming colors and shapes, are appropriate. Three-year-olds are generally farsighted

and are still developing their binocular vision. Therefore, these children 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 and all the cognitive goals and requirements they bring. These children can understand how the smart toy should be used and know how to interact with the toy. Dramatic play is at a high level, so interactive toys are appealing in that they “participate” in the play scenario. Fine-motor skills are well developed, so small pieces that come with the toy present relatively little challenge.

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. Preschool children can mentally work through problems and questions, so programs designed to have the user engage in logical thinking and classification are enjoyed. These children like to practice their intellectual abilities and acquire facts. Gender differences are significant during this age. Boys generally prefer more action-based software, but girls tend to prefer more animal and human-based software. Due to the gender issue, color schemes are important details to consider. For both genders, art related software is appealing. Drawing, coloring, and designing are largely enjoyed. Some programs for preschoolers may be aimed at familiarizing the child with the computer keyboard, or at teaching musical concepts.

Preschoolers’ interests are held longer when the software is energetic and rich with sensory stimulation, such as including music, moving characters, blinking lights, 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, these children can more easily view larger print and pictures included in the software program.

6 Through 8 Years

Smart toy and educational software 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.

Similar appeal applies to computer software. 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 that includes friends, such as games, is popular. Movies and music videos are high interest items, so software that includes “trendy” and pop-culture elements is also desirable to these children. Around age 7 or 8, many children develop a strong interest in competitive sports and games. Thus, computer sports games are appropriate. These children also have the fine-motor skills and hand-eye coordination necessary for successfully participating in this type of software play.

These children are ready for skill-specific software programs, rather than ones that focus on broad concepts used by the preschoolers. Literacy is an emerging skill during these years, so software that reinforces reading skills is 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 these children to use. Simple programs 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 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 and software that are appropriate for 6- to 9-year-olds remain appropriate for 9- through 12-year-olds. Most of these children 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, ten-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.

EDUCATIONAL & ACADEMIC PLAY: SMART TOYS & EDUCATIONAL SOFTWARE

Toy Characteristics	12 Through 18 Months	19 Through 23 Months	2 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
Motor Skills Required*			Software that requires simple responses from the child (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)
Cause & Effect			Understanding the cause-and-effect relationship is fully developed, so programs utilizing this skill are engaging
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

Level of Realism/Detail			
Licensing			Lovable characters from video & TV are popular software packages
Classic			
Robotic/Smart Features			Cognitively & physically capable of interacting with simple smart toys & software programs
Educational*			Matching colors, shapes, & pictures Naming objects, shapes, & pictures Basic physical & temporal relationships between objects Basic counting
Relevant Play/Behavior	Emerging interests in novelty & exploration, thus dominant play form is exploration play	----->	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
Examples of Toys	See <i>Early Exploratory/Practice Play: Mirrors, Mobiles, & Manipulatives</i> or <i>Game & Activity Play: Computer & Video Games</i>	----->	Visual discrimination programs Simple smart toys Sing-along software Software that teaches colors, shapes, letters & sounds, & numbers Matching games/software Story-line software Software that is related to transportation, animal, & place themes

* One of the most influential characteristics for these toys.

EDUCATIONAL & ACADEMIC PLAY: SMART TOYS & EDUCATIONAL SOFTWARE

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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	Computers running software is electric; adult supervision is needed	----->	----->	
Motor Skills Required*	Software that requires simple responses from the child (like using the space bar only) is appropriate Hand-eye coordination is still developing, so mouse use should be kept at a minimum	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	Big, brightly colored animation; preference for red & yellow colors (primary colors)	Gender differences in software theme preference make color schemes important details		
Cause & Effect	Understanding the cause-and-effect relationship is fully developed, so programs utilizing this skill are engaging	----->		
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	----->	----->	
Level of Realism/Detail*			Find realistic-looking toys appealing Prefer real-world objects to plastic replicas	----->
Licensing	Lovable characters from video & TV are popular software packages	----->	----->	----->
Classic				

Robotic/Smart Features	Cognitively & physically capable of interacting with simple smart toys & software programs	-----> Capable of understanding the way in which the smart toy should be used & knowing how to interact with it	Capable of physically handling the components needed for playing software games, like sports activities ----->	-----> ----->
Educational*	Matching colors, shapes, & pictures Naming objects, shapes, pictures, & colors Basic rules of grammar Basic physical & temporal relationships between objects Numbers & counting	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	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	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 Gender differences are significant during this age	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	Visual discrimination programs Simple smart toys Software that teaches colors, shapes, picture/object names, letters & sounds, & numbers Matching games Story-line software Software that is related to animal, transportation, & place themes	Interactive pets Digital manipulatives Programs that have the user engage in logical thinking & classification. Action based (boys) & animal/ human based software (girls) Art related software (drawing, coloring, designing); music Computer keyboard orientation software	Internet tie-in software Software that includes 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 extending specialized interests Subject-specific computer programs on spelling, geography, or political science. Software teaching programming languages for sports, games, & software

* 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. The page listed marks the beginning of the discussion for that particular toy subcategory.

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