

Cognitive Development – Early Numeracy: Birth-5

Number Operations 1

1 Concept of number, quantity, ways of representing numbers, one-to-one correspondence, and counting 1.1

- 1 Birth to Nine Months: Develop an awareness of one or more than one (E.g. 7-month-old Gary holds one toy in one hand, another toy in the other hand.) 1.1.1
- 2 Nine Months to Eighteen Months : Begin to understand the concepts of “more” and “all gone” and begin to request “more” or indicate “no more” verbally or non-verbally 1.1.2
- 3 Eighteen to Twenty-Four Months: Can use number words in songs and finger plays without understanding that numbers represent quantity 1.1.3
- 4 Twenty-Four to Thirty Months: Develop an understanding of the relationship between spoken numbers and quantity for quantities up to 2 or 3 (E.g. Blake picks up a car and a block and says, “Two toys.”) 1.1.4
- 5 Thirty Months to Three Years: Begin to initiate one-to-one matching for four or fewer items 1.1.5
- 6 Three Years: Show an interest in counting 1 to 10, may hold up fingers to indicate quantity 1.1.6
- 7a Four- and Five-Year-Olds: Develop progressively more complex knowledge and skills about numbers, in the following sequence*: 1.1.7A
- 7b Four- and Five-Year-Olds: Identify by sight how many are in a small group of up to 3 items 1.1.7B
- 7c Four- and Five-Year-Olds: Demonstrate understanding of one-to-one correspondence 1.1.7C
- 7d Four- and Five-Year-Olds: Recognize that the last number used in counting is the same as the total (E.g. Leila counts four cars and when the teacher asks her, “How many cars do you have?” she answers, “Four.”) 1.1.7D
- 7e Four- and Five-Year-Olds: Count objects in two different collections (up to ten in each) to determine which is the larger one 1.1.7E
- 7f Four- and Five-Year-Olds: Can answer the question “What comes after...” a number without having to recount (E.g. When asked, “What comes after five,” Sawyer says, “Six,” without having to count up from one.) 1.1.7F

- 7g Four- and Five-Year-Olds: Change small collections of objects by combining or removing objects and then counting to determine how many they have (E.g. Avery counts out three blocks, then adds two more, and counts all of the blocks and says, “I have five blocks.”) 1.1.7G
- 7h Four- and Five-Year-Olds: *While many children move through all of the steps of this sequence by five years old, others may still be only partially through this sequence by that age. 1.1.7H
- 7i Four- and Five-Year-Olds: Begin to recognize and attempt to write numerals up to 10 1.1.7I

Geometry and Spatial Sense 2

1 Shapes and their attributes, position, comparing and contrasting two or more objects, and distance 2.1

- 1 Birth to Nine Months: Develop an understanding of where things are in their environment 2.1.1
- 2 Nine Months to Eighteen Months : Demonstrate an awareness of the distance between their body and materials in space (E.g. Jayce crawls across the room to grab a toy.) 2.1.2
- 3 Eighteen to Twenty-Four Months: Demonstrate an understanding of simple position words (E.g. Hayden climbs a hill and says, “Me on top!”) 2.1.3
- 4 Twenty-Four to Thirty Months: Demonstrate an understanding of many position words (E.g. Brittany says to her teacher, “I’m next to you.”) 2.1.4
- 5 Thirty Months to Three Years: Use comparison words and position words correctly 2.1.5
- 6 Three Years: Explore and identify shapes in their environment and begin to notice attributes of shapes with adult help (E.g. Addy, 3 years old, says, “Look, my paper plate is a circle!”) 2.1.6
- 7a Four- and Five-Year-Olds: Use words that show understanding of order and position of objects 2.1.7A
- 7b Four- and Five-Year-Olds: Identify and name common shapes 2.1.7B
- 7c Four- and Five-Year-Olds: Describes basic features of shapes (E.g. Finnley says, “This triangle has three sides and this square has four sides.”) 2.1.7C
- 7d Four- and Five-Year-Olds: Compare the shape of two objects (E.g. Reanna draws two round shapes and says, “This one is an oval and this one is a circle.”) 2.1.7D

Measurements 3

1 Size, volume, quantity, and other measurable qualities, and the tools to measure them 3.1

- 1 Birth to Nine Months: Explore and begin to notice differences in temperature of objects in their environment 3.1.1
- 2 Nine Months to Eighteen Months : Show some awareness of the relative size of objects in their environment 3.1.2
- 3 Eighteen to Twenty-Four Months: Explore the concept of volume (E.g. Chase and Jade pick up a bucket of sand and dump it into the sandbox, over and over.) 3.1.3

- 4 Twenty-Four to Thirty Months: Show awareness of measurable qualities, such as size, distance, temperature, and weight, which, in toddler terms, are big/small, near/far, hot/cold, heavy/light 3.1.4
- 5 Thirty Months to Three Years: Recognize that objects and people can be measured (E.g. Brianna asks her mother, “How big am I?”) 3.1.5
- 6 Three Years: Use non-standard tools to measure, with adult assistance (E.g. Marla, Stacy, and Tim pass a lump of clay between them to see if it is bigger or smaller than each child’s hand.) 3.1.6
- 7a Four- and Five-Year-Olds: Recognize that objects can be measured by height, length, weight, and volume (E.g. Palo makes a stack of unifix cubes next to his friend and says, “You’re 40 cubes tall.”) 3.1.7A
- 7b Four- and Five-Year-Olds: Make comparison such as bigger or smaller between two groups of objects 3.1.7B
- 7c Four- and Five-Year-Olds: Recognize that time is measured in units (E.g. John asks how many more minutes he can stay outside.) 3.1.7C

Patterns and Relationships 4

- 1 Recognizing or creating planned or random repetitions and comparisons 4.1
 - 1 Birth to Nine Months: Engage in sustained gazing at objects or people, or track movement with their eyes 4.1.1
 - 2 Nine Months to Eighteen Months : Explore similarities and differences among objects in their environment 4.1.2
 - 3 Eighteen to Twenty-Four Months: Show awareness of objects and pictures that are the same 4.1.3
 - 4 Twenty-Four to Thirty Months: Show awareness of and interest in patterns 4.1.4
 - 5 Thirty Months to Three Years: Recognize simple patterns (E.g. Malik looks at the plastic animals on the shelf and says, “Mommy, baby, mommy, baby.”) 4.1.5
 - 6 Three Years: Extend simple patterns 4.1.6
 - 7a Four- and Five-Year-Olds: Order or sequence several objects based on one characteristic 4.1.7A
 - 7b Four- and Five-Year-Olds: Begin creating simple patterns with familiar objects (E.g. Max places the blocks in rows of long, short, long, short, etc.) 4.1.7B

Data Collection and Analysis 5

- 1 Gathering, organizing, and analyzing information, and drawing conclusions to make sense of the world 5.1
 - 1 Birth to Nine Months: Focus attention to people or objects in their environment for a period of time 5.1.1
 - 2 Nine Months to Eighteen Months : Focus on details in people and objects in their environment 5.1.2
 - 3 Eighteen to Twenty-Four Months: Can sort objects that are the same and different on one attribute (E.g. Amy puts all the red vehicles in one basket.) 5.1.3

- 4 Twenty-Four to Thirty Months: Can find people and objects that are the same based on one attribute 5.1.4
 - 5 Thirty Months to Three Years: Notice that objects can be classified in different ways based on different attributes (E.g. Leo and Peter argue over whether to sort their vehicles by color or by size.) 5.1.5
 - 6 Three Years: Sort objects or people into subgroups by one attribute 5.1.6
 - 7a Four- and Five-Year-Olds: Sort objects and count and compare the groups formed (E.g. Carlo says, “There are 3 brown teddy bears and 4 black teddy bears.” 5.1.7A
 - 7b Four- and Five-Year-Olds: Organize and represent information visually, with adult support (E.g. The teacher helps the preschoolers create a picture graph showing the numbers of children who walked to school or rode in a car.) 5.1.7B
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Time and Sequence 6

1 Concept of time as it relates to daily routines, and sequencing of events 6.1

- 1 Birth to Nine Months: Associate a specific occurrence with meeting their needs (E.g. Emma hears footsteps and lifts her arms anticipating that mommy is coming to pick her up.) 6.1.1
- 2 Nine Months to Eighteen Months : Demonstrate some understanding of when things happen in relation to routines 6.1.2
- 3 Eighteen to Twenty-Four Months: Can recall information about the immediate past (E.g. Jack recalls what he had for morning snack when his aunt asks him after lunch.) 6.1.3
- 4 Twenty-Four to Thirty Months: Show increased knowledge and memory for daily routines 6.1.4
- 5 Thirty Months to Three Years: Can anticipate what will happen next in daily routines 6.1.5
- 6 Three Years: Can remember and describe daily sequence of events 6.1.6
- 7 Four- and Five-Year-Olds: Begin to differentiate between yesterday, today, and tomorrow 6.1.7