Cognitive Development: Mathematical Practices and Reasoning

Numeracy and Operations: discovering and applying mathematical concepts such as: sequencing, numbers, counting, and patterns. 12

a Mathematical Practices 12.A

1 34-48 months 12.A.1

1 Participates in whole group and small group math=focused activities (e.e, joins in singing a counting/sequential song such as “Going on a Bear Hunt’) 12.A.1.1

2 Uses math for “problem solving” in the physical and social world. 12.A.1.2

3 Communicates math ideas verbally and non-verbally. 12.A.1.3

2 46-60 months End of Preschool Standards 12.A.2

1 Identifies math concepts within their learning environments. 12.A.2.1

2 Recognizes the usefulness of math in everyday tasks. 12.A.2.2

3 Uses math to solve problems in the context of classroom and home experiences. 12.A.2.3

4 Represents mathematical concepts using classroom materials. 12.A.2.4

5 Uses math-related skills, such as sorting, counting, and matching in the course of everyday classroom experiences. 12.A.2.5

6 Uses math terms in the course of everyday conversations. 12.A.2.6

b Counting and Cardinality Cluster 12.B

1 34-48 months 12.B.1

1 Counts to 10 and beyond by ones with increasing accuracy. 12.B.1.1

2 Recognizes and labels written numerals 0-5. 12.B.1.2

3 Counts items to 5, recognizing the last number tells a total (cardinality). 12.B.1.3

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2 46-60 months End of Preschool Standards 12.B.2

1 Counts to 20 and beyond by ones with increasing accuracy. 12.B.2.1

2 Recognizes and labels written numerals 0-10. 12.B.2.2

3 Begins to recognize small quantities immediately (subitize) to determine how many. 12.B.2.3

4 Counts items to 10, recognizing the last number tells how many (cardinality). 12.B.2.4

5 Begins to write number symbols 0-10. 12.B.2.5

6 Identifies whether the number of objects in one group is more than, less than, or equal to the number of objects in another group up to 10. 12.B.2.6

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c Operations and Algebraic Thinking 12.C

1 34-48 months 12.C.1

1 Transitions from rote counting to 1:1 correspondence. 12.C.1.1

2 Responds with number words and/or counting strategy, when asked the question, How many? 12.C.1.2

2 46-60 months End of Preschool Standards 12.C.2

1 Counts using 1:1 correspondence with increasing accuracy. 12.C.2.1

2 Represents addition and subtraction with materials, drawing, and role play. 12.C.2.2

3 Uses concrete objects to model real-world addition and subtraction up to 10 (composing and decomposing numbers). 12.C.2.3

4 Solves story problems using sets of up to 10 objects. 12.C.2.4

Geometric Reasoning: learning with shapes and figures including how to compose and decompose shapes, measure them, and compare them. 13

a Geometry 13.A

1 34-48 months 13.A.1

1 Recognizes and names/ describes simple shapes. 13.A.1.1

2 Matches similar shapes. 13.A.1.2

3 Explores three-dimensional and two-dimensional shapes in the environment. 13.A.1.3

4 Uses puzzles and other learning materials to demonstrate beginning part/ whole, shape and orientation concepts to solve problems. 13.A.1.4

5 Uses physical movement to gain understanding of orientation and directionality (ie. near, far, beside, up, over, left). 13.A.1.5

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2 46-60 months End of Preschool Standards 13.A.2

1 Describes, sorts and classifies shapes using some attributes such as size, sides, and other properties. 13.A.2.1

2 Breaks down shapes into parts and whole. 13.A.2.2

3 Discovers connections between formal geometric shapes and the surrounding environment to make three-dimensional and two-dimensional shapes by building, drawing, or labeling. 13.A.2.3

4 Demonstrates understanding of directionality describing positions of objects in relationship to each other. 13.A.2.4

Statistical Reasoning: finding the size, weight, quantity, volume and time. Use comparison words such as big and little, few or lots to build understanding. 14

a Measurement and Data 14.A

1 34-48 months 14.A.1

1 Matches and groups similar objects. 14.A.1.1

2 Recognizes measurable features of objects. 14.A.1.2

3 Explores and begins to use measurement tools. 14.A.1.3

4 Sorts, orders and groups familiar objects by a single feature and explains the reason. 14.A.1.4

5 Recognizes and copies simple patterns in the environment, including sound and movement patterns. 14.A.1.5

6 Demonstrates an understanding of time periods. 14.A.1.6

7 Relates concepts of past, present and future to daily activities. 14.A.1.7

8 Participates in data collection activities. 14.A.1.8

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2 46-60 months End of Preschool Standards 14.A.2

1 Describes, sorts and names groups (classifies) of objects using one or more attributes. 14.A.2.1

2 Identifies and compares measurable features of everyday objects, using appropriate vocabulary. 14.A.2.2

3 Begins to use words such as “first”, “next”, and “last. 14.A.2.3

4 Uses measurable features to order materials sequentially. 14.A.2.4

5 Recognizes, copies, creates, and continues simple patterns using objects. 14.A.2.5

6 Uses past and future tenses and time words appropriately. 14.A.2.6

7 Begins to understand concepts such as yesterday, today, and tomorrow. 14.A.2.7

8 Responds to questions that can be answered through data analysis. 14.A.2.8

9 Is able to show data using simple charts and graphs. 14.A.2.9

10 Uses non-standard units of measurement such as cubes, links, counting bears or hands, to measure objects. 14.A.2.10

11 Uses measurement terms and concepts in everyday life. 14.A.2.11