

Area 7: Mathematics

Develops an understanding of spatial relationships and shapes 7.1

Birth-12 months

- A** Begins to reach for objects developing foundational, close-up spatial awareness 7.1.A
- B** Explores properties of objects by reaching for and grasping a toy or by mouthing the object 7.1.B
- C** Takes objects apart 7.1.C
- D** Fills and empties containers 7.1.D
- E** Rolls, crawls and cruises to navigate around obstacles and reach desired items 7.1.E

Approximately 12-24 months

- F** Takes objects apart and attempts to put them together: 7.1.F
 - a** Moves and stacks shapes vertically and horizontally 7.1.F.A
 - b** Experiments with how objects move 7.1.F.B
- G** Matches and sorts identical and similar objects 7.1.G
- H** Follows simple spatial directions related to position: 7.1.H
 - a** Up and down 7.1.H.A
 - b** In and out 7.1.H.B
 - c** On and off 7.1.H.C
- I** Independently moves body in relation to objects in their environment 7.1.I

Approximately 24-36 months

- J** Experiments with putting shapes together and taking them apart during play 7.1.J
- K** Identifies at least two shapes 7.1.K
- L** Notices characteristics, similarities and differences among shapes 7.1.L
- M** Uses and follows simple spatial directions related to proximity: 7.1.M
 - a** On top 7.1.M.A
 - b** Under 7.1.M.B
 - c** Behind 7.1.M.C
- N** Begins to sort objects by shape 7.1.N

- O Demonstrates an internal mental map of space: 7.1.0
 - a Moves body predicting how things fit and move 7.1.0.A
 - b Understands relative positions 7.1.0.B

Approximately 3-4 years

- P Takes shapes apart into smaller shapes during play or when using puzzles 7.1.P
- Q Matches a wider variety of shapes with the same size and orientation 7.1.Q
- R Identifies and describes most simple shapes 7.1.R
- S Begins to create shapes with various parts 7.1.S
- T Begins to recognize and name common 3D shapes 7.1.T
- U Demonstrates understanding of complex spatial language related to location, direction and distance 7.1.U

Approximately 4-5 years

- V Separates shapes into parts and recombines them to make new shapes or designs 7.1.V
- W Identifies and describes shapes and their attributes 7.1.W
- X Uses basic shapes to build, make or represent objects 7.1.X
- Y Builds structures using 3D shapes and shows how pieces fit together to make new shapes 7.1.Y
- Z Uses spatial language to describe where things are and how they fit together 7.1.Z
- AA Uses complex spatial language related to location, direction and distance 7.1.AA

Develops an understanding of number sense (counting, numbers and quantity) 7.2

Birth-12 months

- A Expresses a desire for more 7.2.A
- B Notices characteristics of objects 7.2.B
- C Shows awareness of combining and taking away objects 7.2.C

Approximately 12-24 months

- D Makes simple comparisons between two objects (attributes) 7.2.D
- E Develops an understanding of quantity by making collections 7.2.E
- F Combines and takes away objects 7.2.F
- G Imitates counting and naming number words without regard to sequence 7.2.G

Approximately 24-36 months

- H Matches objects to other objects in games or sorting activities 7.2.H
- I Groups objects into sets based on a single, shared and visible property 7.2.I
- J Uses language such as more, less or same to compare quantities 7.2.J

- K** Uses simple counting in play and interactions, although numbers may occur out of order **7.2.K**
- L** Recognizes small quantities (1-3) without counting them (subitizing) **7.2.L**
- M** Begins to recognize small numbers (1-3) in their environment **7.2.M**
- N** Develops an understanding of changes in quantity **7.2.N**

Approximately 3-4 years

- O** Recognize and organize sets based on multiple attributes **7.2.O**
- P** Increases ability to quickly recognize collections up to three (subitizing) **7.2.P**
- Q** Counts up to 10 verbally (stable order principle) **7.2.Q**
- R** Points and counts up to 10 objects accurately (one to one correspondence) **7.2.R**
- S** Understands the last number counted represents the total quantity (cardinality) **7.2.S**
- T** Begins to recognize small numbers (1-3) in their environment. **7.2.T**
- U** Identifies and names numerals 1-5 independently **7.2.U**
- V** Combines and separates small groups to show understanding of concepts of addition and subtraction **7.2.V**

Approximately 4-5 years

- W** Makes sets up to five objects and answers the “how many” question with the last number counted **7.2.W**
- X** Instantly recognizes collections up to five **7.2.X**
- Y** Counts verbally to at least 10, progressing toward 20 **7.2.Y**
- Z** Points and counts 10 - 20 objects accurately **7.2.Z**
- AA** Uses objects, fingers or drawings to count a group and shows the total with the last number counted **7.2.AA**
- BB** Identifies numerals to 10 by name **7.2.BB**
- CC** Explains changes in quantity **7.2.CC**

Develops the ability to recognize and understand patterns

7.3

Birth-12 months

- A** Demonstrates awareness and anticipation of the order within familiar routines, songs or play activities **7.3.A**

Approximately 12-24 months

- B** Engages in familiar routines, songs or play activities **7.3.B**
- C** Recognizes sequence of objects in a variety of ways **7.3.C**
- D** Takes part in or repeat simple patterns with objects, movements or sounds **7.3.D**

Approximately 24-36 months

- E Notices order in routines and play, showing understanding of how things go together or happen in a certain sequence 7.3.E
 - F Creates and repeats simple patterns with objects, movements or sounds 7.3.F
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Approximately 3-4 years

- G Recognizes when patterns change or end 7.3.G
 - H Communicates what comes next in familiar songs, stories or routines 7.3.H
 - I Repeats patterns and sequences: 7.3.I
 - a Identifies 7.3.I.A
 - b Describes 7.3.I.B
 - c Predicts 7.3.I.C
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Approximately 4-5 years

- J Repeats more complex patterns and sequences: 7.3.J
 - a Identifies 7.3.J.A
 - b Copies 7.3.J.B
 - c Extends 7.3.J.C
 - d Creates 7.3.J.D
 - K Notices and describes patterns seen in natural and designed settings 7.3.K
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Develops an understanding of measurement 7.4

Birth-12 months

- A Explores objects and notices differences in size, weight or fullness through touch and play 7.4.A
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Approximately 12-24 months

- B Compares two objects by size, weight or amount/volume during play or routines 7.4.B
 - C Makes observations about measurable attributes, noticing sameness and difference 7.4.C
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Approximately 24-36 months

- D Lines up or stacks objects to compare lengths, weights or amounts and uses words to describe differences 7.4.D
- E Uses vocabulary related to size and quantity to describe measurable attributes 7.4.E

Approximately 3-4 years

- F** Measures objects using blocks, hands or other tools and explains which is longer, heavier or holds more 7.4.F
 - G** Demonstrates an understanding of measurable attributes related to length, volume and area 7.4.G
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Approximately 4-5 years

- H** Uses objects or tools to measure and compare size, weight or capacity, describing results in words or numbers 7.4.H
 - I** Describes attributes of measurement using comparative language 7.4.I
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Develops an understanding of foundational skills for data analysis 7.5**Birth-12 months**

- A** Expresses a desire for more 7.5.A
 - B** Notices characteristics of objects 7.5.B
 - C** Shows awareness of combining and taking away objects 7.5.C
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Approximately 12-24 months

- D** Makes simple comparisons between two objects (attributes) 7.5.D
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Approximately 24-36 months

- E** Begins to identify and communicate observations of simple data sets 7.5.E
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Approximately 3-4 years

- F** Participates in simple data collection with adult support. 7.5.F
 - G** Uses basic data representation with adult support 7.5.G
 - H** Interprets simple data with adult support 7.5.H
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Approximately 4-5 years

- I** Collects simple data independently 7.5.I
- J** Organizes data using charts, graphs or tables with adult support 7.5.J
- K** Interprets data to answer questions with adult support 7.5.K