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

Begins to sort objects by shape 7.1.N

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O Demonstrates an internal mental map of space: 7.1.O

a Moves body predicting how things fit and move 7.1.O.A

b Understands relative positions 7.1.O.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

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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

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pproximately 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

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

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

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

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

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

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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

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

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

Approximately 12-24 months

D Makes simple comparisons between two objects (attributes) 7.5.D

Approximately 24-36 months

E Begins to identify and communicate observations of simple data sets 7.5.E

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

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