

## Preschool Milestones Mathematical Thinking

### 1. Mathematical Processes

- A. Begins to use simple strategies to solve mathematical problems
  - 1. Talks about who has more and less of a desired object
  - 2. Figures out how many more plates are needed so each child will have one
  - 3. Figures out how to divide up the playdo so each child will get some
  - 4. Estimates whether she has enough blocks to build a house
  - 5. Solves problems by guessing and checking (figures out how many apples will be needed for snack if each child gets half of an apple)
  - 6. Draws a picture of a lego structure so they can rebuild it the next day

### 2. Number and Operations

- A. Uses 1-1 correspondence to compare groups of objects
  - 1. Uses 1-1 correspondence to place objects 1-1 to show “as many as”
  - 2. Uses 1-1 correspondence to count objects
  - 3. Uses 1-1 correspondence to compare 2 groups of objects and show “as many as”
  - 4. Uses 1-1 correspondence to compare 2 groups of objects and show “more than”
  - 5. Uses 1-1 correspondence to compare 2 groups of objects to show “less than”
  - 6. Uses 1-1 correspondence to compare 2 groups of objects and estimate which has more, less or the same
  - 7. Uses 1-1 correspondence to create equal sets
  - 8. Distinguishes between “all” and “some”
- B. Uses 1-1 Correspondence with graphs to compare groups
  - 1. Compares 2 groups on a graph
  - 2. Explains information presented on a graph
  - 3. Compares 3 groups of objects on a graph and finds the relationship between them in terms of “as many as” – “more than” – “less than”
  - 4. Compares groups by constructing own graph
- C. Counts by rote
  - 1. Counts by rote 1-10
  - 2. Counts by rote 1-20
  - 3. Counts by rote 1-30
  - 4. Counts footsteps, jumps or other exercise repetitions
  - 5. Counts on from 4

6. Counts backwards from 10

D. Forms sets and recognizes numerals

1. Forms sets of 3-10 objects
2. Matches numerals to corresponding sets
3. Adds 1 to a set and tells how many
4. Combines sets of less than 5 and counts how many
5. Takes one away from a set and tells how many
6. Recognizes sets of 1-4 objects without counting
7. Matches numerals to corresponding sets 11-20
8. Writes numerals 1-10

**3. Patterns, Relationships and Function**

A. Sorts and classifies objects into groups

1. Investigates and describes attributes of things: color, shape, size, type, function
2. Matches identical objects or pictures
3. Matches objects by color
4. Names basic colors
5. Identifies one object that is different from other objects in a set
6. Identifies what is missing from a picture
7. Identifies and describes how things in a set are alike and different
8. Sorts objects into 2 sets using 1 attribute suggested by the teacher (color, shape, size, function)
9. Sorts objects into 2 sets using 2 attribute suggested by the teacher (color, shape, size, function)
10. Sorts objects into 2 sets using 3 attributes suggested by the teacher (color, shape, size, function)
11. function)
12. Sorts objects into 2 sets with the child deciding how to sort the objects and then describing this selection
13. Sorts objects by size (big/little and long/short)
14. Sorts objects by size (large, medium, small)
15. Orders 5-10 objects by size, shades of color, weight, pitch)
16. Places steps of a process in a sequential order
17. Duplicates with objects a simple (AB) pattern made by the teacher
18. Duplicates a physical (AB) pattern made by the teacher (snap, clap)
19. Extends a visual or physical pattern
20. Creates own pattern
21. Translates an AB pattern into another form (using different materials)

22. Duplicates, extends, creates and translates ABC patterns

#### **4. Geometry and Spatial Relations**

A. Recognizes shapes and describes their attributes

7. Fits objects together and takes them apart
1. Matches like shapes
2. Selects shapes named by teacher
3. Identifies basic shapes
4. Identifies shapes by touch (without vision)
5. Creates own shapes
6. Describes the characteristics of shapes
7. Rearranges and reshapes objects

B. Shows understanding of and uses several positional words

1. Responds to requests to place objects "in," "up," "over," "down," and "under"
2. Responds to requests to place objects "in front of," "beside" and "behind"
3. Uses some of the following positional words in conversations: "in," "up," "over," "down," "under," "in front of," "beside," and "behind"

#### **5. Measurement**

A. Recognizes, orders and describes objects by size, length and weight

1. Uses measurement words when describing things to peers or teachers (long, short, biggest, taller)
3. Measures size by using non-standard objects to find length (block, shoe, piece of string)
4. Uses wall chart to find own height
5. Uses a ruler to find things that measure 6 inches and 1 foot
6. Measures volume using measuring cups and spoons for cooking projects
7. Uses a bathroom scale to find own weight

B. Show beginning concepts of time

1. Stops and starts an action on signal
2. Follows classroom routines, sequencing the events of the day and showing interest in clocks, calendars and timers
3. Describes different rates of speed (fast, faster, fastest)
4. Compares time periods correctly (short and long time; soon and later; yesterday, today and tomorrow; morning, afternoon and night)
5. Names the days of the week
6. Names the current month of the year

7. Names an activity that takes about 1 minute to do; 1 hour to do
8. Notices time on the clock (identifies numerals, recognizes the big and little hands of the clock)
9. Measures how long something takes using a timer