

## Preparing Students for the Mathematics of Kindergarten

Before coming to Kindergarten, children should work to develop an understanding of whole numbers. There are many opportunities to support kids in developing early ‘number sense’ that will help them be ready to succeed when they get to school. See the next page for a detailed list of important math content and skills that pre-kindergarten students should know and be able to do.

It is important that young children learn math concepts using real life materials and experiences. For example, kids can practice counting as they help set the table. They will be assigning a number to each fork they count (one-to-one correspondence) and figuring out how many forks altogether (cardinality).

Children should also have the opportunity to explore sorting different objects into categories and identifying and describing shapes such as circles, squares, triangles and rectangles.

*What could this look like?*

- Count how many socks you have, how many chairs are at the table, how many toes you have. **Count everything you can!**
- **Estimate** how many steps it will take to walk across the room – then check by counting the steps as you walk.
- Show the numbers 1, 2, 3, 4, and 5 in as many ways as you can. **Use objects, pictures and numbers.**
- Play a board **game with dice**. Do you know what the number on the dice is without counting? See if you can make a smart guess, then count to check.
- Play the license plate game while driving. See **how many 1s you see?** Then try other numbers.
- **Sort** silverware while helping to put away the dishes – forks with forks! Spoons with spoons!
- Sort laundry by lights and darks. **Which group has more?** Which has less? How do you know?
- **Compare** if there are more red flowers than yellow flowers in the garden. Are there fewer red flowers? Are there an equal number of red and yellow flowers?
- Look for **shapes** while you are out and about. Do you see those rectangles? Do you see a triangle on the “yield” sign? (It is not an upside down triangle – its just a triangle)
- Notice the clock and cheerio are **both circles**. Which circle is larger? Which is smaller?

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## Counting and Cardinality

### Know number names and the count sequence – Ordinal (counting in a sequence)

1. Count to 20.
2. Represent a number of objects with a written numeral 0–5 (with 0 representing a count of no objects).

### Count to tell the number of objects – Cardinality (how many are there?)

3. Understand the relationship between numbers and quantities to 10; connect counting to cardinality.
4. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
5. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
6. Understand that each successive number name refers to a quantity that is one larger.
7. Count to answer “how many?” questions about as many as 10 things arranged in a line, a rectangular array, or a circle, or as many as 5 things in a scattered configuration; given a number from 1–10, count out that many objects.

### Compare numbers.

8. Identify whether the number of objects in one group is more, less, greater than, fewer, and/or equal to the number of objects in another group, e.g., by using matching and counting strategies.1 (1: up to 5 objects)
9. Identify “first” and “last” related to order or position.

## Operations & Algebraic Thinking

### Understand addition as adding to, and understand subtraction as taking from.

1. Demonstrate an understanding of addition and subtraction by using objects, fingers, and responding to practical situations (e.g., If we have 3 apples and add two more, how many apples do we have all together?).

### Understand simple patterns.

2. Duplicate and extend (eg., What comes next?) simple patterns using concrete objects.

## Measurement & Data

### Describe and compare measurable attributes.

1. Identify measurable attributes of objects, such as length, and weight. Describe them using correct vocabulary (e.g., small, big, short, tall, empty, full, heavy, and light).
2. Sort objects and count the number of objects in each category.
3. Sort objects into categories; count the numbers of objects in each category. 1 (limit category counts to be less than or equal to 10)

## Geometry

### Identify and describe shapes (squares, circles, triangles, rectangles).

1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as top, bottom, up, down, in front of, behind, over, under, and next to.
2. Correctly name shapes regardless of size.

### Analyze, compare, and sort objects.

3. Analyze, compare, and sort two- and three-dimensional shapes and objects, in different sizes, using informal language to describe their similarities, differences, and other attributes (e.g., color, size, and shape).
4. Create and build shapes from components (e.g., sticks and clay balls).