

## CORE SKILL: THINK – MATH

# Numeracy



### What You Need to Know

Numeracy is the ability to work with and understand numbers. Operations refers to joining sets together or separating them into parts. In early childhood, key numeracy skills include:

- ◆ **Subitizing:** the ability to quickly identify the number of objects in a small set.
- ◆ **Counting and cardinality:** the ability to determine the number of objects in a group, understanding that the last number said when counting tells how many objects there are altogether.
- ◆ **Comparing and ordering numbers:** the ability to determine whether a number is greater than, less than, or equal to another number, and figuring out which of two numbers is larger than the other.
- ◆ **Recognizing and writing numbers:** the ability to understand that written numbers represent quantities and learning how to correctly form numerals.

### Things to Consider

Developing an understanding of numbers and operations is one of the major mathematical tasks for children in early childhood. Numbers provide us with a way to describe the world around us, and numeracy skills are foundational to almost every other area of math. For example, subitizing small collections of objects is a critical skill that helps children develop counting skills. Studies suggest that children’s early counting skills are important predictors of later abilities. Keep in mind that toddlers will be in the very early stages of their numeracy development. But, consistent exposure to the language of numbers and counting will help provide them the building blocks they need for later math skills. Your consistent narration and modeling of math concepts throughout your daily classroom interactions will support even the youngest toddlers to build the math comfort and skills they’ll need for later success.

### Development of Numeracy Skills

Between 9 and 18 months, children may:	Between 16 and 36 months, children may:
Begin to detect the difference between quantities of small sets of objects (e.g., a container with two blocks vs. one with three blocks).	Begin to recognize a small number of objects in a group without counting (subitizing).
Begin to demonstrate understanding that there are different quantities of objects (e.g., communicate “more” and point to a bowl of apple slices).	Make collections of objects that are the same number as what they are shown, up to 3.
	Verbally count with separate words, but the words may not be in the correct order.
	Begin to coordinate verbal counting with objects laid in a line (one-to-one correspondence).

### Setting the Stage

Activities and materials that support the development of early numbers and operations for toddlers:

- ◆ **Read books and sing songs with numbers:** call attention to the numbers to increase toddlers’ interest in numbers and operations. You can incorporate books involving operations as well, such as a book that includes counting animals or a book during which characters leave one at a time.
- ◆ **Include number references in conversation:** during interactions with children, regularly incorporate numbers and counting (e.g., “One, two, three, up you go!” or, “I see your eyes, you have 1-2 eyes!”).



## Intentional Teaching Practices to Support Numeracy

OBSERVE	<p><b>Observe</b></p> <p>Observe children to see if they are showing an awareness that there are different quantities of objects. For example, by communicating that they want more, or that something is all done. When you sing songs involving numbers during music and movement, do they follow along? Additionally, be sure to observe children across the course of a day, and think about moments during which you would be able to narrate their play and their actions specific to numeracy skills. For example, when you notice a child playing with blocks, think about how you would be able to use one-to-one correspondence to count the blocks if you were playing alongside the child.</p>
FOCUS	<p><b>Use Comparison and Number Words and Label Numbers and Cardinality</b></p> <p>Regularly use the language of numeracy in your interactions with children:</p> <ul style="list-style-type: none"><li>◆ <b>Comparison:</b> “You have more crackers than I do! See, you have 3 crackers, and I have 2. Now you’re eating one of yours. And we have the same number of crackers!”</li><li>◆ <b>Number words:</b> “That’s the third time I’ve seen you sign mama. You have signed ‘mama’ 3 times!” or “You said ‘penguin’ each time you saw one. You said it 4 times! There were 4 penguins!”</li><li>◆ <b>Label numbers:</b> “You are standing on a number 2 on our carpet. This is what a 2 looks like.”</li><li>◆ <b>Cardinality:</b> “Let’s see how many cars we have on the track. 1-2-3 (<i>while touching each car</i>). We have 3 cars.”</li></ul>
SCAFFOLD I	<p><b>Prompt Children to Compare and Prompt Children to Count a Set of Objects</b></p> <p>Support children as you encourage them to compare quantities and count objects:</p> <ul style="list-style-type: none"><li>◆ “You both have a snack on your plate, but (Child) has 2 cookies and (Child) has 1 cookie. Who has more cookies? That’s right, (Child) has more. Let’s give you 1 more cookie, (Child).”</li><li>◆ “We are going to read these books. Let’s count them. 1-2. We will read 2 books!”</li></ul>
SCAFFOLD II	<p><b>Model One-to-One Correspondence and Promote Subitizing</b></p> <p>Support one-to-one correspondence by modeling and narrating.</p> <ul style="list-style-type: none"><li>◆ Set out a small number of objects in a line, slowly counting each one as you touch it.</li><li>◆ Encourage older toddlers to count 1-3 objects using one-to-one correspondence, supporting them as they go.</li></ul> <p>Support subitizing by modeling and narrating.</p> <ul style="list-style-type: none"><li>◆ Model subitizing by looking at 2 children, telling them that you know there are 2 of them without even counting!</li><li>◆ Show toddlers a set of 1-3 objects and ask them how many there are.</li></ul>
KEEP IT GOING	<p>Consider what you learned from observing children on Monday as well as their reaction to your Focus and Scaffolds. Find ways to build the activities from Setting the Stage into your regular routines.</p>