

Using M⁵ to Support Learning About Number and Counting

This handout provides specific examples of ways to use the M⁵ Early Math Approach to help children develop an understanding of number and learn to count.

Mutual Learning

Observe and learn about children's languages, cultures, strengths, and needs.

- **Notice the languages and vocabulary children use and respond to when using number words or counting.** Children who are multilingual learners may understand or use some number words or count in their home language, English, or both.
- **Introduce numbers through activities, books, stories, songs, chants, and rhymes that build on children's family, community, cultural and linguistic experiences.**
 - ◇ Ask children to count how many people are in their family.
 - ◇ When reading a book, invite children to count what's on each page, in their home language, English, or both.
- **Observe children and learn about their emerging and growing counting skills. Children develop and learn at different rates and in their own way.**
 - ◇ Some children may be able to recite the count list from one to ten, while others are still learning to recite number words in order. Children may be at different levels of applying one-to-one correspondence and in developing an understanding of cardinality. Model these skills as part of everyday interactions and offer many opportunities to practice counting.
- **Notice the different ways children may show knowledge of number and counting. Provide children with ways to learn about and express their knowledge of number and counting based on their development and varying abilities.**
 - ◇ Children may use number words when reciting the number list, counting a set of objects, or labeling the quantity of a set. Children may also express their growing understanding of number nonverbally. For example, a child may use two fingers to represent how many strawberries are on their plate.



- Children benefit from learning through different modalities, such as through gestures (for example, showing a certain number of fingers), drawings, and numerals.
- Offer tactile, easy-to-grasp objects for children to use to create sets, count, and compare numbers.

Meaningful Investigations

Provide opportunities for children to count and compare quantities using sets of objects.

- Encourage children to count and compare numbers during daily routines and play.**
 - "How many friends are here today? Let's count to check. Are there more or less friends than yesterday?"
 - "We have five friends sitting at the table for snack time. Let's count how many dumplings we have on this plate to see if we have enough for everyone."
 - "How many blocks did you use to create this wall of your apartment building? If you want to make the other wall the same height, how many blocks do you need?"
 - "Now that we grouped all the pumpkin seeds in groups of 10, let's count by tens to see how many we have: 10, 20, 30, 40, 50, 60."
- Invite children to role play to practice meaningful and authentic ways to count and use numbers.**
 - Set up a bakery in the dramatic play area that children can use to pretend selling different amounts of empanadas, mooncakes, or bagels.
 - Offer materials like trucks and toy bricks that children can use to pretend to be construction workers. Encourage children to count the number of bricks in their building or the number of trucks on the road.
- Offer learning experiences that invite children to use their understanding of number and counting to solve problems.**
 - After recording the weather over the past week in a graph or chart, ask children to compare whether there have been more sunny or rainy days.
 - As children are playing a game, ask children to compare how many points they each have.



Materials and Learning Environment

Provide sets of open-ended materials that allow children to group, count, and compare the number of objects.

- **Offer materials that respond to children's cultures, languages, and interests.**
 - ◇ Collections of recycled materials or objects that can easily be found in the home or outside such as spoons, rocks, or leaves.
 - ◇ Number books or stories in the children's home languages.
- **Offer materials that respond to children's strengths and areas for growth. Some appropriate materials for this age group may include:**
 - ◇ Materials that come in multiples, such as blocks, bricks, counting bears, connecting cubes, beads, or chain links.
- **Provide print materials in the environment to allow children to recognize, name, and record numerals.**
 - ◇ Materials to practice recognizing and naming numerals, such as books, number puzzles, number blocks, number lines, and picture number cards.
 - ◇ Materials to practice recording numerals such as markers, crayons, chalk, colored pencils, sandpaper numbers, and salt trays.
 - ◇ Signs and other print materials in the environment. For example, have signs that show how many children are invited to play at different stations or tables.
- **Read counting books or books that show sets of different quantities in children's home language, English, or both. Some examples of books include:**
 - ◇ 100 Bugs! A Counting Book by Kate Narita
 - ◇ The Very Hungry Caterpillar (or La oruga muy hambrienta in Spanish) by Eric Carle
 - ◇ How Many Seeds in a Pumpkin? by Margaret McNamara
 - ◇ 10 Minutes till Bedtime (or 10 minutos hasta la hora de acostarse in Spanish) by Peggy Rathmann



Math Vocabulary and Discourse

Use number and quantity words during daily interactions. Encourage children to use number and quantity words in their home language, English, or both.

- **Ask “how many?” questions and model how children can answer these questions by counting. Encourage children to use strategies like touching items as they count, counting items from left to right, and moving items they’ve counted to one side.**
 - ◇ “How many blocks are you going to add to your bridge?” The child points to the basket of blocks, and the educator communicates, “That’s a lot of blocks. I wonder how many are in the basket.” The child starts counting and responds, “Seven!”
 - ◇ “How many crackers do you have? I wonder if we have the same amount.” The educator then counts their crackers from left to right, touching each cracker as they count. The child then counts their own crackers and communicates, “I have 12, but you have nine.” The educator asks, “So, who has more?” The child responds, “Me!”
- **As children become more confident in counting, provide opportunities to count to higher numbers.**
 - ◇ “Let’s count to 20 as we swing. We can count together to 20.”
- **Use number words or words to compare more, less, or same during daily routines, interactions, and play.**
 - ◇ While talking about which children are in the classroom each day, talk about how many more or less there are compared to yesterday.
 - ◇ When cleaning up paintbrushes, count them as you put them away.

Multiple Representations

Offer multiple ways for children to explore numbers and practice counting.

- **Invite children to represent numbers in different ways. Some ways you might encourage children to represent numbers include number words, holding up a certain number of fingers, tally marks, or numerals. This helps children develop a deeper understanding of number.**
 - ◇ While children count plastic insects and say the number words, encourage them to hold up that many fingers or point to the correct numeral on a number line.



- **Invite children to count a variety of objects throughout the day. This will help children understand that any object can be counted.**
 - ◇ As children line up to wash their hands, encourage them to count how many children are in line. During lunchtime, ask children how many forks are on the table. Later that day, invite children to count the number of beads on a necklace they are making.
- **Play games with children that involve subitizing.**
 - ◇ Encourage children to play games with dice or dominoes.

