



## Why are Early Math Skills Important?

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Math skills are one of the most important predictors of academic achievement from kindergarten through adulthood. Research has shown time and again that early math skills are the key to school readiness and academic achievement later on<sup>1,2,3</sup>. One study even showed that childhood math abilities were linked with salaries, employment, and educational attainment in adulthood<sup>4</sup>.

However, by the time they enter kindergarten, children don't get the same amount of exposure to math as they do literacy. In one preschool curriculum, it was found that only 58 seconds of a child's six-hour day was spent on early math learning<sup>5</sup>. The home learning environment can be an important part of improving early math abilities<sup>6</sup>, but – we admit – math can be scary for both parents and children.

More than 90% of adults in the US admit to having anxiety about math. Understandably, that leads to avoiding the subject of math<sup>7</sup>. Unfortunately, parent math anxiety can affect their own child's math anxiety and performance<sup>8</sup>. But it doesn't have to! Despite our fears, we use math in our everyday lives, and young children can too. You may already know more than you think about early math. You'll also see how it can be easy to incorporate into regular conversations with children. The more exposure they have to early math, the better math skills, abilities, and confidence children can develop.

### What is Early Math?

Sometimes we forget that there are early math concepts that come before things like addition, multiplication, or fractions. Below are explanations of early math concepts that children can learn and understand before entering kindergarten. You might be surprised at what you already know!

**Numerals:** Recognizing printed numbers (e.g., 1, 4, 3, 2, 5)

**Counting:** Knowing the order of numbers (e.g., 1 before 2, 2 before 3, 4 after 3, 5 after 4)

**Quantities:** Understanding the amount of something (e.g., how many; more or less/fewer; the same or different; a lot or a little)

**Shapes:** Identifying and describing shapes (e.g., circle, triangle, rectangle, oval, square, straight versus curved lines)

**Spatial Orientation:** Knowing where things are in space and how they compare to others (e.g., close or far away; above or below; big or small)

**Patterns:** Knowing how to repeat a design or sequence (e.g., blue, blue, red, blue, blue, red)

**Sorting:** Arranging things into groups (e.g., by size, color, shape, flavor) The sooner children are skilled in these early math concepts, the easier it will be for them to learn formal math concepts, such as addition, subtraction, etc. Early math is all around us.

## Talking About Early Math

Talking is teaching<sup>9</sup>! To help you talk about early math in your daily lives, here are some examples of what that might look like.

### At home:

While in the living room, you may ask:

- What numbers can you see on the remote? How many couch pillows do we have? Are there the same or a different number of toys in here as in your room?

While in the kitchen:

- What shape are the plates? The cutting board? Do we have more sugar than we do flour? Can you sort the silverware into big and little spoons? If we need 4 eggs for a recipe, do we have enough in the fridge?

While doing laundry:

- Do we put clothes inside or outside the dryer? Do we have more black socks or white socks? What type of clothing do we fold the most of? The least of? If we've folded a shirt, a pant, a shirt, a pant, what should we fold next?

### In the grocery store:

- What numbers can you see? Do we have more or less food at home than the grocery store has? We need five bananas—which bunch has the right amount? Which one is the top shelf? The bottom shelf? What shape is our cereal box? Can you find a round fruit?

### Outside or at the park:

- Which tree is the tallest? Are there more leaves on the trees or on the ground? What shape are the clouds? Can you make a pattern out of leaves and sticks? How many red flowers are there? Can you sort leaves, flowers, rocks, and sticks by shape? By color? By size?

## Additional Resources

<https://earlymathcounts.org/>

<https://talkingisteaching.org/resources/math>

<https://www.3plearning.com/blog/mathematics-anxiety/>

<https://davidpurpura.com/educational-picture-books>

<https://hhs.purdue.edu/center-for-early-learning/>

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