



MATH ALL AROUND US

On any given day, your child and his preschool pals build bridges and tall towers with wooden blocks. They string beads into colorful patterns. They measure the length and width of the tables. They learn to balance a seesaw when one child is heavier than another. They discover which trucks are too big to fit in the toy garage and compare the number of pretzels they have in their lunch.

Preschoolers do math even though they are not sitting at desks with workbooks or memorizing multiplication tables. Math is helping them to make sense of the world around them and teaching them to reason and problem solve. It's not limited to a specific period or time of day; instead it is a natural part of young children's play and daily activities. They explore mathematical concepts as they sort, classify, compare quantities, balance blocks, notice shapes, and find patterns.

Preschool teachers build on children's prior knowledge and capitalize on their spontaneous discoveries to further their understanding of mathematical concepts. As children build with blocks, for example, their teacher introduces the concepts of higher, lower, in front of, behind, larger, smaller, equal, horizontal and vertical.

Some of the important math concepts introduced in preschool include:

- **One-to-one correspondence** : The notion of one-to-one correspondence is so fundamental to counting that we don't even think about it. When we count out a deck of cards, we say, 1, 2, 3, ... , 52, and as we say each number we lay down a card. Each number corresponds to a card. Technically, we can say that we have put the cards in the deck and the numbers from 1 to 52 in a one-to-one correspondence with each other. But if you watch young children count, that correspondence is often missing. To begin to get a clear sense of the meaning of numbers, that the symbolic number "5" means five things, we need to encourage the development of one-to-one correspondence.
 - **Geometry and spatial relations:** Children practice constructing shapes and discussing their properties. They see skinny triangles and fat triangles and upside-down triangles and gradually realize that they are all still triangles.
 - **Measurement:** Children compare the height of a block tower with the height of a desk or table. They measure each other and the distance from the

kitchen corner to the water table. They learn that this block is too short to make a bridge over the road. Teachers reinforce children's findings by asking questions and making observations: "I wonder if this block is long enough to bridge the road. Let's try it."

- **Patterns/geometry:** Students demonstrate an understanding of patterns when they arrange wooden shapes in a triangle, square, triangle, square sequence. It is important for more advanced concepts, such as skip counting, multiplication and algebra. For example, children can recognize the pattern of fives when skip counting or multiplying by fives.
- **Analyzing data:** Preschoolers can learn how to sort items based on their attributes. For example, they can learn how to sort items based on size, shape or color. This is a skill that is beneficial for helping children learn how items are the same and different, not only in math, but in the world, in general. For instance, in the everyday world, children can group the same types of foods together and in the mathematical world, they can group together numbers that begin or end with like numbers. They can then record the data on graphs or charts to learn about symbolically representing their results.

Math class for 2-year olds might not look like math class for 2nd graders, but each are expanding their understanding and learning to make sense of the world around them.