



HELPING YOUR
CHILDREN
LEARN AND ENJOY
MATHEMATICS

THE ROLE OF PLAY IN LEARNING MATH

Play is fundamental—a fun AND mental activity. When young children play they are growing intellectually, physically, socially, and emotionally. Time spent playing is productive, valuable, and essential to a child’s development. Play is a child’s work: when children play, their bodies and minds are at work. Children learn as they play and, in turn, play gives children an opportunity to practice what they have learned. At the earliest ages, children begin to discover and explore their world—including the world of mathematics—through play.

When children are exposed to a variety of interesting objects and situations during play, they actively think about relationships such as bigger or smaller, more or less, longer or shorter, heavier or lighter, and nearer or farther away. Although play at a young age does not guarantee mathematical learning, it offers children rich possibilities for mathematical investigations, insights, and discoveries. Play helps them develop powerful mathematical understandings well before they enter school.

WHY SHOULD YOU MAKE TIME FOR UNSTRUCTURED PLAY?

The American Pediatric Society recommends that young children have a minimum of 60 minutes a day of unstructured play. Unstructured play is play children choose for themselves, often done alone or with another child, and without adult interference. When play is controlled by adults or carried out by adult rules, children attend to adult concerns and adult desires. When play

is child-driven, children use their imagination and creativity, practice independent decision-making, and develop problem-solving skills. Most importantly, free play, such as playing with blocks, allows boys and girls to seek out their own interests, move at their own speed, and follow their own paths to discovery. Children who have ample opportunities for unstructured play often have an advantage when they enter school because this play helps them develop longer attention spans, solve problems on their own, and gain self-confidence—all of which are important in school and throughout life.

WHAT ARE THE BEST TOYS FOR UNSTRUCTURED MATHEMATICS PLAY?

The best toys for unstructured play are those with the fewest rules and most possibilities. The famous



Photo by Paul Giganti, Jr.

architect, Frank Lloyd Wright, credited the wooden blocks his mother gave him as a child with his early interest in architecture. We know children use their imaginations when they pretend to be pirates or ballerinas, but children use their imagination just as much when they build with blocks, sort buttons, or fill and empty containers with water. Toys that require children to create and invent their own uses help children develop early math concepts such as balance, shape and size, sorting, order, pattern, counting, and problem solving, while at the same time developing small motor skills and eye-hand coordination. Open-ended toys that are also natural tools for developing math skills and concepts include the following:

- Toddler busy boxes with knobs to turn, bells to ring, and all sorts of colorful things to move
- Toys with pieces that stack from largest to smallest
- Shape sorting toys with pegs and holes that have different sizes, shapes, and colors
- Boxes, bowls, cups, plastic tubs—and different stuff such as water at bath time or sand in the backyard—so they can fill and empty them
- Felt boards with a variety of geometric shapes and sizes
- Blocks that join together in different ways—for boys AND girls
- Wooden cubes, plastic colored shapes, or pattern blocks
- Large beads of different colors, sizes, and shapes for stringing patterns
- Magnetic shapes for building 2-dimensional or 3-dimensional creations
- Geometric 3-dimensional shapes and blocks for building
- A plastic balance scale, along with uniform objects (such as cubes) for weights—and a lot of different objects around the house to weigh
- Collections of different, but related, objects—such as coins, buttons, keys, plastic lids, stamps, and nuts and bolts—to sort in different ways
- Measuring cups and spoons, and containers to fill, empty, and compare

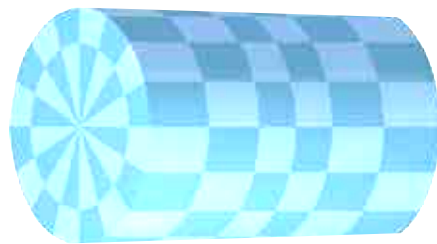
WHAT ARE THE ROLES OF PARENTS IN YOUNG CHILDREN'S PLAY?

Parents play an important role in children's unstructured play. Only you can plan for a balance in your children's lives, including setting aside enough time for play, providing multi-purpose toys, and making sure your children have a safe place to play without too many distractions. While television can promote learning, it is passive learning since the child is only a watcher, not an active participant. TV time should be limited for young children in favor of active play. Turn OFF the TV when it's not TV time; studies show that TV disturbs children's active play—even when they aren't watching it!

And don't forget, when your children are quietly playing, take this wonderful opportunity to carefully observe them in their world of play. Watch closely and you will discover the different ways your children choose to learn, and what you learn can help you encourage your children's unique talents and interests.

BEWARE OF CHOKING HAZARDS!

When choosing small toys or blocks for children **under age three**, take special care to avoid anything that has lead content or may be a choking hazard. The U.S. Consumer Product Safety Commission recommends that the minimum size of any block or toy part not be smaller than a cylinder measuring $1\frac{1}{4}$ inches wide and $2\frac{1}{4}$ inches long. Pictured below—shown life-sized—is the recommended minimum size block to avoid choking.



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