

STEM Activities

Science

- **Air can move things.** Ask your children to blow air on their hands and to wave their hands in the air. Ask them, “What do you feel?” and “Can you hold air?” Line up floating toys in water. Use a straw to blow a toy across the water. Repeat the activity. Ask, “What happened when you blew on the toy?”
- **Bubbles have one shape.** In a bucket or tub, make a bubble solution with dish soap. Using a variety of oddly shaped objects—such as cookie cutters, a loop of string, and a straw—teach your children how to dip their object in the water and blow through it to make a bubble. Experiment with blowing *fast* and *slow*. Ask, “Which method works better?” Have students look at the shape of the bubble maker before they use it. Ask, “What shape do you think the bubble will be?” No matter what shape the object, the bubble will always be round due to liquid surface tension.
- **Shadows have changing shapes.** Outside on a sunny day or inside a darkened room with a flashlight, create a shadow and ask children, “What do you need to create a shadow?” The answer is a light, an object, and a place for the shadow to fall. Explore the shape of a shadow by moving the light *closer* to the object or *farther* away from the object. Keeping the light steady, move the object closer or further to the wall or floor. Using chalk on the sidewalk, outline the shadow of a hand, arm, or whole body.

Technology

When you hear the word *technology*, you might think of computers and smartphones, but in Early Childhood, *technology* refers to using tools and developing fine and gross motor skills. Tools can help children develop eye-hand coordination and strengthen their hand and finger muscles for writing, typing, and drawing.

- **Scissor skills.** Show your children how to hold scissors. The thumb goes in the top hole and the pointer (index) finger should be placed in the lower hole. The middle finger should rest just below the rim of the lower hole to support the scissors. The ring and little finger are not used in cutting.
- **Follow the line.** Draw a simple wide line from the top to bottom of a sheet of paper. Direct the children to cut right above the line. Remind them that the thumb should always be up (in the top hole of the scissors).
- **Basic shape cutouts.** Draw three basic shapes on paper (square, circle, and triangle), and let your children cut them out. Save the cutouts (and scraps) for use in other projects.
- **Practice pouring.** Let your children learn how to pour using a small plastic pitcher and a few plastic cups. Tell them that the cups are empty and that they should pour the liquid into the cups until they are full. Try emptying the pitcher to fill the cups, and then try emptying the cups to fill the pitcher. Experiment with different size cups.

- **Scooping.** Using scoops for the beach, have your children practice moving dry material like sand or dirt from one container to fill another. Try not to spill any of the sand between the containers.
- **Observe closely.** Using a simple magnifier, have children look at something up close. What do they see with the magnifier? What do they see without it?

Engineering

- **Mix it up.** Use mixed sets of building materials. Try mixing building blocks with Legos, or foam bricks with cans.
- **Recycle it.** Use card board boxes, plastic bottles, nesting cups, left over containers as building materials.
- **Challenge it.** Create a set of challenges for children using a variety of building materials.
 - How tall can you make it?
 - Build a tunnel you can crawl through.
 - Build something as a team.
 - Build something in five minutes.
 - Unbuild. Slowly take apart a tower until it tumbles down.

Math

- **Likes go together.** Assemble a set of toys and have children find matching toys: cars with cars, blocks with blocks. Repeat using different criteria: match colors, match size, match shape.
- **Design a quilt.** You can use fabric squares in a variety of patterns or triangles and squares cut out of construction paper. Create patterns in a design to mimic a quilt.
- **Body measurements.** Children can use their bodies as a unit of measurement. How many _____ does it take to cross the room? How many hands high is that tower? Is one hand the same size as another?
- **Da Vinci dimension.** The height, head to toe, of Da Vinci's Vitruvian man equals the width of his arms from fingertip to fingertip. On the floor with a piece of tape, mark each child's height, and have students rotate their bodies to compare their height and arm span.

Activities provided by Boston Children's Museum

Additional information at:

<http://www.bostonchildrensmuseum.org/sites/default/files/pdfs/STEMGuide.pdf>