Science Activity
Shadow Play

SETUP

- The goal of this activity is to introduce children to the properties of light and shadow through experimentation and play.

- For indoor play, set up your light source in a darkened room, with a projecting area. Have your assorted shadow objects on hand.

- For outdoor play, go outside together on a sunny day.

DO IT TOGETHER

- For indoor play, take turns shining the light onto your child and yourself, and see how the shadows change. Try wiggling and moving your whole body as well as different body parts. “What do you see? Let’s move closer to the light and then farther away. Does that change your shadow shape? How does it change?”

- Make animal shapes with your hands, and try to guess each other’s animals. “Can you make a quacking duck? A swimming dolphin? A flapping bird?” Make some animal noises as a clue to guess the animal. “Is it easier to see the animal if you hold your hands closer to the wall or closer to the light? How can we get the most detail?”

- For outdoor play, take a walk with your shadows. “Where is your shadow? Can you see which is mine and which is yours?” Jump up and down, wiggle your legs, and wave your arms. “What happens to our shadows when we jump? Can we make our shadows disappear?” Notice what happens to your shadows when they fall on a wall, some steps, or a bench. “Do our shadows get bigger or smaller? Do they change their angle or their shape?”

- Help your child discover shadows everywhere. “Look under that flower. Is there a shadow? How about the tall building or the car? Does the shadow look like the object? What other shadows can you see, and where else can we find them?”

- After lots of shadow exploration, ask your child, “What does it take to make a shadow?” Help your child identify the three parts: a light, an object, and a place for the shadow to fall.

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DO MORE OF IT!

- **Create a Shadow Play.** Using card stock, scissors, markers, and holders, have your child create or trace different shapes to cut out. Cookie cutters (for example, dinosaurs or gingerbread people) and play dough forms work well as templates. Glue or tape popsicle sticks or drinking straws onto the base as holders. When you have a full “cast of characters,” create a simple play with your child. You can jazz it up by playing music to help your characters move and dance.

- **Create a Shadow Mural.** Go outside with your child at different times of day and trace your shadows onto the sidewalk or driveway with sidewalk chalk. Ask your child to describe what you’ve drawn. “How is your shadow like you? How is it different? How did your shadow change during the day?” Your child can finish his mural by coloring it in and adding imaginative details, such as facial features or other characters.

**BOOKS**

- *Guess Whose Shadow?* by Stephen R. Swinburne
- *Nothing Sticks Like a Shadow* by Ann Tompert
- *What Makes a Shadow?* by Clyde Robert Bulla

**OTHER RESOURCES**

- Visit your local library.
- Visit your local museum, nature center, zoo, or aquarium.
- Check out Brain Building Zones for local events in Massachusetts at http://brainbuildinginprogress.org/event-calendar.

**MATERIALS**

- Bubble solution. Gently mix together in a large bowl or tray:
  - 1 gallon water
  - 1 cup dishwashing liquid

- Assorted objects for bubble blowing
  - String
  - Drinking straws
  - Cookie cutters
  - Slotted spatula

**Learning Guideline:**

PreK-LS1-4: Use their five senses in their exploration and play to gather information.

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