

The Shape of Things



Activity 1



Overview

In these experiences, children will search for the shapes and colors that define both our natural and built environments.

Objectives

Provide opportunities and materials for children to:

- Observe shapes in natural and built environments.
- Look at nature in new ways by using tools constructed by the children.
- Express feelings about shapes in nature through writing, music, movement, and art.
- Play outside in a natural setting.

Assessing the Experiences

As you observe the children during the day, note the following:

- New vocabulary that the children are using in their conversations with you and one another. Do you notice an increase in the adjectives used to describe shapes and colors?
- Questions that the children are asking. Are the children seeing the connection between static geometric shapes found in the classroom and in the built environment and the more fluid shapes found in nature?
- Indications that the children's experiences have helped them form new ideas, or refine old ideas. Are the older children beginning to recognize that colors can appear in different shades, patterns, and hues?

Word Bank

binoculars, circle, close-up, magnify, mat, observation, oval, rectangle, shape, tangram

Related PLT PreK-8 Environmental Education Activities

The Shape of Things, Get in Touch with Trees, Peppermint Beetle, Sounds Around

Background for Educators

Nature is filled with objects of different colors, sizes, and shapes. Tree species can be identified by looking at several different features, including the shapes of their leaves. For example, willow trees have long, slender leaves; cherry trees have oval leaves; and cottonwoods have triangular leaves. But how do we view those shapes?

When you look in the direction of an object, light bounces off the object and into your eyes. The light passes through the cornea and the pupil into the lens. The lens focuses the image of the object onto the retina. The retina is located in the back of the eye. It is covered with light-sensitive cells called rods (receptors that work well in low light and that help us see shapes) and cones (receptors that work well in bright light and help us see detail and color). The rods and cones send messages through the optic nerve to the brain. The images they send are upside-down! Your brain turns the images over, interprets the messages, and tells you what you are seeing.

Eyes are important and easily damaged. That is why our bodies are built to protect

them. Skull bones protect the eyes from injury. Eyebrows, eyelashes, eyelids, and tears all work to keep the eyes clean and protected from sunlight, dirt, and perspiration. Even with all this protection, things can go wrong. Cones and rods can be damaged or can malfunction, resulting in forms of blindness including color

blindness or night blindness. The lens can focus the images in the wrong place causing people to be farsighted or nearsighted. And sometimes the eye muscles don't work together properly. Be aware of differences in the ways the children in your class perceive the world as you facilitate these experiences.

Introducing the Theme

Materials natural objects with defined shapes (e.g., eggs, leaves, nests, rocks, shells, stumps); objects from the classroom for comparison (e.g., balls, blocks, dishes)

Gather a variety of natural and built objects (at least one per child) that have defined shapes. Look at the items together, and sort them into shape piles.

Ask: What shape does this remind you of? Can you find something from nature that matches the shape of this object?



Featured Experience— Shape Walk

Materials labeled shapes cut from paper (with younger children, use circles, squares, and triangles; with older children, add hearts, ovals, and stars); hole punch; yarn or pipe cleaners

Before the activity, make “shape necklaces” by cutting out shapes from construction paper. Print the name of the shape on each cutout and punch a hole in each.



Hold up each shape in turn, and ask the children to identify it.

Ask: Do you see anything in our classroom that is this shape?

Give each child one of each shape, and show how to string the shapes on yarn (or pipe cleaners) to make necklaces or bracelets. You could also consider starting with just one shape and adding more shapes over time.

Take a short walk outside to look for shapes. When you see an object that looks like one of the children's shapes, hold up the appropriate cutout and say, “I spy something shaped like a ____.” Encourage the children to look for that particular shape in nature. Repeat with the

other shapes. Encourage the children to look for shapes on their own and say, "I spy something shaped like a ____." With very young children, add colors to the description (e.g., I spy something that is yellow and is shaped like a ____.")

When you return to the classroom, hold up each cutout shape in turn. Ask: *What did you see outside shaped like a ____? Which shapes did you see the most? Which shapes are your favorites?*

Safety For safety information and outdoor teaching tips, see *Playing It Safe Outdoors* and *Taking Neighborhood Walks* in the appendix.

Group Experiences

Learning through Music and Movement

● Sing with leaf shapes

Materials leaves from 4 or 5 trees common in your area (about 2 per child), preferably with distinct shapes. Press and laminate the leaves for multiple uses year-round.

Give each child a leaf. Keep one of each leaf for yourself. Choose one leaf to hold up. Ask the children to look at the leaves they are holding and compare their leaves with the one you have in your hand. Ask the children with matching leaves to hold them up. As a class, decide what you will call the leaf shape. Repeat with the other leaves.

Sing the following song and encourage the children to move with the words. The tune is *All Around the Mulberry Bush*.

*If you have a star leaf, star leaf, star leaf
If you have a star leaf, stand up now.*



Repeat the verse using different shapes until all the children are standing.

Put all the leaves in a pile, and let the children choose a different shape. Review the names for the shapes if necessary. Then sing the song while inserting different ways for the children to move.

*If you have an oval leaf, oval leaf, oval leaf
If you have an oval leaf, jump up and down.*



● Dance with leaves

Materials leaves from neighborhood trees (laminated for durability) or the leaf shape examples found at www.plt.org; track 1 on PLT's *Environmental Experiences for Early Childhood CD*

Hold up a leaf shape. Ask: *How could you use your body to make this shape? Can you make this shape with your whole body? With your fingers? While you are sitting? While you are standing?* Repeat this process with the other leaf shapes.

Ask the children to scatter the leaves around the play area and to stand among them. Tell the children they will be listening and moving to music. Play track 1 on PLT's *Environmental Experiences for Early Childhood CD*. When the music starts, encourage the children to use the rhythm of the music as their movement guide or invite the children to move around the area like an animal (e.g., scurry like a chipmunk, fly like a robin, or walk like an ant). When the music stops at the end of each segment, pause the CD. Each child should find a leaf shape to stand on and create the shape with his or her body. Repeat the process for each music segment on track 1.

● Sing and dance with Billy B

Play the song "Outside" by Billy B, found on track 2 of PLT's *Environmental Experiences for Early Childhood CD*, learn from the lyrics, and dance to the music.

Reading and Writing

● Make a shape guide to your schoolyard

Materials digital camera; presentation software

Encourage each child to find a plant, animal, or other natural object outdoors that has an interesting shape. Photograph each object. Back in the classroom, work with individual children to identify the object (e.g., round rock, triangular tree, or oval ladybug). Ask the children to dictate why they like the object or some interesting bit of information for the guide. Assemble the photos and text into an electronic shape guide, or print a book that the children can take turns sharing with their families.

Enjoying Snacks Together

● Make and eat fruit kabobs

Recipe wooden skewers (one per child) or plates or both; fruits cut into shapes (Use local fruits that are in season, such as apple triangles, banana circles, melon squares, pineapple triangles, star fruit stars, kiwi ovals, grape ovals, orange sections cut into triangles, cherry circles.)

Give the children bamboo or wooden skewers, and allow them to make fruit kabobs of their favorite fruits. Younger children could sort and arrange the fruits by shape on their plates before eating.

Safety Be aware of any food allergies, dietary needs, or choking hazards for the children in your class.



Taking Neighborhood Walks

On your walks, do the following:

- Take your binoculars (see *Art*) to look for things in nature. The binoculars work amazingly well! They help children focus on one thing at a time and see things they might have missed.
- Find tree shapes. As they grow in a park or open setting, trees of the same species take on similar shapes (e.g., spruces are shaped like triangles, sugar maples and sweet gums are shaped like eggs, white oaks are shaped like gumdrops, and weeping willows are shaped like umbrellas).

Safety

For safety information and outdoor teaching tips, see *Playing It Safe Outdoors* and *Taking Neighborhood Walks* in the appendix.

Learning Centers

Art

• Decorate binoculars

Materials toilet paper tubes; tape; glue; construction paper, paints, or stickers for decoration

Staple, glue, or tape two toilet paper tubes together to make binoculars. Punch holes in the tubes, and attach yarn to make a neck strap. Encourage the children to decorate the binoculars with paints or stickers. Children with special needs might find it easier to use binoculars with a handle. Glue a wooden craft stick or pencil between the tubes to make the handle.



• Make sun prints

Materials dark colored construction paper; tape; objects with distinct shapes

Use dark-colored construction paper to make sun prints. Put the paper next to a sunny window or outdoors in a protected location, and plan to tape down lightweight objects. Encourage the children to find flat natural objects and to arrange them on the paper. Leave the paper in the sun at least one hour before checking. The best prints are made around noon in the summer. You can achieve more dramatic results by using special sun print paper, which is available in craft stores.

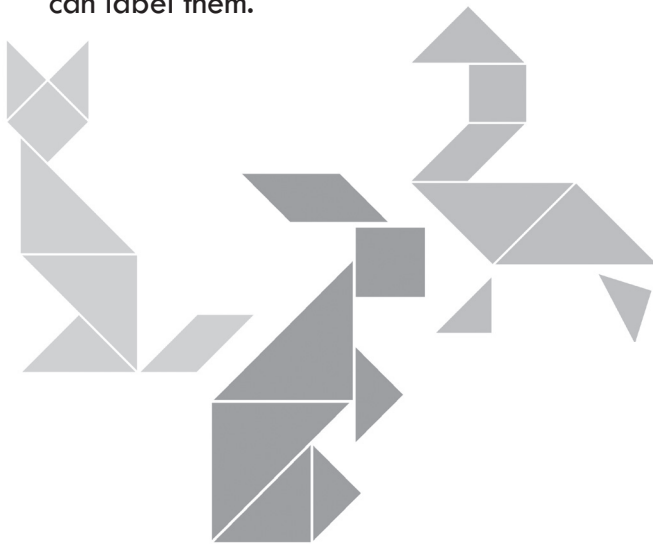
Outdoor Play

- Provide picture frame mats. Encourage the children to choose a mat and to find something outside to “frame.” The mat can be held up in the air to frame something in the distance or laid on the ground with natural objects arranged inside it. Before returning inside, give the children a chance to share the natural “masterpieces” they found or created.
- Hide toy animals in the trees, grass, or both. Provide or make binoculars (see *Art*) for the children to search for the “animals.”
- Build a “treasure hunt” by hiding natural items like bones, feathers, or pine cones for the children to find.
- Lie on the ground and watch the clouds.
- Provide magnifying lenses for exploration.

Math and Manipulatives

● Play with tangrams

Cut several sets of this Chinese puzzle (templates available at www.plt.org) in different colors. Children can reassemble the geometric pieces into squares, rectangles, and many other shapes. They can also use the pieces to create their own designs and can label them.



● Make twig shapes

Provide twigs cut in many lengths that the children can use to form into shapes. You could also cut twigs so that they are fractions of each other (e.g., two red twigs are the same length as one gray twig).



Reading Connections

Cole, Henry. *I Took a Walk.*

New York: Greenwillow Books, 1998. This richly illustrated book takes you through woods and meadows and beside streams and ponds, where you discover butterflies and box turtles, wildflowers and water birds, in foldout panorama pages. Ages 4–8. ISBN: 0688151159.

Dodds, Dayle Ann. *The Shape of Things.*

Cambridge, MA: Candlewick Press, 1996. A square is just a square until it becomes a house in this clever book. A circle becomes a spinning Ferris wheel, and when some string and a tail are added, it becomes a kite flying high in the sky. With sprightly rhymes and energetic illustrations, this book reveals that shapes are everywhere. Age: 3–5 years. ISBN: 1564026981.

Fisher, Aileen. *Animal Houses.*

Glendale, CA: Bowmar, 1973. Discover the joys of nature observation and exploration through the eyes of a child. A colorful addition to a unit on shapes, this book compares the square houses of people with the more rounded dwellings of different animals. Ages 3–6. ISBN: 0837208599.

Hines, Anna Grossnickle. *What Joe Saw.*

New York: Greenwillow Books, 1994. This cheerful picture book encourages acceptance of individual differences. Joe often takes his time, which allows him to often see things that others miss. Take a walk with Joe to experience some of the small, natural wonders that are easy to overlook. Ages 3–6. ISBN: 0688131239.

Hoban, Tana. *So Many Circles, So Many Squares.*

New York: Greenwillow Books, 1998. The author provides an introduction to circles and shapes with wonderful pictures of these two shapes found in the natural world. Ages 2–5. ISBN: 0688151655.

Rotner, Shelley, and Ken Kreisler. *Nature Spy*.
New York: Atheneum, 1992. A child takes a close-up look at various aspects of nature, including an acorn, the golden eye of a frog, and an empty hornet's nest. Ages 4–8. ISBN: 0027778851.

Sohi, Morteza E. *Look What I Did with a Leaf*.
New York: Scholastic, 1993. This book tells about the many shapes of leaves and provides

ideas on how to make animals out of different leaves. Ages 4–8. ISBN: 0802774407.

Ziefert, Harriett. *Sarah's Questions*.
New York: Lothrop, Lee & Shepard Books, 1986. A little girl asks many questions about the world while taking a walk with her mother. Ages 3–6. ISBN: 0688056148.

Family and Friends

We are exploring nature with our eyes! We are amazed at how much there is to see when we take the time to look. Here are some activities you and your child can do together:

- Read *Sarah's Questions* by Harriet Ziefert or *I Took a Walk* by Henry Cole. After the story, take a similar walk with your child. Let your child set the pace and ask the questions.
- Play I Spy. You begin by spying a nearby object (e.g., a yellow flower). You say, "I spy with my little eye, something that is round." Your child looks around and tries to guess what you saw. Give hints if needed. Take turns spying and guessing. You can play I Spy with letters, sounds, colors, or shapes. Or play this Spanish version of I Spy:

"Veo, veo" (I see, I see)

"¿Qué ves?" (What do you see?)

"Una cosa" (A thing)

"¿Qué cosa?" (What thing?)

"Maravillosa" (Wonderful [thing])

"¿De qué color?" (What color?)

"Color, color ... " (Color, color ...) The person then names the color of the object seen.

- Eat circles for lunch. Core apples, and cut them into crosswise circles. Eat cucumber slices, pastrami, bagels, and peas. Tomorrow eat squares: a peanut butter and jelly sandwich, cheese, crackers, or ravioli.
- Use the shape necklace from class, and look for shapes in your neighborhood.
- After a rain, find a patch of mud. Invite your child to use a twig to draw shapes or to write letters in the mud.

Help build your child's vocabulary by using some of these new words in your conversations:

We are reading the following books in class. Check them out from your library, and invite your child to share them with you.

www.plt.org

Download and print *Family and Friends* pages from PLT's website and give to parents and caregivers.