

Geometry in Nature

Activity Overview

Students find plants that represent geometric shapes.

Objectives

Students will:

- Practice observation skills
- Learn geometric shapes
- Identify shapes in nature

Subjects Covered

Science, Math, and Art

Grades

K through 5

Activity Time

30 minutes to find plants, 30 minutes to add pictures to the classroom shape book

Season

Late spring, summer, early fall

Materials

Set of cards with labeled pictures of the common geometric shapes (circle, square, triangle, rectangle, oval, pentagon, hexagon, octagon), a classroom shape book containing shapes found in other built and natural areas (optional)

State Standards

Science: Use scientific vocabulary & themes (C.4.1)

Ask questions, plan investigations, make observations, predictions (C.4.2)

Select multiple information sources (C.4.3)

Understand physical properties of objects (D.4.1)

Find patterns and cycles in earth's changes (E.4.6)

Math: Use reasoning abilities (A.4.1, A.8.1, A.12.1)

Communicate mathematical ideas (A.4.2), logical arguments (A.8.2, A.12.2)

Connect mathematical learning with other subjects (A.4.3)

Use vocabulary, symbols, notation (A.4.4)

Describe simple two- & three-dimensional figures (C.4.1)

Use materials & geometry to identify properties & relationships (C.4.2)

Source

Georgia Gomez-Ibanez, Cambridge Elementary School

Background

Natural or garden areas on or near school grounds can provide students with a variety of opportunities to apply concepts learned in the classroom to the natural world. As students explore a natural setting, they reinforce their conceptual understanding of geometrical shapes such as circles, triangles, and squares, as well as combining the challenges of observation and identification with a meaningful outdoors experience.

Activity Description

STEPS:

1. Review the geometrical shapes students will be recording in the field. Explain to students that they will be visiting a natural or garden area and looking for geometrical shapes.
2. Give each child a card with a geometric shape and ask them to look around the natural area until they find a plant or plant part shaped like their shape.
2. Students can tie a red string around the plant and at the end, the class can gather to admire everyone's discovery.
3. Children might draw their plant shape on another card. These drawings can be added to a classroom shape book.
4. Have a class discussion about students' observations and findings in the field. What was most interesting or surprising? What shapes did you find and where?

Extensions

- Students can investigate the plant shapes they found in more detail using reference books. Could the geometrical shapes they discovered be of special importance to the survival of a plant? Why or why not? What additional information or research is needed to learn more?
- Each student can create their own shape book and make observations throughout the year.
- Invite a local artist to speak about the use of form and function in natural artwork.

Additional Resources

- Johnson, Lady Bird. (2004) *Exploring the native plant world: Patterns and shapes*. Eakin Press.

Assessments

- Students can define at least 4 geometrical shapes.

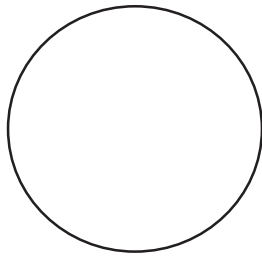


Nature Shapes

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of a

Circle

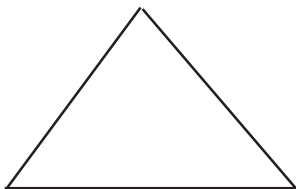


Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of a

Triangle

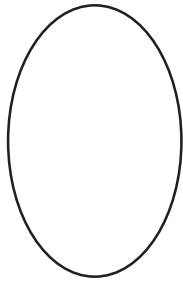


Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of an

Oval

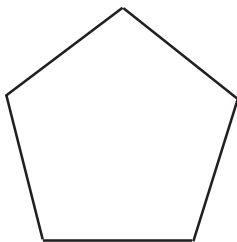


Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of a

Pentagon



Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of a

Square



Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of a

Rectangle

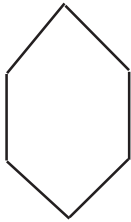


Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of a

Hexagon



Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

Look for plants (flowers, leaves, stems or seeds) that have the shape of a

Draw a picture of your plant.
Circle the shape in your drawing

Nature Shapes

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