

Exploration 3

Shapes—Building Blocks of Architecture

Architecture can seem overwhelming. By breaking it down into shapes, it can become easier to identify, understand and discuss.

Materials:

- Something to write and draw on
- Something to write or draw with
- Look for Shapes Worksheet

Objective:

After drawing representations of simple houses, skyscrapers, and/or bridges, students will differentiate among, and identify 2-dimensional and 3-dimensional shapes and figures in their immediate environment.

Standards:

- Arts: NA-VA: 3, 4, 6
- English: NL-ENG: 4, 7
- Mathematics: NM-GEO: 1, 4; NM-PROB.COMM 3; NM-CONN: 1, 3; NM-PROB.REP 3
- Science: NS: 5, 6, 7
- Social Studies: NSS-G: 1, 5

Procedures:

- Hand out supplies and ask each student to draw a simple house, skyscraper, or bridge OR ask one or more students to volunteer to draw these structures on the board for everyone to see
 - Ask students to identify the different shapes they used in their drawings. Very likely their structures will be made up of a combination of basic shapes including squares, rectangles, triangles, circles, semi-circles, etc.
 - Discuss how just as they used basic shapes to create their drawings, architects (professional designers of buildings and other structures) use basic shapes to create buildings. Basic shapes are the building blocks of architecture.
- Review the basic shapes and explain 2-D and 3-D—plane figures and solid figures. Sometimes this is easier to talk about as shapes (2-D) and forms (3-D). The drawings that they created are 2-dimensional (shapes). If they used the same drawings to build a model, the model would be 3-dimensional (form).
 - Draw a square on the board. Explain that this is a 2-D, plane figure. How can we turn it into a solid figure? Draw

a cube. The drawing is still flat, but it represents a 3-D object.

- As a class, discuss other 2-d plane figures (shapes) and ways to transform them into 3-d solid figures (forms)-- triangles into pyramids, circles into spheres, etc.
- Copy and distribute the Look for Shapes worksheet. Using the classroom, school campus, or any building(s) of choice, identify as many shapes as possible, differentiating between 2-d and 3-d figures.

Reinforcement Exercise

From Plane to Solid: Create 3-D shapes—the websites below contain geometric patterns and fun geometry games and activities

- <http://pbskids.org/cyberchase/games/23dgeometry/index.html>
- <http://illuminations.nctm.org/LessonDetail.aspx?ID=L406>

