

## Math at Home Geometry Activities for Grades K-5

Below are math activities to do at home related to geometry. They provide an opportunity for you to engage in problem-solving with your child, using familiar contexts and materials found at home. Suggested grade levels are indicated for each activity, but students vary widely in what they find engaging and challenging. Many of these activities can be modified to be appropriate for both younger and older children.

While you work with your child, show curiosity about their ideas. Let them take the lead. Ask questions like *“What do you notice?”*, *“Why do you think that?”*, *“How did you figure that out?”*, and *“What do you think we should do next?”* Encourage your child to come up with new questions to ask in order to extend the activity.

**Fill the Hexagons** You can play [Fill the Hexagons](#) online which involves filling hexagon outlines with pattern block shapes. (Grades K-1)

**Shape Hunt** Shapes are everywhere. Talk with your child about the 2-D and 3-D shapes you see every day. Together, you can look at everything from the shapes of buildings in your neighborhood to the shapes of boxes and cans in your kitchen. Sometimes you can include descriptions of shapes in what you say. For example, *“Look at that part of the building shaped like a [square, cylinder].”* At other times, you can ask your child to look for specific shapes: *“See how many things you can find that are [triangles, cubes], while we walk down the street.”* You can also ask, *“What shape are the street signs in your neighborhood? What shapes can you find around the living room?”* (Grades K-2)



Can you find a cylinder?

cans

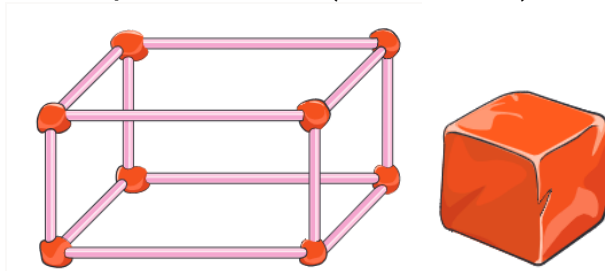
paper towel roll

**Making Shapes** Making shapes is a great way to learn about them. At home, your child may use clay or play dough, toothpicks, a loop or yarn or rope, building blocks, drinking straws and clay, or other construction toys or materials. Ask your child:

- Can you make a shape with three straight sides?
- Do you know what that shape is called?
- Can you make a cube? How many faces (sides) does it have?
- Can you make a shape that looks like this shoebox?

You may also make different shapes and ask your child to name and describe them. Ask questions about the number of sides, edges, faces, corners, and/or the shape of the faces. For example:

- I am making a 3-D shape. How many faces does it have? What shape(s) are the faces?
- Do you know what this shape is called? (Grades K-2)



**Making Shapes, Pictures or Murals** Make pictures out of shapes cut from scrap paper or newspaper or cut shapes from old magazines. Cut a variety of shapes (squares, rectangles, triangles, circles, and hexagons) for your child to glue onto a background. You might like to do this as a family mural, adding shapes over time. (Grades K-2)

**Drawing Shapes** Drawing shapes is also fun. Challenge your child to draw 2-D shapes like circles and rectangles, or to draw a shape with a curve or a shape with 3 sides. While it is difficult to draw 3-D shapes, some students enjoy the challenge. Talk together about ways to draw a shape so that it “looks 3-D” and practice. You can help your child draw 3-D shapes so that they look like they “pop” off the paper. There are many ways to do this. Ask your child to choose a familiar building—perhaps your house or one that you can see from a window. Talk about the building’s shapes and then ask your child to draw and label the building in a way that makes sense to them. Some children like to draw the building from different perspectives, or points of view. Others like to use dotted lines to show what is not visible from the front. (Grades K-2)



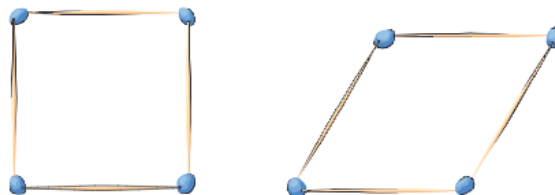
**Seeing Shapes Inside Shapes** Encourage your child to look for patterns or designs made from different shapes. For example, ask: “*Can you find squares on the floor (or wallpaper or clothing)?*” or “*Are there any patterns made from triangles?*” or “*Do you see any hexagons?*” You can also ask, “*Can you see shapes within other shapes, such as panes in a window?*” (Grades K-2)



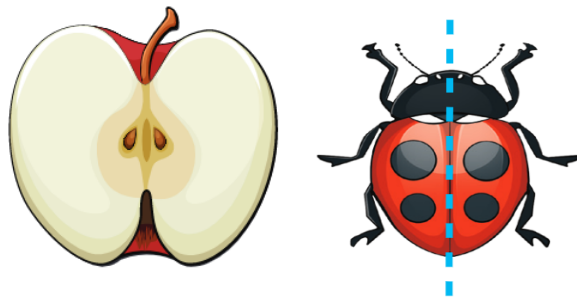
**Building with Shapes** Gather 3-D building blocks, construction toys, or empty boxes and cans that your child can use to build. Children can try to build particular buildings or even their whole neighborhood. Talk about shapes while they are working. “*What would you call the shape you used for the first floor of the bank? What shape(s) will you use for the roof?*” (Grades K-2)

**Triangle and Quadrilateral Scavenger Hunt** Look for examples of triangles and quadrilaterals (closed shapes with 4 straight sides) with your child. For example, when you are in the car or on a walk, your child can point out the triangles or quadrilaterals that he or she sees on signs, buildings, shop windows, and so on. (Grades 3-5)

**Building Polygons** You and your child can use household materials to create 2-dimensional polygons—closed shapes with straight sides that come together at vertices. You can use toothpicks or straws for the sides of your polygons, and small marshmallows, clay, or jellybeans as fasteners for the vertices. How many different kinds of quadrilaterals can you build? How many different kinds of triangles? What different-sized angles can you make? (Grades 4-5)



**Symmetry Projects** There are many opportunities to notice, name, and discuss symmetry. The world is full of symmetrical objects, both natural and artificial. Look for objects that are symmetrical around the kitchen or outside while on a walk or a drive. You may want to continue exploring symmetrical designs with different art projects. Your child can print shapes with cut potatoes or sponges dipped in paint on one side of a sheet of paper, and then fold the paper in half. The design that results will be symmetrical around the fold. Papercutting is another way to create a symmetrical arrangement of shapes. Plain paper and tissue paper, or newspaper can be folded in quarters (or folded as many times as you like) and then cut and unfolded to create designs with more than one line of symmetry. (Grades 4-5)



**Playing “I Spy” Polygons and Angles** To help your child investigate the properties of polygons (especially triangles and quadrilaterals) and patterns involving their sides and angles, find figures around the house that fit a rule and play a guessing game. For example, you might describe a mirror by saying, *“I’m thinking of something in this room that has two equal sides, at least two equal angles, and at least two parallel sides. What could it be?”* Then have your child identify objects that fit that rule, while trying to guess which specific object you were describing. (Grade 5)