

Simply Symmetrical

Grades 3-5

A shape is symmetrical if it can be cut along a straight line into two halves that are mirror images of each other. Learning about symmetry gives children a good sense of geometric principles and calls on their mathematical reasoning abilities.

What You Need

- * Shapes such as a circle, a square and a rectangle, cut from heavy paper
- * Sheets of paper (rectangular)
- * Pencil, marker or crayon
- * Magazine pictures of symmetrical objects
- * Safety scissors
- * Glue

What to Do

* As your child watches, show her the square that you've made. Fold it in half and show her that the two parts are exactly alike—or *symmetrical*. Do the same with the circle and the rectangle. Then give the shapes to your child and ask her to make the folds herself. Extend the activity by having her do the following:

—Find as many ways as she can to fold half of the square onto the other half. (*There are four ways: two diagonals and two lines "down the middle"*).

—Do the same for the rectangle. (*There are only two ways: down the middle of the long side, then down the middle of the short side. In going from a square to a rectangle, the diagonals are lost as lines of symmetry.*)

—Do the same with the circle. (*Circles can fold along any diameter. Use this discovery to introduce your child to the word "diameter"—the length of a straight line that passes through the center of a circle*).

—Ask her to find the center of a circle by folding it in half twice. (*She'll discover that any diameter—line of folding in half—passes through the center of the circle, an activity that will prepare her for understanding more complicated geometry later on.*)

* Show your child a rectangular piece of paper. Ask her, "What shape will you get if you fold this piece of paper in half?" Have her fold the paper, then ask, "Did you get

a square or another rectangle?" Using scissors to cut the paper, show her that a rectangle will fold to a square only if it is twice as long as it is wide.

* Fold a sheet of paper in half lengthwise. Have your child draw half of a circle, heart or butterfly from top to bottom along the fold on each side of the paper. Have her cut out the shapes that were drawn. Unfold the paper to see the symmetrical figure.

* Cut out a magazine picture of something that is symmetrical (try, for example, a basketball or a computer screen). Cut it down the center (the line of symmetry). Glue one half of the picture on the paper. Ask your child to draw the missing half.

* With your child, explore your house for symmetrical designs— things that have equal sides. Ask your child how many she can find. Tell her to look at wallpaper, floor tiles, pictures, bedspreads and appliances.

* Have your child print the alphabet. Then ask her to find a letter that has only one line of symmetry—only one way to be divided in half. (*B has one.*) Ask her to find a letter that has two lines of symmetry— two ways to be divided in half. (*H has two.*) Ask which letters look the same when they're turned upside down? (*H, I, N, O, S, X and Z.*)