

Patterns in Geometry

Dear Family,

These activities provide an opportunity for you and your child to share knowledge of mathematics. I invite you to choose one or two activities and complete them together. Please have your child return the family project(s) to me by _____.

Materials: paper • pencil • directional compass

The Shape of Things

Give each family member a 4 in. \times 4 in. square piece of paper. Have them turn their papers one quarter turn. Is each paper still a square? Then have them fold the papers to make other geometric shapes. What shapes have they made?

Could you construct a cube or another three-dimensional shape? Work together and see what shapes you can construct. Finally, write a few sentences about the shapes you have constructed.

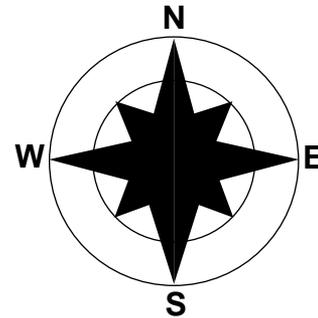
Following Directions

Use a directional compass to find out which sides of your home face north, south, east, and west. Instruct one family member to follow these directions: Take three steps north. Take four steps east. Take five steps southwest. What shape did the person make? Draw the shape.

Have family members take turns giving directions and following them to make these shapes: equilateral triangle, square, rectangle, and hexagon. Draw each shape after a person makes it.

What Do You Think?

Please take a few moments to let me know how you enjoyed these activities. Write your comments on the back of this sheet and have your child return it to me by _____.



Fan-tastic

Take a standard-size sheet of paper and fold it into a fan. First, make about a half-inch fold along the short end. Turn the paper over and make another half-inch fold so that the folded end is now three layers thick. Again, turn the paper over and fold so that the folded end now has four layers. Repeat until the entire sheet is folded into a half-inch strip made up of several "zigzag" layers. Hold one end in a pinch and fan the other end. Discuss why the fanned end (which is the straight edge of a sheet of paper) looks like part of a circle. What is the radius of the circle? What is the center? What is the diameter? Is it possible to fold a fan that would form a complete circle? If so, how long would the original sheet of paper have to be? (Or is that the right question to ask?) Try it.