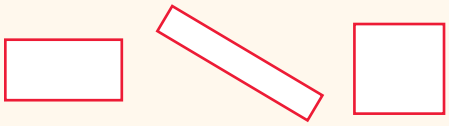
Understand Categories of Shapes

LESSON 30

Dear Family,

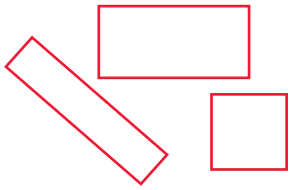
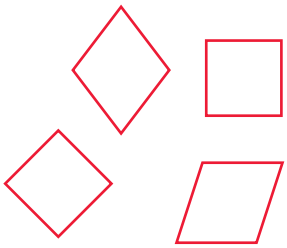
This week your child is exploring how shapes can be named and grouped according to their features.

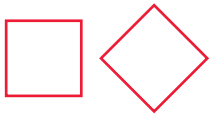
A **rectangle** is any quadrilateral with 4 right angles.



A **rhombus** is any quadrilateral with 4 sides that are all the same length.

The tables below show one way to sort shapes based on a few of their features. The left side of the top table shows shapes that have 4 right angles. The right side of the top table shows shapes that have 4 sides all the same length. The bottom table shows you the shapes that have both 4 right angles *and* 4 sides all the same length. This bottom table tells you that a square is both a rectangle and a rhombus.

4 right angles	4 sides all the same length
	

4 right angles *and* 4 sides all the same length


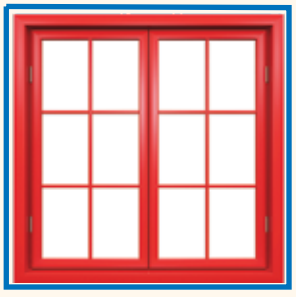
Invite your child to share what he or she knows about shapes by doing the following activity together.

ACTIVITY DESCRIBING SHAPES

Do this activity with your child to understand categories of shapes.

Support your child as he or she learns to recognize the features of different shapes by doing this activity together.

Be on the lookout for flat shapes around your home such as mirrors, rugs, tiles, and so forth. As a starting point, look at the shapes in the pictures below.



Take turns describing the shapes. For each shape, describe:

- the number of sides.
- the lengths of the sides.
- the lengths of opposite sides.
- the number of angles.
- the number of right angles.

Then pick two shapes. How are they alike? How are they different?

Now look at other shapes around your house, and have similar discussions about how they are alike and different.

Classify Quadrilaterals

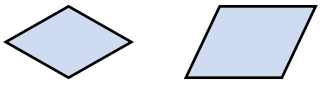
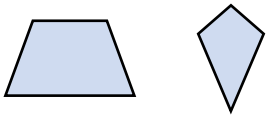
LESSON 31

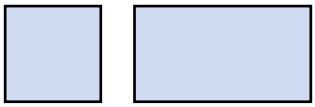
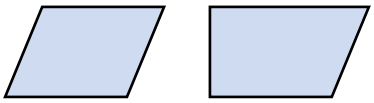
Dear Family,

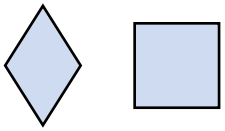
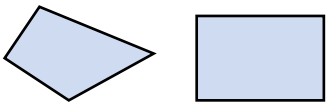
This week your child is learning to classify quadrilaterals.

A quadrilateral is any flat shape with 4 sides and 4 angles. You can use **attributes** or features to describe a shape, like number of sides, or lengths of sides.

Parallelograms, rectangles, and rhombuses are all examples of quadrilaterals. A **parallelogram** is a quadrilateral where opposite sides are parallel and equal in length. All rectangles and rhombuses are parallelograms.

Parallelograms	Not a Parallelogram
	

Rectangles	Not a Rectangle
	

Rhombuses	Not a Rhombus
	

rhombus

parallelogram

rectangle

Invite your child to share what he or she knows about classifying quadrilaterals by doing the following activity together.

ACTIVITY CLASSIFYING QUADRILATERALS

Do this activity with your child to explore classifying quadrilaterals.

Materials 8 different writing tools such as pens, pencils, markers, crayons (4 should be the same length)

Invite your child to create a quadrilateral using 4 of the writing tools as the sides of the shape. You create a quadrilateral with the other 4. See below for an example.

Together, describe your quadrilaterals. For example:

- Tell the number of right angles.
- Find any opposite sides that are the same length.

Now classify both of your quadrilaterals. Is your quadrilateral:

- a rectangle? Yes No
- a square? Yes No
- a rhombus? Yes No
- a parallelogram? Yes No
- none of the above? Yes No

If your quadrilateral is none of the above, see if you can figure out what you would need to change in your shape to make it fit at least one of the classifications listed. Try it to check your thinking!

Partition Shapes into Parts with Equal Areas

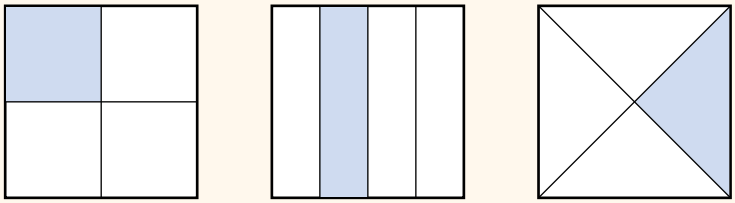
LESSON 33

Dear Family,

This week your child is learning about breaking shapes into parts that have equal areas.

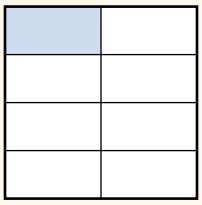
Equal parts of a shape cover an equal area. Think of these parts as fractions of the whole area.

These squares are broken into 4 equal parts each. So, the area of one shaded part is $\frac{1}{4}$ of the area of the whole square.



Since all 4 parts in each square are the same size and shape, each part is $\frac{1}{4}$ of the whole shape.

Here the square is broken into 8 equal parts. So, the area of one part is $\frac{1}{8}$ of the whole.



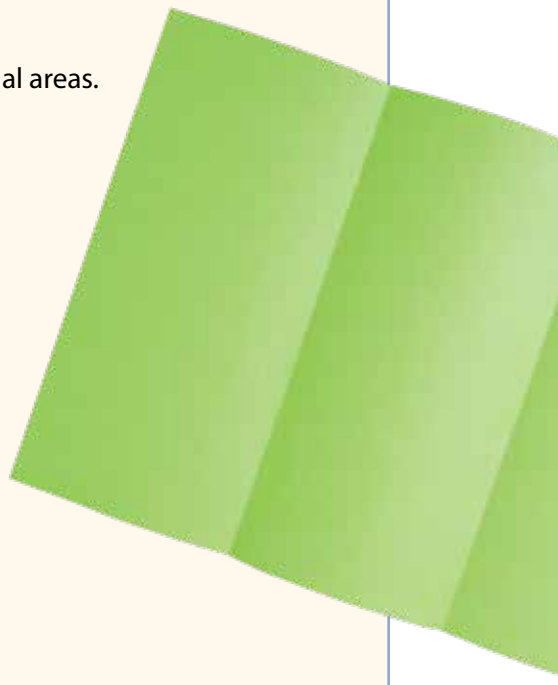
Invite your child to share what he or she knows about dividing shapes into parts with equal areas by doing the following activity together.

ACTIVITY DIVIDING SHAPES INTO EQUAL AREAS

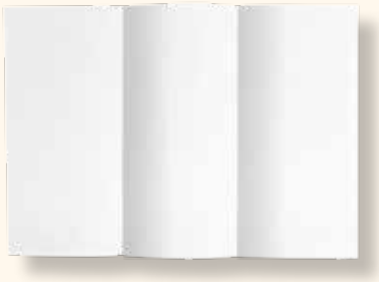
Do this activity with your child to practice dividing shapes into equal parts.

Materials 2 sheets of paper, crayons or markers

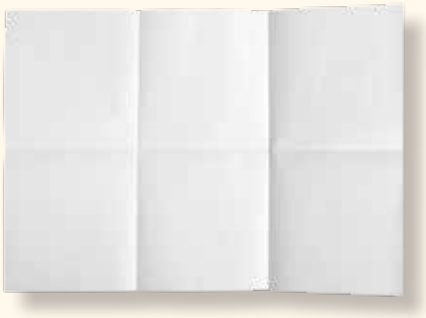
Do this activity with your child to give him or her practice dividing a rectangle into equal parts.



- Work with your child to fold a sheet of paper to make parts with equal areas. Begin by helping your child fold a piece of paper in thirds.



- Guide your child to fold the piece of paper one more time in half, then open the sheet of paper.



- Ask your child the following questions.
  1. How many equal parts do you see?
  2. What is a fraction that names one section?

  Then have him or her color $\frac{2}{6}$ of the rectangle.
- Now, together fold another sheet of paper in the exact same way and color $\frac{2}{6}$ in a different way.
- Challenge:
  3. What is an equivalent fraction for $\frac{2}{6}$, based on the part of the whole that is colored?

Answers: **1.** 6 equal parts; **2.** $\frac{1}{6}$; **3.** $\frac{1}{3}$