

# Understand Categories of Two-Dimensional Figures



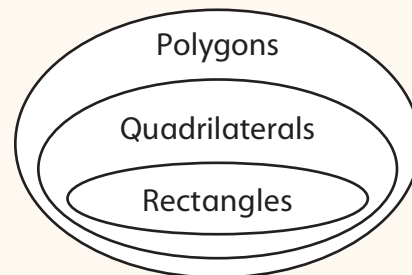
Dear Family,

This week your child is exploring relationships among categories of two-dimensional figures.

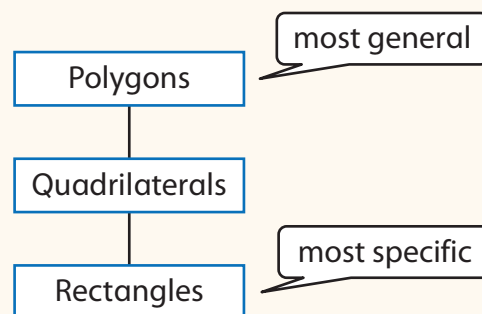
You can group polygons, or closed figures with straight sides, by their **attributes**. Some attributes of polygons are the number of sides or angles they have.

When you place figures in a group, you can form a **category** and one or more **subcategories**. You can use a **hierarchy** to order groups of figures. The top of the hierarchy shows the category for the most general group. As you go down a hierarchy, you can see how the subcategories are related.

Diagrams can show the hierarchy of categories and subcategories. The **Venn diagram** at the right shows the relationship between polygons, quadrilaterals, and rectangles. The diagram shows that all rectangles are quadrilaterals but that not all quadrilaterals are rectangles. The diagram also shows that all quadrilaterals are polygons but that not all polygons are quadrilaterals.



A **tree diagram** also can show relationships among two-dimensional figures. The tree diagram at the right shows the hierarchy of polygons from top to bottom. Polygons, the most general category, are shown at the top of the hierarchy. Rectangles, the most specific category, are shown at the bottom of the hierarchy.



Invite your child to share what he or she understands about relationships among categories of two-dimensional figures by doing the following activity together.

# ACTIVITY CATEGORIES OF TWO-DIMENSIONAL FIGURES

Do this activity with your child to understand categories of two-dimensional figures.

Work with your child to draw two-dimensional figures that share a common attribute.

- Use the dot paper below. The first person describes an attribute of a figure, and the second person draws and names the figure.
- Switch roles. The person who goes first now repeats the attribute that was said and adds another attribute to the description. The second person draws and names the figure.
- For example:
  - The first person says *a three-sided figure*. The second person draws and names a triangle.
  - Switch roles. The first person says *a three-sided figure with a right angle*. The second person draws and names a right triangle.
  - When you are finished, describe the category-subcategory relationship for your figures: Example: Right triangles are a subcategory of triangles.

