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Summer Edition

Fifth Grade
Math

Activity 1

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This packet includes four sections that cover some of the major content of 5th grade math. Each section includes notes and practice for each topic. For additional support, visit KCS TV on YouTube for instructional videos that accompany each section.

The following content is included in this packet:

	Topic			
	I. Classify Two-dimensional Figures	**II. Operations with Whole Numbers and Decimals**	**III. Operations with Fractions**	**IV. Relate Volume to Multiplication**
Activity 1	Identify Attributes of Two-dimensional Figures	Dividing Whole Numbers	Add & Subtract Fractions	Using Unit Cubes to Find Volume
Activity 2	Classifying Two-dimensional Figures	Multiplying Decimals	Multiplying Fractions	Using the Formula for Volume
Activity 3		Dividing Decimals		

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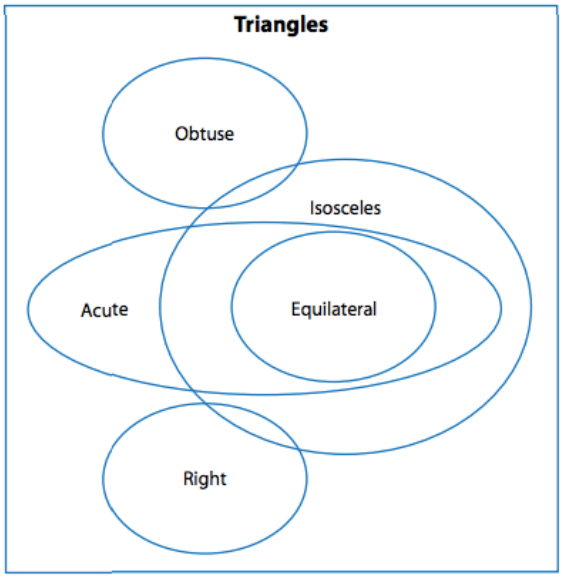
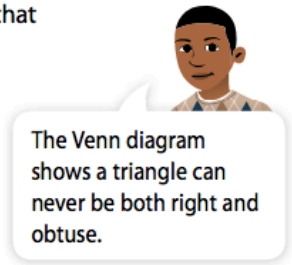
Objective: Classify two-dimensional figures in a hierarchy based on properties.

Polygons are grouped into categories by their **attributes**, or properties, such as the number of sides or angles, the side lengths, and the angle measures. All polygons in the same category share certain properties. Some properties of polygons are described in the table below.

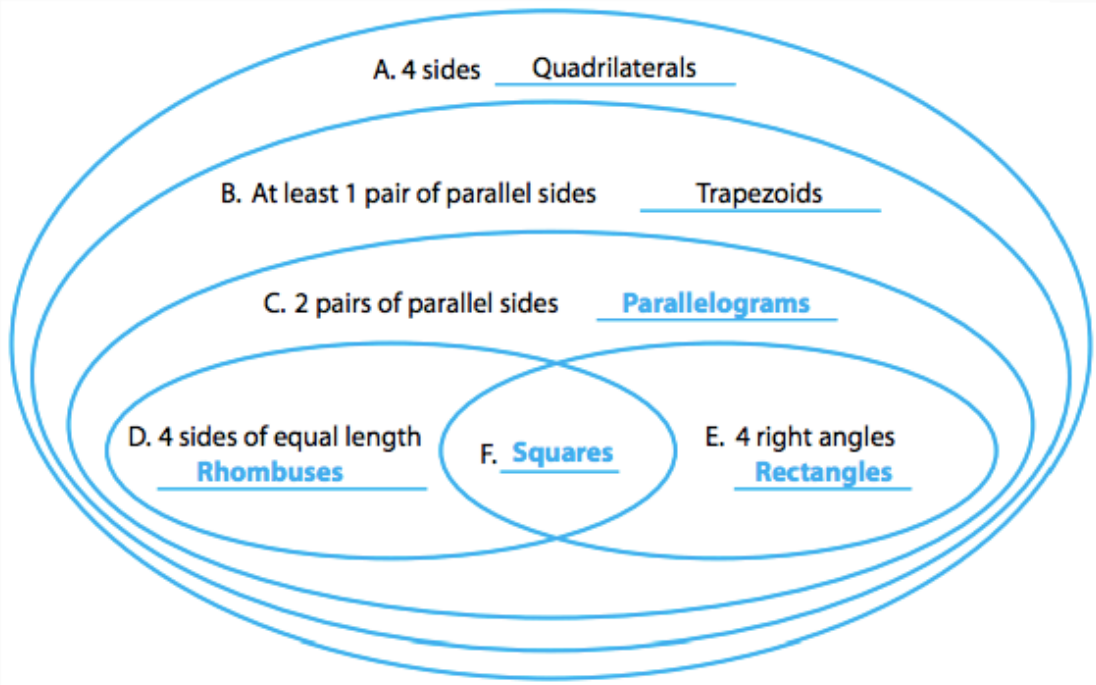
Property	Description	Example
Scalene	no sides of equal length	
Isosceles	at least 2 sides of equal length	
Equilateral	all sides of equal length	
Regular	all sides of equal length and all angles of equal measure	
Irregular	at least 1 side and 1 interior angle are not equal in measure to the other sides and angles	
Right	at least 1 pair of perpendicular sides	
Parallel sides	at least 1 pair of opposite sides that will never intersect, no matter how far they are extended	

A Venn diagram is a useful tool for organizing categories of polygons that share properties.





The Venn diagram shows categories of quadrilaterals with different properties. Write the name of each category that fits the description.



Category	Properties	Name
A	4 sides	Quadrilaterals
B	4 sides, at least 1 pair of parallel sides	Trapezoids
C	4 sides, 2 pairs of parallel sides	**Parallelograms**
D	4 sides, 2 pairs of parallel sides, 4 sides of equal length	**Rhombuses**
E	**4 sides, 2 pairs of sides that are parallel and of equal length, 4 right angles**	**Rectangles**
F	**4 sides, 2 pairs of parallel sides, 4 sides of equal length, 4 right angles**	**Squares**

Identify Attributes of Two-dimensional Figures

Solve.

3 Mark an X in the column if the shape always has that property.

Shape	4 sides	2 pairs of parallel sides	4 right angles
parallelogram			
rectangle			
quadrilateral			

4 Use the table in problem 3 to make a flow chart that shows the relationship between the three shapes. Order the shapes from general to specific going from left to right.

5 Where would you include squares in the flow chart in problem 4? Explain.

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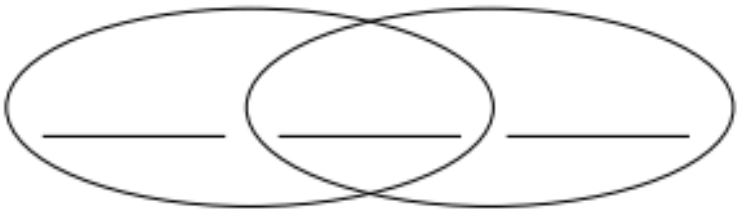
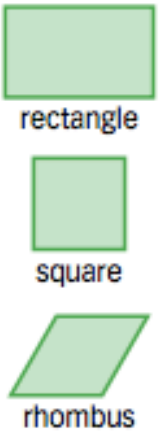
6 Fill in the Venn diagram that shows the relationship between rectangles, squares, and rhombuses. Explain what the diagram shows about squares.





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Classify Two-dimensional Figures

1 Complete each sentence with one of the words from the word bank in order to make each sentence true.

always sometimes never

a. An equilateral triangle _____ has all the properties of an isosceles triangle.

b. A right triangle _____ shares properties with an isosceles triangle.

c. A right triangle _____ shares properties with an obtuse triangle.

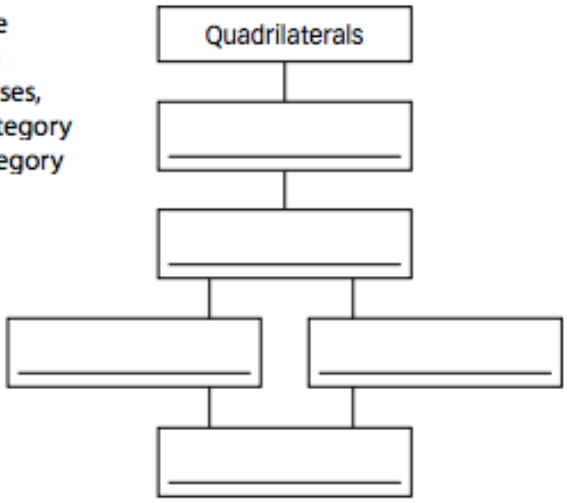
2 Look at the Venn diagram in the example. Describe what it shows about the relationship between acute and equilateral triangles.

_____

_____

3 Use the information in the table to fill in the tree diagram showing the hierarchy of the following quadrilaterals: parallelograms, squares, rhombuses, trapezoids, and rectangles. Remember, each category in the hierarchy has all the properties of the category above it.

Shape	Properties
parallelograms	2 pairs of parallel sides
squares	4 equal sides, 4 right angles
rhombuses	4 equal sides
trapezoids	at least 1 pair of parallel sides
rectangles	4 right angles



4 Explain what the tree diagram in problem 3 shows about the relationship between trapezoids and parallelograms.

_____

_____

_____

_____

5 Describe a quadrilateral that cannot be placed in the hierarchy under trapezoids. Explain.

_____

_____

Answer Key

I. Classify Two-dimensional Figures

Activity 1: Identify Attributes of Two-dimensional Figures

3 Mark an X in the column if the shape always has that property.

Shape	4 sides	2 pairs of parallel sides	4 right angles
parallelogram	X	X	
rectangle	X	X	X
quadrilateral	X		

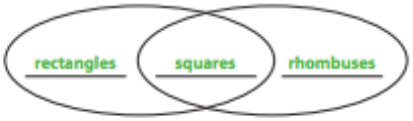
4 Use the table in problem 3 to make a flow chart that shows the relationship between the three shapes. Order the shapes from general to specific going from left to right.

quadrilaterals → parallelograms → rectangles

5 Where would you include squares in the flow chart in problem 4? Explain.

Answers will vary. Possible answer: Squares would go to the right of rectangles. Squares have all the properties of quadrilaterals, parallelograms, and rectangles. Squares also have another property—4 congruent sides.

6 Fill in the Venn diagram that shows the relationship between rectangles, squares, and rhombuses. Explain what the diagram shows about squares.



Answers will vary. Possible answer: The diagram shows that squares have all the properties of rectangles and rhombuses.

Activity 2: Classify Two-dimensional Figures

1 Complete each sentence with one of the words from the word bank in order to make each sentence true.

always
sometimes
never

a. An equilateral triangle **always** has all the properties of an isosceles triangle.

b. A right triangle **sometimes** shares properties with an isosceles triangle.

c. A right triangle **never** shares properties with an obtuse triangle.

2 Look at the Venn diagram in the example. Describe what it shows about the relationship between acute and equilateral triangles.

Answers will vary. Possible answer: Equilateral triangles always have all the properties of acute triangles. So, equilateral triangles always have 3 acute angles.

3 Use the information in the table to fill in the tree diagram showing the hierarchy of the following quadrilaterals: parallelograms, squares, rhombuses, trapezoids, and rectangles. Remember, each category in the hierarchy has all the properties of the category above it.

Shape	Properties
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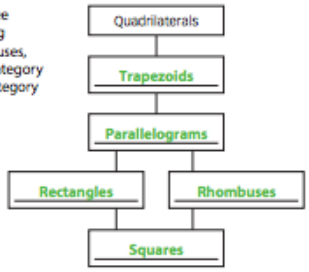

4 Explain what the tree diagram in problem 3 shows about the relationship between trapezoids and parallelograms.

Answers will vary. Possible answer: Every property of a trapezoid is also a property of a parallelogram, but every property of a parallelogram is not also a property of a trapezoid.

5 Describe a quadrilateral that cannot be placed in the hierarchy under trapezoids. Explain.

Descriptions and explanations should include shapes with 4 sides in which no sides are parallel.