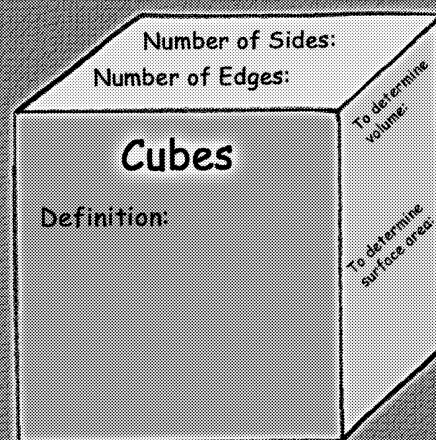
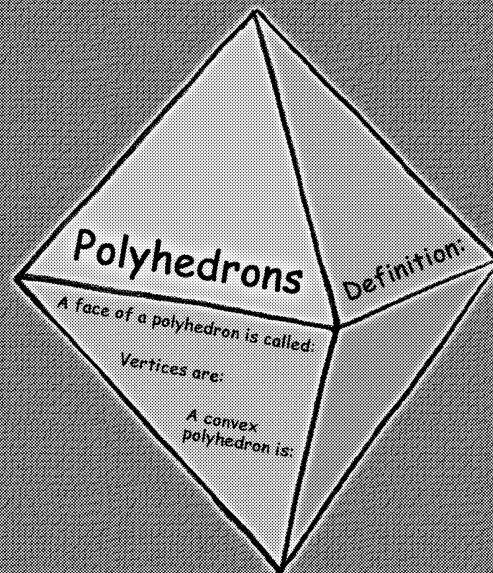
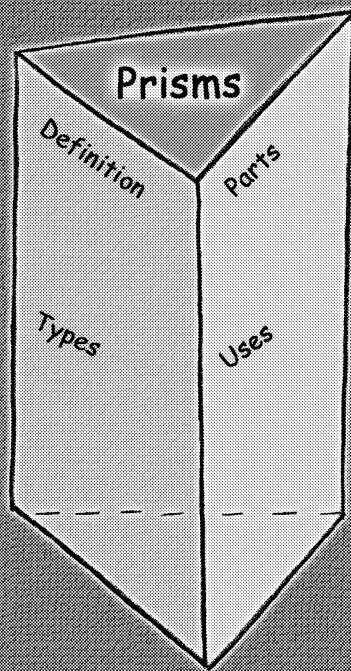


GRAPHIC ORGANIZERS

FOR GEOMETRY



Daniel J. Barnekow
Illustrated by Roman Laszok

Name _____ Date _____

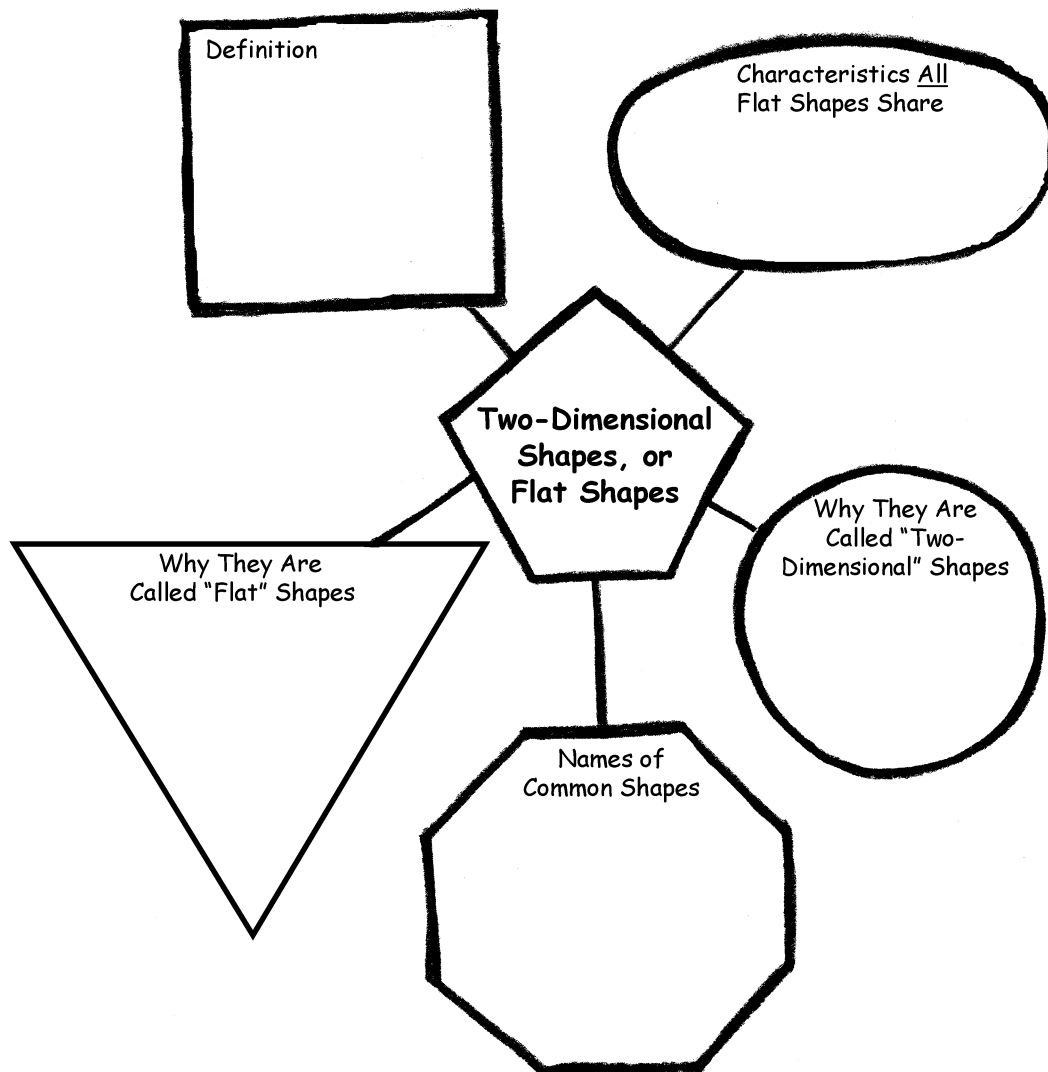
Student Activity Sheet

TGS-I: What Is a Flat Shape?

Introduction: If you think about it, you'll realize that you started learning geometry a long time ago. You learned the word "shape" when you were a little kid. You learned the names of common shapes—square, triangle, circle—when you weren't much older. Now, you need to learn a little more about shapes.

Start by learning that in geometry there are two basic kinds of shapes. *Two-dimensional shapes*, or *flat shapes*, make up one of these two types. Learn more about them by following the directions below.

Directions: Use your textbook, talk to your teacher and classmates, and conduct other research to complete the diagram.



Taking Another Step: You know that one of the two basic types of shapes in geometry is the two-dimensional, or flat, shape. What do you think the other type is? Write your answer on the back of this sheet. Do your best to write a definition of the type of shape you come up with.



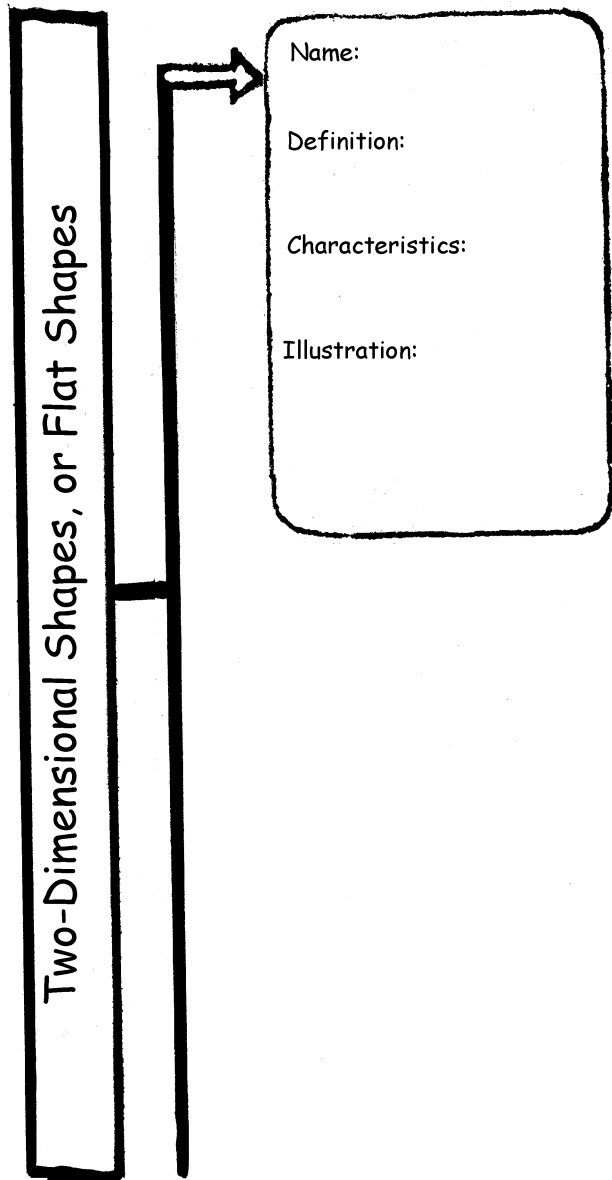
Name _____ Date _____

Student Activity Sheet

TGS-2: Characteristics of Two-Dimensional Shapes

Introduction: One of the basic types of shapes in geometry is the **two-dimensional shape**, or **flat shape**. There are many different types of flat shapes.

Directions: Complete and expand the diagram by adding boxes to the vertical line as you learn about different types of two-dimensional shapes.



Taking Another Step: On the back of this sheet, write down the names of as many different two-dimensional shapes as you can find in your classroom or in your home.



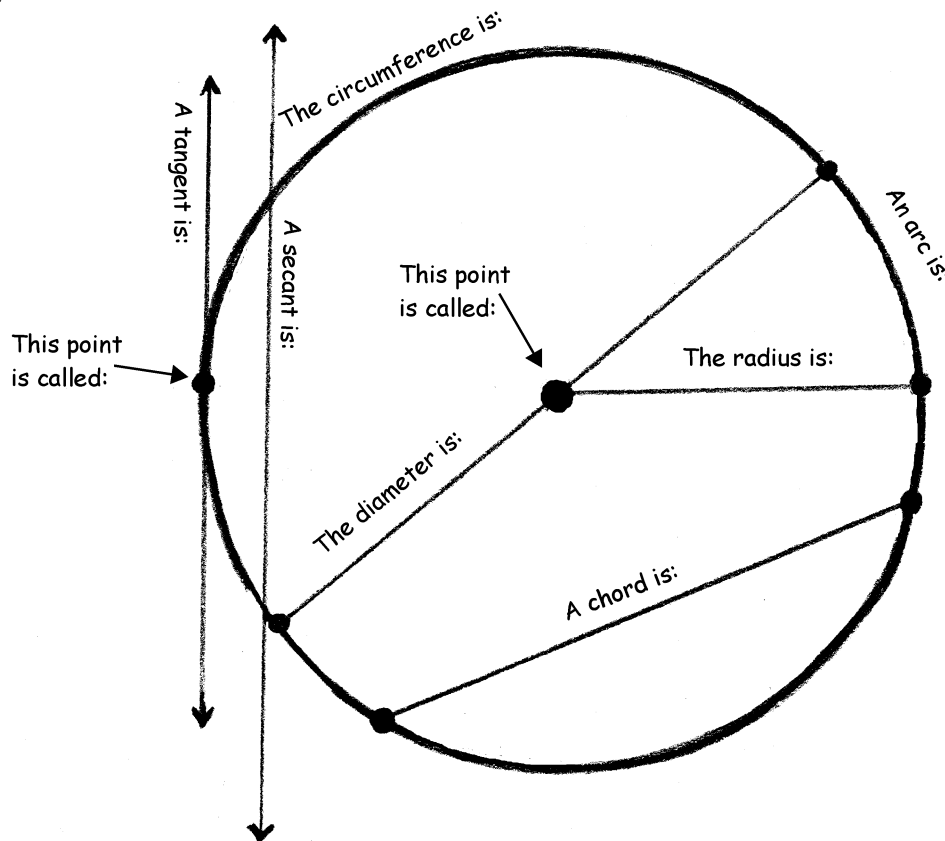
Name _____ Date _____

Student Activity Sheet

TGS-3: Circles

Introduction: Circles are common shapes. Actually, they're *very* common shapes. They appear in nature and in things people create. They are also useful shapes—*very* useful shapes. Because they are very common, and very useful, it pays to know all you can about circles. Knowing about circles will help you be a “well-rounded” person!

Directions: Use your textbook, talk to your teacher and classmates, and conduct other research to complete the diagram.



Taking Another Step: Complete the table.

Pi	
Symbol	
Definition	
Value	
Why pi is useful	



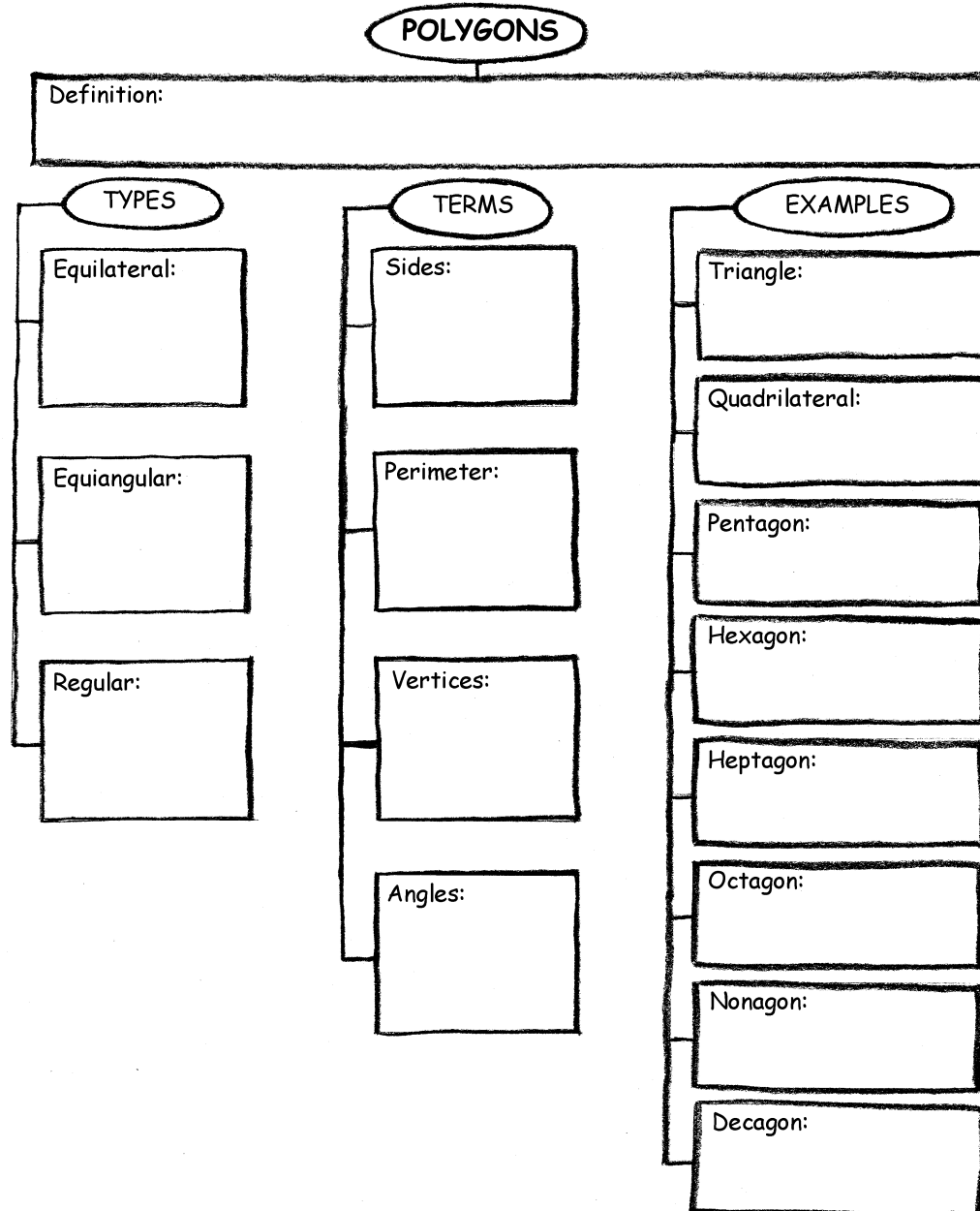
Name _____ Date _____

Student Activity Sheet

TGS-4: Polygons

Introduction: Do you know what a **polygon** is? Here's a hint: *poly* means "many." So a polygon has many somethings. But many what? To find this out, follow the directions below.

Directions: Complete the diagram by writing definitions in the boxes.



Taking Another Step: Why are polygons called polygons? Write your answer on the back of this sheet. (Remember, *poly* means "many.")



Name _____ Date _____

Student Activity Sheet

TGS-5: Quadrilaterals and Parallelograms

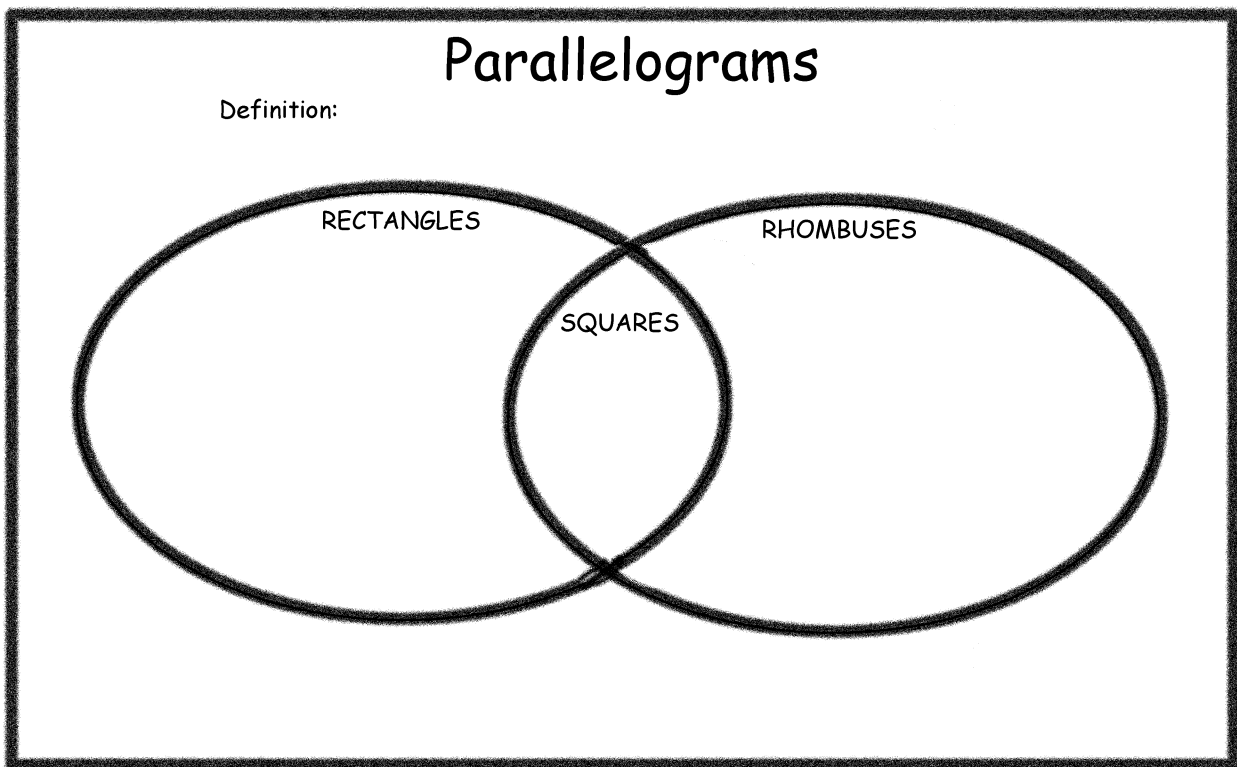
Introduction: In Greek, *quad* means “four” and *lateral* means “side.” So what do you think a **quadrilateral** is? That’s right: something with four sides. To be more exact:

A **quadrilateral** is a polygon with four sides. In other words, it’s a flat shape with four straight sides.

One cool thing about quadrilaterals is that they come in an infinite number of shapes and sizes. (Spend just a minute drawing four-sided polygons, and see how many different shapes you can come up with.)

There is one kind of quadrilateral that is of special interest: the **parallelogram**.

Directions: The diagram below shows the relationships among types of parallelograms. Complete it by writing a definition of parallelograms, and by writing definitions and descriptions of the other three terms.



Taking Another Step: Use the four terms below to write four true statements about parallelograms. Your statements must take these forms: “All x are y ” and “Some x are y , but not all y are x .”

parallelograms rectangles squares rhombuses

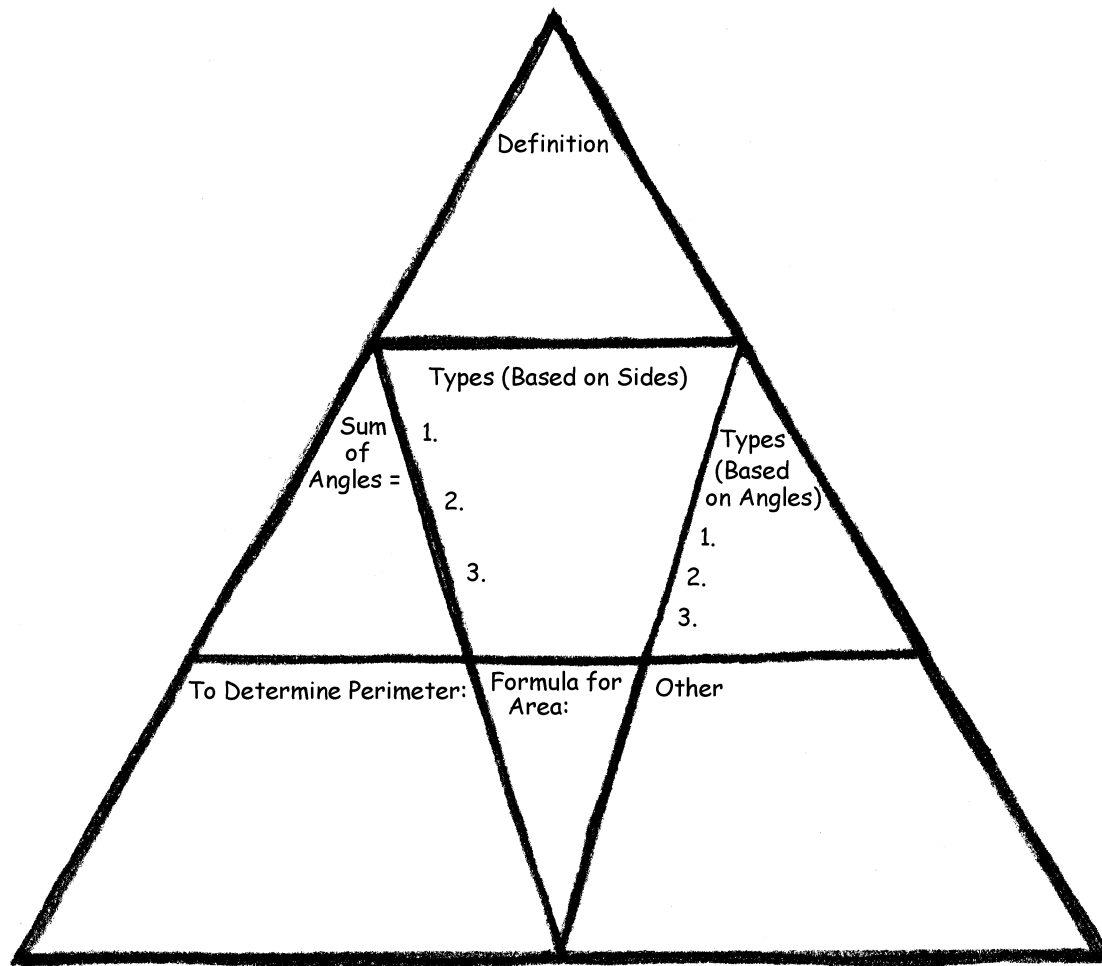
Name _____ Date _____

Student Activity Sheet

TGS-6: Triangles

Introduction: Triangles are **polygons** with three sides. They are the simplest of polygons. (You couldn't make a polygon with just two sides, right?) Triangles are simple, but they are also very useful. To understand geometry, you need to learn as much as you can about triangles.

Directions: Use your textbook, talk to your teacher and classmates, and conduct other research to complete the diagram.



Triangles

Taking Another Step: How many different triangles can you find in the diagram?



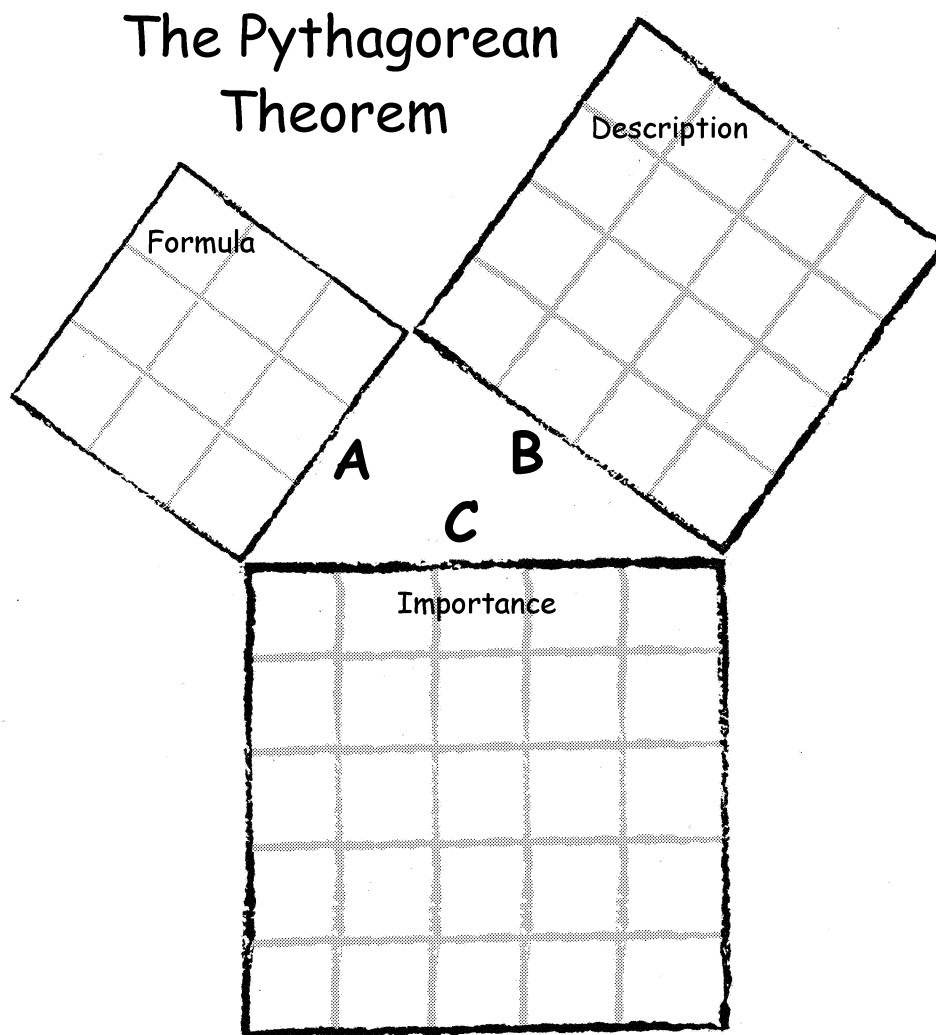
Name _____ Date _____

Student Activity Sheet

TGS-7: The Pythagorean Theorem

Introduction: The **Pythagorean theorem** is named for Pythagoras, a Greek philosopher and mathematician who lived about 2,600 years ago. Pythagoras put together a theorem about the relationships in a right triangle. A **theorem** is a statement that has been proved true. Although this theorem is named for Pythagoras, the ideas it expresses were known by the ancient Egyptians and Chinese.

Directions: As you learn about the Pythagorean theorem, complete the diagram.



Taking Another Step: The ideas expressed in the Pythagorean theorem were understood by the ancient Egyptians. They used these ideas to help them lay out farm fields. On the back of this sheet, write a paragraph explaining how you think the ideas behind the Pythagorean theorem would be useful for this purpose.



Name _____ Date _____

Student Activity Sheet

TGS-8: Perimeter

Introduction: Our word **perimeter** comes from two Greek words that mean “measure” and “around.” If you already know what perimeter means, you can see how the name fits. If you’re just learning about perimeter, remembering what the name means will help you—a lot!

Directions: Complete the table.

Perimeter	
Definition	
Determining Perimeter	
<i>Figure</i>	<i>Formula or Process for Determining Perimeter</i>
circle	
polygon	
parallelogram	
rectangle	
square	
rhombus	
triangle	
other	
other	
other	
other	

Taking Another Step: Think of three real-life situations in which knowing the perimeter of something is important. On the back of this sheet, tell about each one.



Name _____ Date _____

Student Activity Sheet

TGS-9: Area

Introduction: A key thing to remember about **area** is that it is expressed in **square measure**. That is, the area of a flat shape is never, say, 25 inches, or feet, or miles. It's 25 *square* inches, or *square* feet, or *square* miles. Remember this:

The unit for area is the square.

Directions: Complete the table.

Area	
Definition	
Determining Area	
<i>Figure</i>	<i>Formula or Process for Determining Area</i>
circle	
polygon	
parallelogram	
rectangle	
square	
rhombus	
triangle	
other	
other	
other	
other	

Taking Another Step: Think of three real-life situations in which knowing the area of something is important. On the back of this sheet, tell about each one.



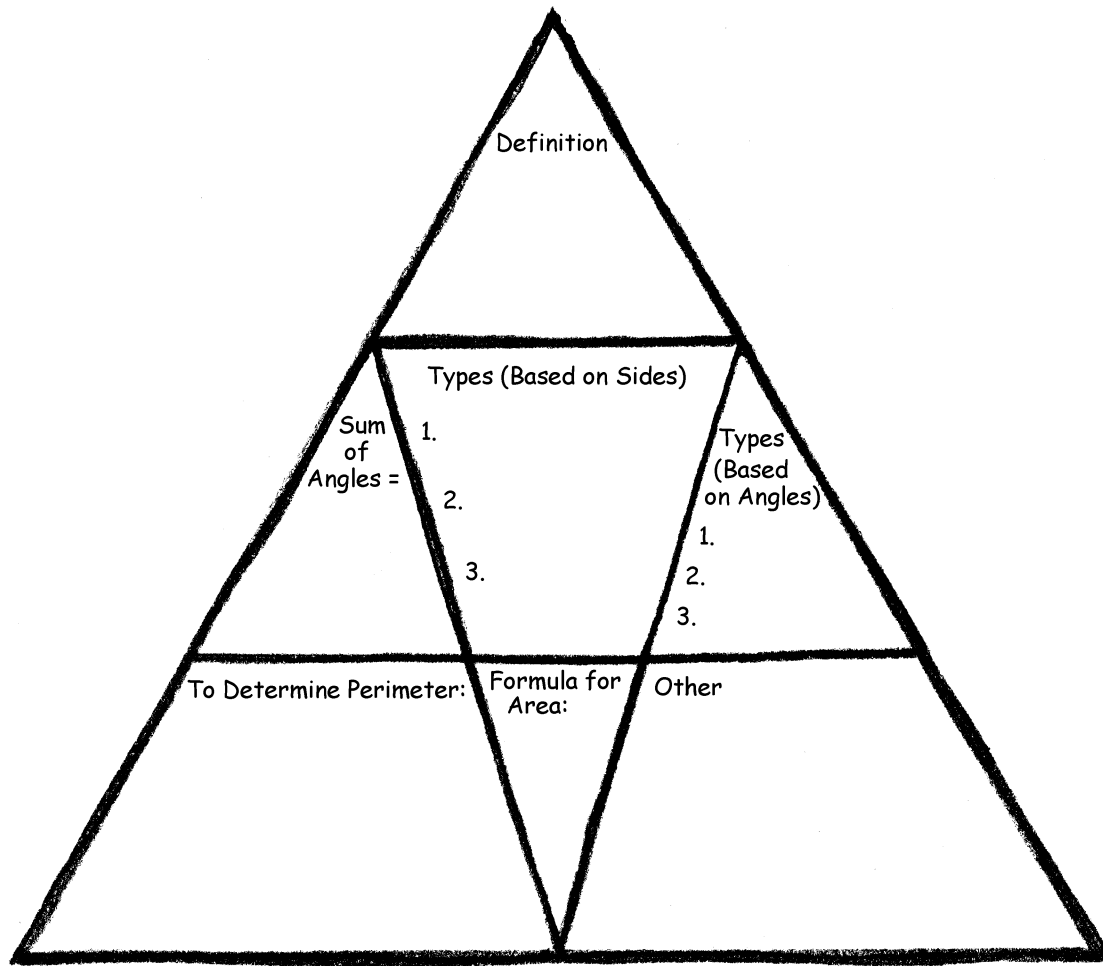
Name _____ Date _____

Student Activity Sheet

TGS-6: Triangles

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Directions: Use your textbook, talk to your teacher and classmates, and conduct other research to complete the diagram.



Triangles

Taking Another Step: How many different triangles can you find in the diagram?



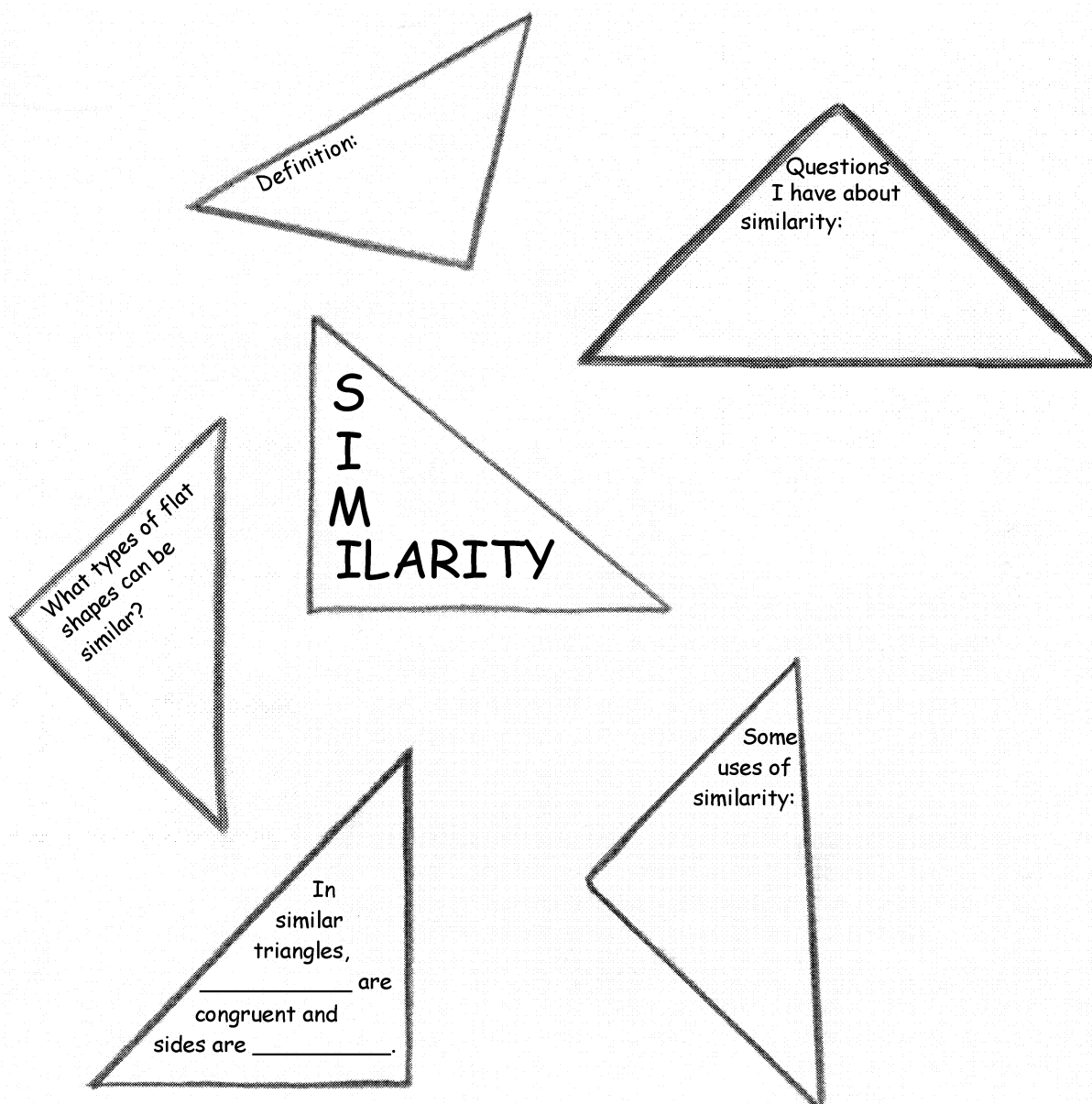
Name _____ Date _____

Student Activity Sheet

T-2: Similarity

Introduction: **Similarity** is an important idea for understanding flat shapes. This exercise will help you. So will simply remembering that similar figures are similar—but not exactly alike.

Directions: Use your textbook, talk to your teacher and classmates, and conduct other research to complete the diagram.



Taking Another Step: All the triangles in the diagram are *similar*. What does this mean? Write your answer on the back of this sheet.

