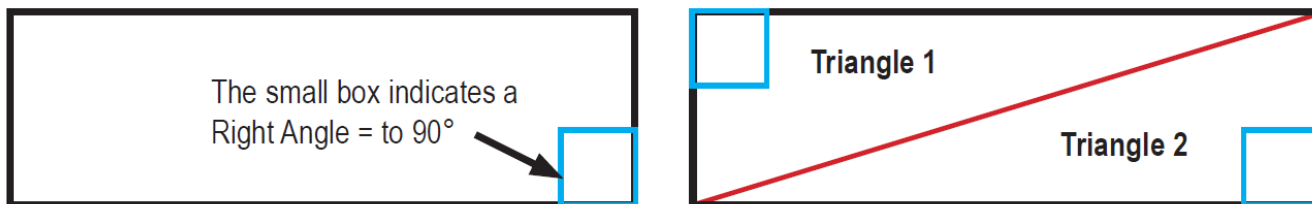


Triangles



Look closely at the objects around you, add a single diagonal line and you can create a triangle. A **triangle** is a three-sided figure that includes three angles. The angles always add to 180° (degrees). Triangles are used in architectural designs, for building, bridges, and other structures.

The three angles of a triangle must always equal 180° . Notice the rectangle to the left, each of its angles measure 90° , for a total of 360° . If you draw a diagonal line through the rectangle, as shown on the right, two triangles are created, each totaling 180° . Sometimes you can think of a triangle as half of a rectangle.



Triangles are classified by the length of their sides, the angle measurements, or a combination of both. There are special names given to the different types of triangles. A few of the terms may be familiar to you since they are also used to identify types of **angles**, which are made by combining two rays.

Triangles are often used in construction because they are much stronger than using rectangles. They also have been found to be helpful in making structures that are more earthquake resistant.

Types of Triangles

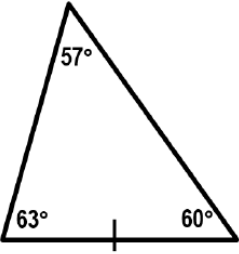
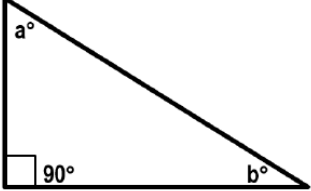
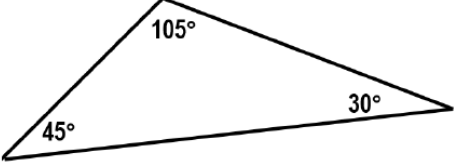
Triangles may be classified by the length of the lines that create them. However, for all triangles, the total length of any two sides of a triangle will always be greater than the length of the third side.

Triangles Classified by Length of the Sides

<p><u>Equilateral Triangle</u></p> <p>All three sides are the same length, and <u>each</u> of its angles equal 60°.</p>		<p>Remember <u>equilateral</u> by recognizing the word contains <u>equi-</u>, which means <u>equal</u>, and lateral referring to the sides. All sides and angles are equal.</p>
<p><u>Isosceles Triangle</u></p> <p>Two equal sides and two equal angles. The equal angles must remain equal.</p>		<p>Remember <u>isosceles</u> by recognizing the word has two e's in the word, which could mean 2 <u>equal</u> sides and 2 <u>equal</u> angles.</p>
<p><u>Scalene Triangle</u></p> <p>There are no equal sides and no equal angles.</p>		<p>Remember scalene is an odd word, which will mean all the angles and sides are odd and different too.</p>



Triangles Classified by Angle Size

<p><u>Acute Triangle</u></p> <p>Each angle must be less than 90°</p>		<p>Remember <u>acute</u> by recognizing the word includes <u>-cute</u>. Think of a <u>cute</u> and small bably means smaller angles.</p>
<p><u>Right Triangle</u></p> <p>It must include a right angle regardless of the other two angles.</p>		<p>Remember <u>right</u> by recognizing that there must be an angle equal to 90 for it to be right.</p>
<p><u>Obtuse Triangle</u></p> <p>It has one angle measuring more than 90°</p>		<p>Remember <u>obtuse</u> sounds like <u>obese</u> or large, meaning an angle larger than 90°.</p>

Finally, triangles can also be classified by combining the different types. For example, there could be a right isosceles triangle, which has a right angle and two equal sides. Can an equilateral triangle also be an acute triangle? The answer is yes, since an equilateral triangle has all angles under 90° . What other combinations can you think of?

Understanding the types of triangles will help you when working on geometry problems. The field of mathematics called **trigonometry** is the study of the relationship between the angles of triangles and their sides.



**Which of the triangle types would best represent you?
Why?**



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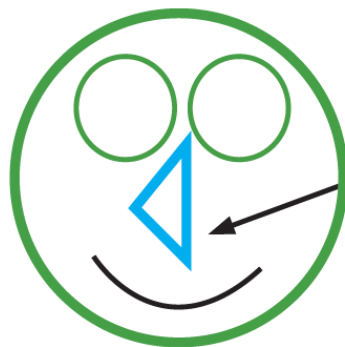


Activity

Name _____ Date _____

1. Supplies: Straws, scissors, glue, construction paper, colored pencils, ruler, protractor.
2. Draw a building, structure, or other object, using each of the following triangles: (6 separate drawings)
 - Right Triangle
 - Isosceles Triangle
 - Equilateral Triangle
 - Scalene Triangle
 - Right Triangle
 - Acute Triangle
3. Measure carefully. You may draw the triangle and then build a structure around it.
4. The straws will then be incorporated into the drawing as shown in the example below.
5. Each triangle must be used in a different type of building or object. For example, you can only use a house one time as one of the objects.
6. Glue the straws to the drawing of the structure or object.
7. Below each triangle/drawing, include a brief explanation of the type of triangle being used.
8. Finally: Be creative!!

Example: (Do not use.) A right triangle used as a nose in a drawing of a face.



*Staws showing 90° angle,
turned into a nose.*

A right triangle has one 90-degree angle.

The other two angle must equal 90 degrees and can be any size.

