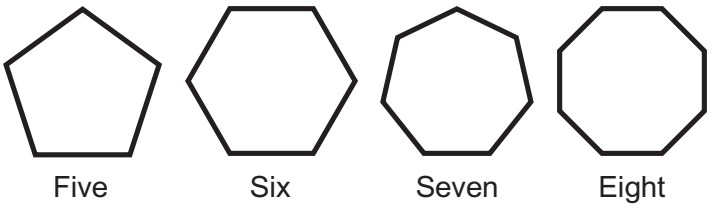
A Nickle's Worth of Knowledge: Shapes

Some shapes are flat, with an up and down and a right and left, for example a **square** (like piece of paper) or a **circle** (like the face of a clock). Some shapes are solid, with an up and down, a right and left, and a front and back, for example a **cube** (like the sugar you drop in your coffee) or a **sphere** (like the classroom globe or a baseball). The following shapes are all examples of flat (or plane) geometrical shapes.

Circles are pretty simple. The distance along a line from the center of a circle to its edge, like the spoke on a wheel, is its **radius**. The length of a line that goes all the way across from edge to edge through the center, like when you cut a pie in half, is its **diameter**. Two radii add up to one diameter. Any piece of the circle itself is an **arc,** and that's the shape we see in a rainbow. And a line that goes from one point on the circle to another point without passing through the center the way a diameter does is called a **chord**: Think of the bottom of a flat tire in a cartoon. And if you flatten or stretch a circle until it is no longer perfectly round, you get an **oval**, sometimes called an **ellipsoid**.

Triangles have three sides called **legs**. If all three legs are the same length, like the shape of a DANGER sign or a school crossing sign, it is an **equilateral triangle**. If only two legs are the same length, like a pine tree or maybe an arrowhead, it is an **isosceles triangle**. Whatever the length of the legs, if any two are joined squarely—that is at a **right angle**—it is a **right triangle** and looks like a ladder leaning against a wall. And if any two legs are joined at an angle wider than a right angle, it is an **obtuse triangle**, like a kid doing the splits until it really, really hurts. "Obtuse" also means thick-headed, which is the way most of us feel when we try to talk about math.

Squares are part of a family of four-sided shapes called **parallelograms**. The sides of a square are all the same length and the angles that join them are all, well, square, or right angles. If the up and down sides are longer than the right to left sides, or vice versa—like a square that has been either stretched-out or squashed—it is a **rectangle** (and sometimes called an **oblong** shape). If the up and down sides (or the right to left sides) both slant, but in the same direction, it is a **rhomboid** and makes you think of a lazy square leaning up against something. If the opposite sides slant in different directions, it is a **trapezoid** and looks like a triangle with its head sliced off. If the sides all go in different directions, it is a **trapezium**, which doesn't look like much of anything, except the path of a dog wandering around your yard.



Shapes with more than four sides are called **polygons**. They are named after the number of their sides. Five sides is a **pentagon**, like the military building in Washington, six is a **hexagon**, seven a **heptagon**, and eight an **octagon**, which is the shape of a STOP sign. ◆

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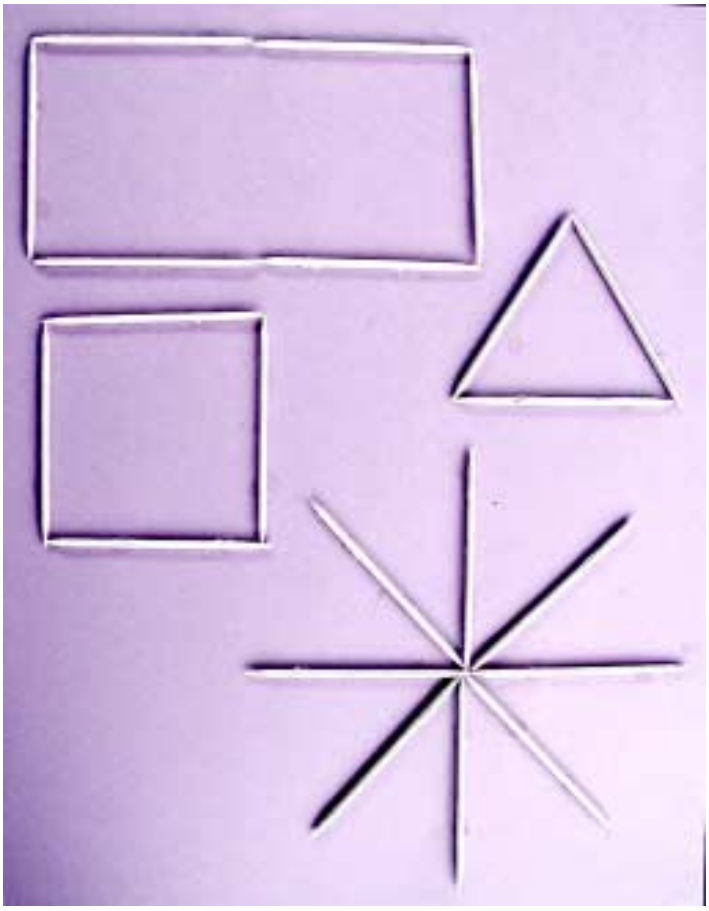
article for math lesson plan



Dip the ends of toothpicks into white glue and stick them onto a sheet of construction paper to define the sides of some shapes as shown here.