



# TAKE IT TO THE MAT

A NEWSLETTER ADDRESSING THE FINER POINTS OF MATHEMATICS INSTRUCTION



Southern Nevada Regional Professional Development Program  
October 2004 — Elementary School Edition

[www.rpdp.net](http://www.rpdp.net)

Welcome back to another year of *Take It to the MAT*, the RPDP newsletter focusing on mathematics instruction from Kindergarten through 12<sup>th</sup> grade.

One of the challenges in learning mathematics is coming to terms with its vocabulary. Mathematics has its own language, or more appropriately, mathematics is a language. It is the way Man attempts to unambiguously define how the universe works. But like all languages, sometimes it needs to be translated so that we may understand it. This is quite apparent when studying geometry.

Let's look at some geometric terms and their connections to words in our everyday language, as well as some root words that can help us understand the meaning of the vocabulary. First, we'll take a few fairly simple words like *triangle*, *quadrilateral*, and *polygon*.

We all know that a **triangle** is a plane figure with three sides, but the word actually means "three angles." The *tri-* prefix easily connects to other words in kids' lives: tricycle, triceratops, triple, or trio. *Tri-* comes from both Latin and Greek roots for "three", *tres* and *treis*, respectively. "Angle" is from the Latin, *angulus*. The Spanish word for triangle is *triangulo*.

**Quadrilateral**, like triangle, is composed of a prefix and a root word. *Quadr-* comes from the Latin *quadrate*, which means "square" or "four." *Lateral* is from the Latin words *latus* or "side." Thus, quadrilateral means "four sides." Students may connect these roots to quadruple, quadrant, quarter, or bilateral. (Of course, we should also deal with the prefix *bi-*.) Spanish words include *cuatro*, *cuadro*, and *cuaderno*.

**Polygon** means "many angles." It comes from two Greek words, *poly* for "many" or "more than one," and *gonia* which means "angle." While it's true that a polygon has many sides, that is not its literal translation. There are many words we adults use that have the prefix *poly-* in them. Are there any with which kids would be familiar? Maybe cartoon characters or toys? (Or the "Polyjuice Potion" from *Harry Potter* that allows one to change into many different things? Or does it simply have many ingredients? We may have to discuss that one.)

Could we create other words in geometry from these prefixes and roots? Could we speak of *trilaterals* or *quadrangles*? Why not? The former means "three sides," but is not often used in geometry, usually being reserved for meetings among three groups or people. Quadrangle is also rarely heard in geometric circles, no pun intended, but is often used to represent a rectangular area surrounded on all sides by buildings. Sometimes, the term is just shortened to "quad," as in a school courtyard.

The point is that many words in geometry, and their roots, have connections to other words in our everyday language. They are also similar to words in other languages.

Should we teach our kids Greek and Latin? The language of mathematics, and English for that matter, is made up primarily of words from Latin and Greek. If students have an awareness of the origins of either language, they will be better able to interpret unfamiliar words they may encounter.