



## TEACHER PAGE

### Lesson: Special Right Triangles-Bumblers

Teacher-Author: Judy Reihard

ASSET Animator: Jeff Kaslik and Yuwen Lee

Arizona Math Standard 4 Geometry and Measurement Grades 9-12

Articulated 4MH1-03 Make a net to represent a three-dimensional object;

4MH1-04 Make a three-dimensional model from a net; 4MH1-03 Solve problems using special case right triangles.

Old Arizona Math Standard 4 Geometry, Proficiency 1 Grades 9-12

4MP2-PO3 Solve applied problems using the Pythagorean Theorem.

#### Prerequisite Skills

The student must have a working knowledge of irrational numbers and being able to multiply and/or divide irrational numbers.

**Learning Objectives:** the student will be able to:

- determine that a triangle is one of the special care right triangles
- explain the special right triangle relationships
- explain the Pythagorean Theorem
- determine and apply the 45-45-90 relationship to an appropriate given problem
- determine and apply the 30-60-90 relationship to an appropriate given problem

#### Overview:

The students will be guided through the development of the 45-45-90 and 30-60-90 relationships. They will then apply those relationships to specific problems. Dig Deeper will develop their understanding of more difficult problems using the relationships.

#### Classroom Management:

This can be used in large group lessons, small group, or individual assignments. Each student will move through the lesson at differing speeds.

#### Engaging Students:

Provide Power Point slides of 45-45-90 and 30-60-90 triangles in which two of the sides are given. Set a contest up with the students and you, the teacher, to see who can find the missing side first. Do this after the students have studied the Pythagorean theorem but before introducing the relationships. Hopefully you will win for a while until the students figure out the relationship.

#### Follow-up:

Take advantage of the following opportunities. Find mathematics-teaching resources at: <http://www.evtpc.org/tutor> Tiling floors is part of this concept at work in SO WHAT! DIG DEEPER asks students to solve for the area around combined shapes. TALK ABOUT IT is a drawing activity with graph paper and pencils— student partners will be forced to talk about the concept.

#### Assessment:

Students must correctly calculate areas of shapes and combined shapes. There are hints and responses as the student moves through the SHOW.

