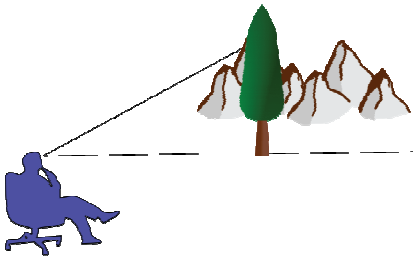
Pythagorean Theorem Life Application
Webquest Worksheet

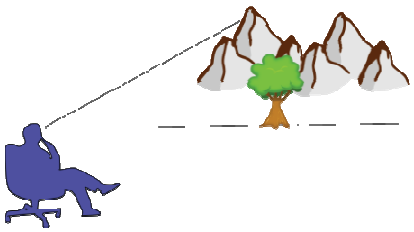
Life Application Phase 1: The Problem

Your neighbor offers to pay you to complete a landscaping project for him. The money he offered will cover your final payment for your senior trip, which will enable you to go to Florida with friends who will all be going to different colleges the following year. The project involves researching the sizes of trees that he likes and selecting and planting one that best meets his criterion.

The criterion is that the tree must not block his view of the mountains when it is full grown. The neighbor must be able to see over the top of the tree when he sits on his back patio. The distance from the ground to his eyes when he is seated is 4 feet. The distance from his patio to the end of his yard, where he wants to plant the tree, is 100 feet. The distance from his gaze, which is about 30 degrees above the horizontal, to the tops of the mountains is 115 feet.



The tree obstructs the man's view.



The man sees the mountains.

1. Draw a diagram of the problem and label any known and unknown information.

2. Your neighbor has selected five possible trees. Browse the following websites and note the height range for each tree.

   Pagoda Dogwood

   Bur Oak

   American Chestnut

   Sweetbay Magnolia

   Tulip Poplar

Life Application Phase 2: The Analysis

1. Create a table of values to compare and contrast the different trees with respect to your neighbor's criterion.
    - Enter the name of each tree.
    - Enter the maximum height for each tree.
    - Create a formula for calculating the distance from the top of each tree to the top of the mountains relative to the man's gaze.*
    - Enter the distance from the top of each tree to the top of the mountains.

Tree	**Maximum Height**	**Distance from tree top to mountain top***

*The distance from the top of a tree to the top of the mountains relative to the man's gaze will be the amount of mountains that the man is able to see above the tree if the tree grows to its maximum height. Don't forget to consider the 4 feet from the ground to the man's eyes when calculating this figure.

2. Select and recommend a tree for your neighbor. Which one did you choose and why?

Life Application Phase 3: Create Your Own Problem

In this final phase, you will create your own real-life problem that requires the Pythagorean Theorem to solve.

1. Review the following websites for ideas.

   Real Life Applications of Pythagoras' Theorem
   (Scroll down to "Real Life Applications of Pythagoras' Theorem.")

   Real Life Pythagorean Theorem examples
   (Scroll down to "Real Life Pythagorean Theorem examples.")

   Quandaries and Queries

2. Create an original problem scenario. Include at least one criterion that requires gathering information to compare and contrast two or more options.

3. Solve your problem by breaking it up into manageable chunks. Draw a diagram showing known and unknown information, create a table to organize your information, and use your table to analyze your information and find a solution. Defend your solution by showing all of your work. Attach any additional paper that you need to solve the problem.