

THE TRIGONOMETRY EXPLORER

Great Explorations in Algebra, Geometry, Science

Grades 9 and Up

New Version
1.5

Published by:
Cognitive Technologies Corporation

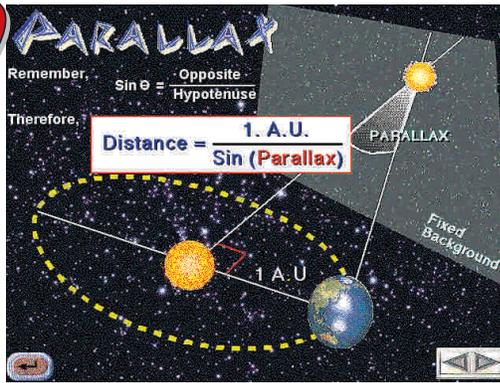
The Trigonometry Explorer provides a comprehensive overview of trigonometry fundamentals and helps students make connections from abstract concepts to the world around them. This engaging and easy-to-follow program builds many bridges from math to science, history, and everyday occurrences. *The Trigonometry Explorer* offers something for every student of trigonometry. For those who need to review the basic building blocks of trigonometry, the creative, animated and engaging lessons on degrees, angles and triangles provide a great starting place. The functions, plotting and inverse functions lessons are for those who have a grasp of the basics. For the student who is bored and uninspired with trigonometry, the applications on radio waves, sound, surveying and many more show how trigonometry is used to explain everyday phenomena and solve real world problems.

The lessons are presented in a logical, concept building format. There are many opportunities to interact with the subject matter. The plotting lesson allows students to explore how angles relate to points on a graph. Students can manipulate angles on a circle and see how the values of the plotted points change for the different trigonometric functions.

Students apply what they have learned to randomly generated practice problems. Answers are explained in a step-by-step approach.

"Teachers would enjoy using this exciting software in geometry and trigonometry."

—National Council of Teachers of Mathematics, September 1998 issue of *Mathematics Teacher*



Trigonometric Parallax: Students learn how to measure the distance to the closer stars with trigonometry.

Program Outline

Degrees

- Definition of degrees, positive and negative degrees, right angle.
- Latitude and longitude.

Angles

- Create angles, angle in standard position, coterminal angles, reference angle, angle names.
- Sextant.

π /Radians

- π defined and explored, arclength defined, radians, 2π radians in a circle, converting degrees to radians, and radians to degrees.
- Eratosthenes.

Triangles

- Create triangles, triangle types, triangle properties, triangle area.
- Trusses - bridges.

Right Triangles

- Pythagorean Theorem, hypotenuse, adjacent, opposite, ratios of sides, indirect measurement.
- Pythagoras.

Functions

- Right triangle in a Cartesian coordinate system, trig functions, explore right triangles in X-Y System, explore trig relationships, trig function signs, reciprocals.

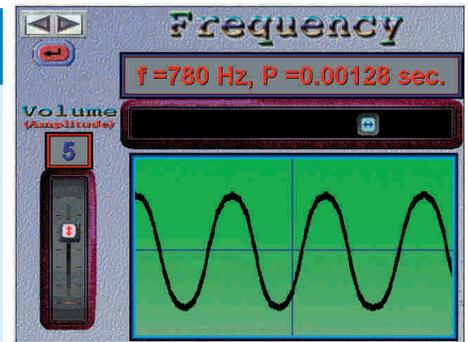
- Parallax, Clinometer, Surveying (Law of Sine).

Plotting

- Explore amplitude, period and phase shift of sine, cosine and tangent.
- Introduces waves.
- Sound, Radio Waves, Color and Light, Addition of Ordinances.

Inverse Functions

- Arcsine, arccosine, arctangent, standard position angle using the arctangent.
- Refraction, Polar Coordinates, Pythagorean Identity.



Sound:

Explore tones with frequency, amplitude and period.



The TRIG Explorer Mac/Win CD-ROM

| | Product # | |
|----------------------|-----------|-----------|
| Home Version | 1 | \$39.95 |
| School Version | 2 | \$99.95 |
| 5 Lab Pack | 3 | \$259.95 |
| 10 Lab Pack | 4 | \$399.95 |
| 20 Lab Pack | 10 | \$699.95 |
| Network/Site License | 5 | \$1199.95 |

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