

Guidelines for Teachers - Activity 3: Angle of Elevation

Description:

This activity comprises of a turtle and a man. In this program, a wall has been created on the terrain.

Objectives:

Upon completion of this activity, students should be able to

1. Calculate the angle of elevation
2. Appreciate the relationship between the various parameters (minimum distance, height of man, turtle and wall and angle of elevation)

Student's Prerequisites:

Students should be familiar with:

- Calculation of angle of elevation using basic right angle triangle trigonometry

Student's Task:

1. Students will create a program to move the turtle and man.
2. Students will position the turtle on the wall.
3. Students will determine the minimum distance the man must be from the wall so that the turtle can see him.
4. Students will investigate the relationship between the various parameters such as the minimum distance, the height of the man, turtle and wall and the angle of elevation.

Lesson:

Before students start individual/pair work:

1. Illustrate use of blocks not encountered previously
 - *if-else* programming block and logic involved in using it.
 - *patch height* programming block
 - Demonstrate how to vary height of wall, man and turtle

This activity allows students to investigate how changing the various parameters affects the other parameters. It allows them to model different scenarios which allow them to make observations and draw conclusions for themselves. Through these experiences, it is hoped that students will have a greater understanding of how the various parameters are related.