The Shadow Knows: Student Worksheet

Name: _____

Hook

Can you determine the height of a telephone pole or tree without climbing to the top?

Group Arrangement

Students work in groups of 3 or 4

Tools

- 1 short metric measuring tape
- Sunshine

Procedure

1. Choose two students from your group. Measure their heights and the lengths of their shadows. Record your data in the table below.

Student Name	Height	Length of Shadow

2. Measure the length of the 3rd and 4th students' shadows. Record their data in the table below.

Student Name	Length of Shadow

3. Use the measurements in a ratio to predict the height of the 3rd and 4th students.

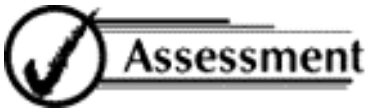
   Formula:

$$\frac{\text{Height of Student 1}}{\text{Length of Student 1's Shadow}} = \frac{\text{Height of Student 3}}{\text{Length of Student 3's Shadow}} \quad (x)$$

   Cross multiply and divide to find student 3's height.
   Repeat for student 4.

4. Pick a nearby object (tree, telephone pole) and measure its shadow length. Use the previous ratio to find the height of the new object.

As a result of this activity, students will be able to determine heights of objects that cannot be directly measured.



Compare results from different group findings.
What applications would this activity have in the business world?
What occupations would need this skill to do their job?