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6. How Steep Is It?

Context

money

Topic

ratios, proportions and percentages

Overview

In this activity, students measure the access ramps at their school to determine their slope.

Objectives

Students will be able to:

- set up ratios and determine slope

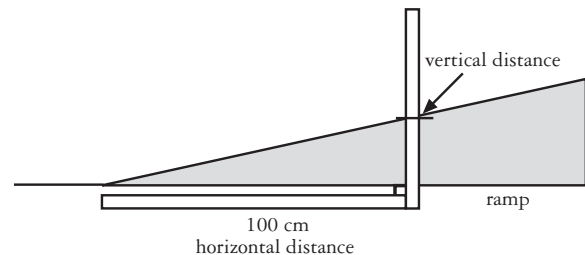
Materials

- one copy of the Activity 6 handout for each student
- metre rulers (two per group of students)

Teaching Notes

- Students can work with a partner or in small groups for this activity.

- To measure the slope of a ramp using two one-metre rulers, place one ruler along the side of the base of the ramp, with one end at the bottom edge of the slope. Place the second ruler at a 90-degree angle to the first. Measure the distance on the vertical ruler from the ground to the surface of the ramp at that point. This distance is the rise, or vertical distance. The horizontal distance will be the length of the ruler. You may need to demonstrate this procedure. See the diagram below.



- If there are no access ramps at the school, students can conduct a similar investigation by finding the slope of stairs.
- If necessary, have students add rows to the table for additional ramps.

Answers

Answers will vary depending on the slope of the access ramps at your school.

Extension Activity

Have students investigate the Australian standards requirements for disability and ramp access and find other instances where mathematics plays an important role.

6. How Steep Is It?

Australia has certain standards that need to be adhered to with regard to access for people with disabilities. An important part of the standards requires that access ramps be built to meet certain specifications with regard to slope. By working through this investigation you will be able to determine if the access ramps at your school meet the Australian standard specifications.

Australian Specifications for Access Ramps

The Australian standards specify that the least slope possible should be used for any ramp. The maximum slope of a ramp in a new building should be 1:10. The maximum rise for any run should be 760 millimetres.

1. Measure the access ramps at your school. Record your findings in the table below.

Access Ramp Specification

Ramp location.	Vertical measurement	Horizontal measurement	Ratio	Decimal equivalent	Percentage equivalent
1.					
2.					
3.					
4.					
5.					

2. Draft a memo to the principal stating the results of your investigation.