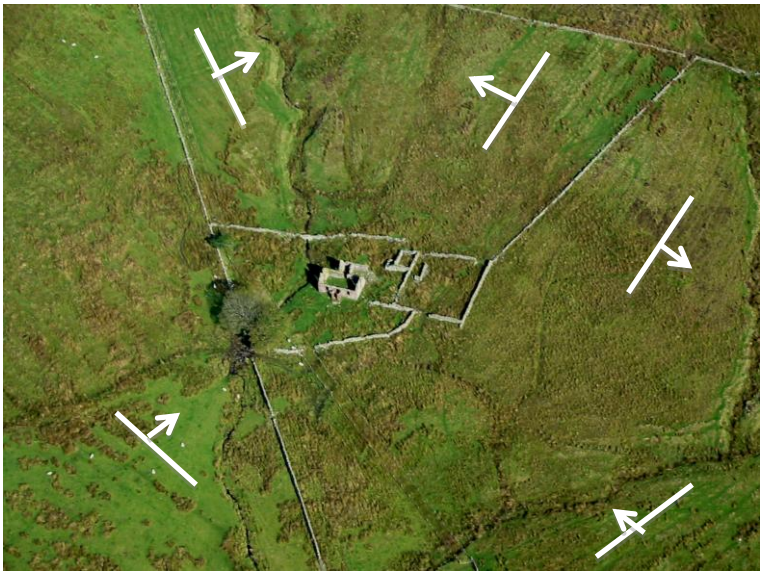
Soil Creep (Gravity) – Student Activity



An aerial view of soil creeping down valleys after sheep farming has removed trees.

Testing soil creep

Materials per student or group

- 1 laboratory tray
- Dry soil or sand (from sand pit or long jump pit)
- Bricks or books
- A protractor
- A ruler
- Water and a measuring cylinder

Part 1

1. Fill your tray to an even depth of 1 cm. Use a ruler to produce a level surface.
2. Use bricks or books to raise one end of the tray until it slopes at the angle your teacher will suggest for your group.
3. Leave the tray in this position for 5 minutes
4. Return your tray to level
5. Measure the height of soil or sand at the bottom of the tray
6. Repeat twice more and average your three readings
7. Enter your data into the sheet provided

Part 2

1. Add 500mL of water to the sand or soil in your level tray and mix well
2. Return your tray to the slope you used previously
3. Leave for 5 minutes
4. Measure the height of the sand at the bottom of the tray three times and average the readings
5. Enter your data on the sheet provided.

6. Add other group's data to fill the table

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Part 3

Graph the results and answer the questions.

Slope	Increase in depth of dry material (mm)				Increase in depth of wet material (mm)			
	1	2	3	Ave.	1	2	3	Ave.
15^0								
20^0								
25^0								
30^0								
35^0								
40^0								

Students often confuse accuracy and precision. If you only choose to take slope readings at 5^0 intervals your readings will be accurate. If you take readings at 1^0 around where the slope became unstable you will be more able to measure the slope precisely. Accuracy is a matter of reading technique whereas precision is a matter of choice of tools

Why did we take three readings and then average them? _____

_____

When the slope increased what happened to the soil? _____

What could be done to make the readings more precise? _____

_____

When you added water, what happened? _____

_____

To the north of Australia lie many mountainous volcanic islands. Weathering in the tropics is rapid and deep rich soils are produced which are excellent for farming. Mudslides are a common hazard at certain times of the year. What would be the main triggers for mudslides?

_____

_____

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