

WestFest

SCIENCE & SUSTAINABILITY

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Landslide Game

A landslide is sliding rock or soil from a mountain or a cliff that is caused by a disturbance - such as heavy rainfall, erosion, an earthquake, or a volcanic eruption. The amount of material in the slide could be as small as debris flow (with enough rock to fill a competition swimming pool) or as large as an entire mountainside (the largest recorded landslide happened during the eruption of Mount St. Helens). Landslides behave differently based on the types of rock and soil. This activity simulates landslides using different materials.

Materials

Sand	Clear plastic bowl	Plate (from your kitchen)
Water	Playing card	Pennies
Flour (optional)		

Directions

1. Mix enough water with the sand so that it holds its shape when packed. To do this, add a tablespoon of water, mix with your hands, and test that the material holds its shape. If needed, add one tablespoon at a time until it packs.
2. Scoop and pack the material into the bowl. Level it off at the top, just like you are going to build a sandcastle.
3. Using the plate, cover the bowl and flip it over so that the bowl is now upside down on top of the plate.
4. Gently lift the bowl so that a mound of sand is left on the plate. Once again, this process is similar to building a sandcastle. The mound represents a hill.
5. Carefully place two pennies on top of the mound in the very center. These pennies represent a house.

6. Take turns cutting the material vertically with the playing card. Make each cut half the distance between the penny and the edge of the mound. Each cut should be 90 degrees from the previous cut.
7. After four cuts, you will have cut completely around the mound. Repeat with process by cutting half the distance between the penny and the new edge of the mound.
8. Once a landslide occurs below the penny, the game ends. Record the number of cuts that you made in the observations table below.
9. Repeat steps 2 to 8 a second time for the sand and record your results.
10. (Optional) Repeat steps 2 to 9 with flour. Use any type of flour in your kitchen - wheat, corn, almond, etc. – but make sure to skip step 1. DO NOT ADD WATER.

Observations

Sand – Trial 1	Sand – Trial 2	Flour – Trial 1	Flour – Trial 2
# of cuts:	# of cuts:	# of cuts:	# of cuts:
notes:	notes:	notes:	notes:

Questions

1. Which material is the most likely to “landslide”? What is your evidence?
2. Describe the strategies that worked best when cutting the material to avoid a landslide. Did it ever happen accidentally when you were taking the bowl off the mound or when you bumped the plate?
3. Did the landslide always happen immediately when the cut was made or was there sometimes a delay or something else that happened first?
4. If you were building a house and you had a choose to build on one of the materials you tested, which would you choose? Why?
5. Do you think that really dry sand or sand that is soaked with water would landslide more or less easily? Try it!

