COORDINATES: 38°N, 112°W

TWITTER TIME

7:19 AM
We've spent the last few days here looking at the layers to make detailed drawings, with objects drawn to scale and labelling rock types. This was a pretty big event, and some people lost their homes...

7:23 AM
Fortunately, before the landslide there were cracks that appeared in the upper part of the slope and then a slump – where the ground dropped. So, people evacuated in time.

7:26 AM
Besides all of the water from storms that saturated the soils, this area has other hazards including the steep slope. Never camp at the base of a steep cliff, just to be safe! 🔥

8:04 AM
Drones make it easier and safer to study these sites. Glad that my recent upgrades gives me a maximum range of about ½ mile.

9:51 AM
You can drill down into bedrock to study Earth's past...deeper layers are usually older and shallower layers are usually younger. But...

9:54 AM
it's so much easier if you can see the layers from the side of a cliff. No that I don't enjoy the hiking.

10:07 AM
This cliff is held up by a strong well-cemented sandstone that is resistant to weathering, but the weaker mudstone below it makes the slope unstable.

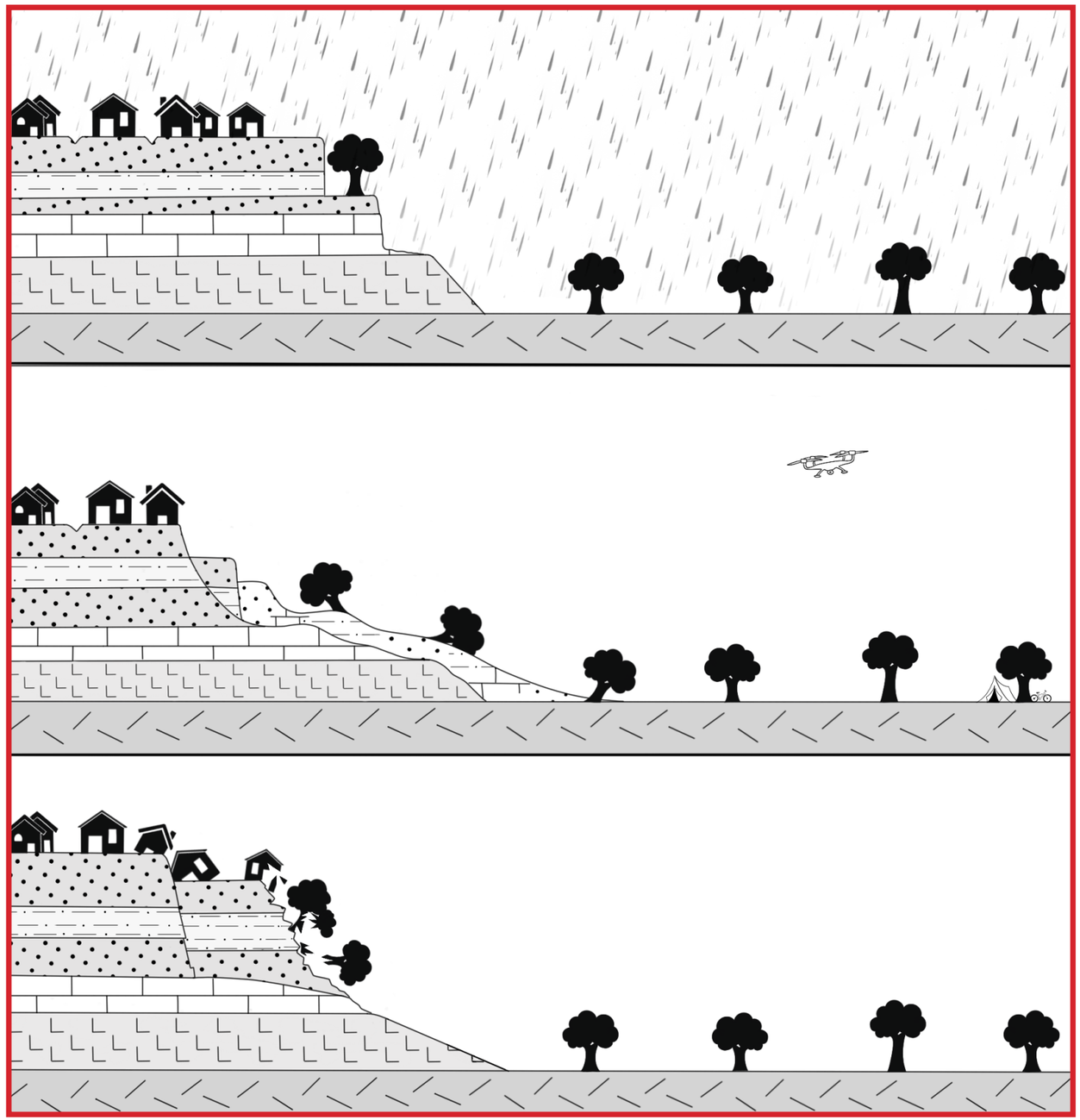
2:44 PM
Landslides aren't just something that we study today to understand where to avoid placing buildings but also a way to study events long ago.

4:36 PM
I use landslides from millions of years ago to learn why large landslides travel fast enough to melt rock. 🎥

4:41 PM
This drone footage is from the Sevier gravity slide in Southwestern Utah, one of the largest landslides geologists have ever found in the rock record!

4:54 PM
Wonder how big everything is in the video? Check out the trees for scale...

6:08 PM
Everyone was too exhausted for board games tonight, maybe Settlers of Catan or Ticket to Ride tomorrow. 🎲



Scale

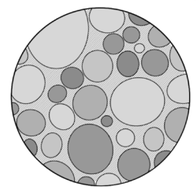
0 Mile — 1/4 Mile

- Sandstone
- Mudstone
- Limestone
- Basalt
- Granite
- Mixed rock

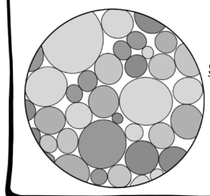
MICHAEL'S NOTES

Landslide Hazard Checklist:

- ☑ Slope angle (steepness)
- ☑ Water saturation
- ☑ Rock type and strength
- ☑ Weather and climate
- ☑ Vegetation



Extremely Wet and Saturated Soils
Grains pushed apart reducing soil strength.



Slightly Wet and Dry Soils
Grains touch, increasing soil strength.

Eyed a Slide

Landslides are a geohazard.
A risk to structures built haphazard.

Knowing rock types, slope angle, faults, and distance.
Allows a better understanding of risk's existence.

Slides may be triggered by quakes,humans, water, and eruptions.

Looking at the rocks shows us the details of the disruption.

Engagement Activity: Geo-Slides Game

Activity How-To Video

A landslide is sliding rock or soil from a mountain or a cliff caused by a disturbance - such as a rainstorm, erosion, earthquake, or 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 type of rock and soil. This activity simulates landslides using different materials.

Materials:

- Sand (to fill cereal bowl)
- Flour (to fill cereal bowl)
- Water
- Clay and Potting Soil (optional)
- Mixing Bowl
- Cereal Bowl
- Rulers
- Dinner Plate
- Pennies - 2
- Scoopers or Measuring Cups

Directions:

1. Start with sand. Mix in enough water so that the material holds its shape when packed. To do this, start with 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 cereal bowl. Level it off at the top with the ruler, just like if you are going to build a sandcastle.
3. Using the dinner plate, cover the bowl and flip it over so that the cereal bowl is now upside down on top of the plate.
4. Gently lift the cereal bowl so that a mound of material is left on the plate. This process is similar to building a sandcastle.
5. Carefully place two pennies on top of the mound in the very center.
6. Take turns cutting the material vertically with the ruler. 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 table below.
9. Repeat steps 2 to 8 a second time using the sand and record your results.
10. Repeat steps 2 to 9 with the flour in place of sand.
11. (Optional) Use clay or potting soil in place of sand and flour.

Observations:

Sand – Trial 1 # of cuts: Notes:	**Sand – Trial 2** # of cuts: Notes:	**Flour – Trial 1** # of cuts: Notes:	**Flour – Trial 2** # of cuts: 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.
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 choice to build on one of the materials you tested, which would you choose? Why?

A ridge near my research site.

Making observations.

Michael Braunagel

Finding a safe route.

With my team!