Landslide Impact
2024NHERI SimCenter REU
University of California Berkeley
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Summary
Provide a pizza party. Then, use the pizza boxes as a means to teach about landslides.

Engineering Connection
Show students what their hands-on Simulation would look like in R2D.

Audience
Grades 3 through 5

Lesson Objectives
Engage the students with hands on and visual representations of landslides and the impacts they have on the individual and society.

Educational Standards -

Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity. [Clarification Statement: Examples of factors that affect the management of natural resources include costs of resource extraction and waste management, per-capita consumption, and the development of new technologies. Examples of factors that affect human sustainability include agricultural efficiency, levels of conservation, and urban planning.] [Assessment Boundary: Assessment for computational simulations is limited to using provided multi-parameter programs or constructing simplified spreadsheet calculations.]
Middle School: Disruptions in Ecosystems. This middle school unit was designed to support the middle school NGSS related to Ecosystems: Interactions, Energy, and Dynamics integrated with elements of related Earth science NGSS (Human Impact). The unit includes five chapters, each focused on a specific phenomenon related to ecosystem disruption, including questions around the reintroduction of wolves into Yellowstone and the invasion of zebra mussels in the Great Lakes and the Hudson River.

Material List
- Pizza boxes

- Playdough
- Sediment
- Soil
- Sand
- Ruler
- Broom
- Clorox wipes

Introduction
Historically, landslides have been an issue in the wake of earthquakes due to lose sediment. Earthquakes alone are an issue causing massive damage in Northern California. Our experiment aims to highlight the risks immediately following earthquakes and the compounding effects of chained natural disasters.

Procedure
- **Background knowledge:** Explain landslides with the presentation. (What is a landslide, how landslides affect communities and their own community to establish a personal connection). The last slide of the presentation will have 5 questions to ask the class about the presentation, that will be answered after the pizza party for a prize (to keep everyone engaged)
- **Before the activity:** Have the pizza party and give out prizes.
- **During the activity:**
  - Break into groups of 5.
  - Have everyone make items with playdough.
  - Two people hold the pizza boxes as a ramp. One person that will dump the collection of materials (sediment, soil, sand) onto the ramp, one person with a stopwatch and another person in charge of measuring.
  - The playdough represents cars, trees, buildings, if they get touched by the “landslide” they have to mark it down.
  - Have the students do 3 trials (Each with different slopes) and calculate: the distance the debris goes, how many items get hit, how far each type of debris goes. Then record statistics.
- **After the activity:** Reflection and recess

Assessment
A brief presentation will be given, containing around five questions regarding the contents of the experiment. These questions will be up for the duration of the experiment and will encourage the students to be thinking about the experiment during the process.

Wrap-up
To wrap up the lesson we will have the students share their favorite part of the day and ask any remaining questions they have. There will also be a group discussion centering around the questions from the assessment portion of the experiment.