

Mini-Landslide Activity

1. Divide the class into three teams (approximately 8-10 students per team).
2. Have each team construct three houses with the cardboard stock (for a total of nine houses).
3. Next, assign each team to test the properties of one of the following materials: sand, gravel or lava (potting) rock. Each group performs three trials, assisted by the instructor, while the rest of the teams watch and record measurements on their worksheets.
4. Begin the experiment by cleaning off the flood plain and having students place their houses in three locations relative to the debris chute. During the experiment trials, students will predict whether or not certain locations are safe from the landslide. Label the houses (1, 2, 3) with numbers on the rooftops.

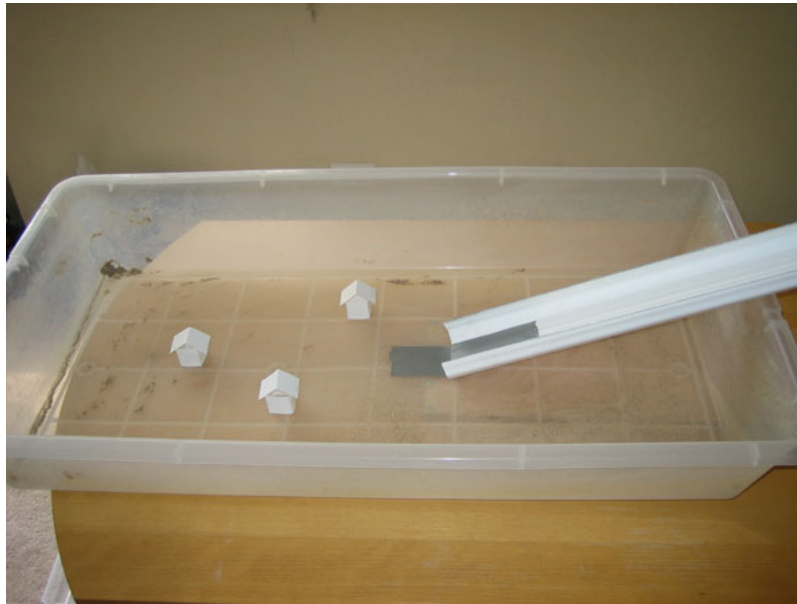


Figure 4. Placement of model houses in flood plain at the base of the landslide chute.

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5. Ask the students to make predictions. Which of the model buildings will be "damaged" (moved from their original location, or worse) during each landslide trial? Have students record their prediction on their worksheets.
6. **Trial 1:** Make sure the chute is at the shallowest angle allowed by the bin (see Figure 5). Using a small paper cup, place a one cup of sand at the top of the chute (see Figure 5). The material should not slide down the chute at this shallow angle.

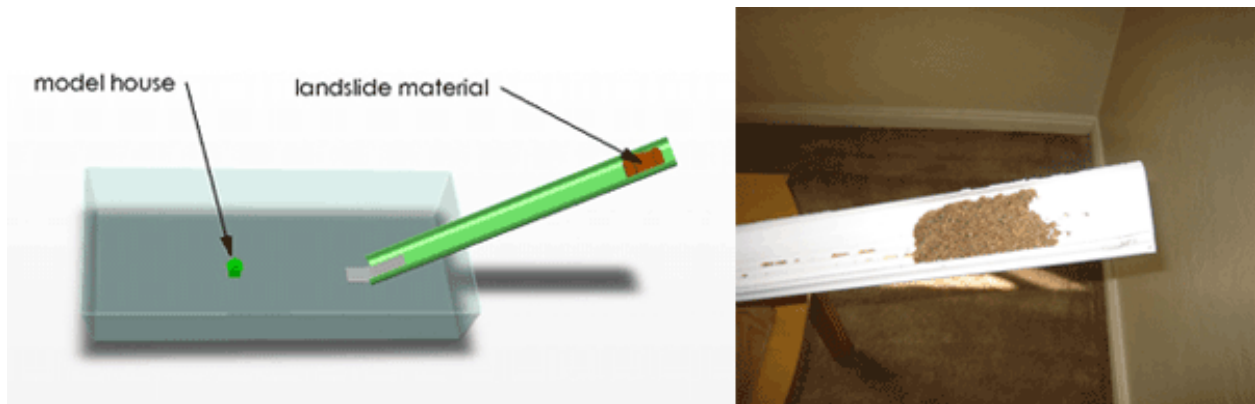


Figure 5. Placing material in the landslide chute.

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7. Next, increase the angle of the slope until the material is on the verge of sliding. Then, simulate an earthquake, a common trigger for landslides, by shaking the chute. The material is not expected to go very far on this trial. It may not even make it out of the chute.
9. Secure the chute at this angle by placing books (or a stool or chair, as necessary) under it and taping it in place. Prepare for the next trial.
10. **Trial 2:** This time, place the material in the chute and have a student bring you a paper cup one-quarter full of water. Pour the water into the chute above the material and observe what happens (see Figure 6). Have students record their observations on their worksheets.



Figure 6. Houses after trial using $\frac{1}{4}$ paper cup of water.

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11. **Trial 3:** The third trial is similar to the second, except with more water. Use a paper cup half full of water. Pour the water into the chute above the material and observe what happens. Have students record their observations on their worksheets.
12. Repeat this procedure with the other two teams for the other two materials.