

# The Earthquake Machine (Activity 1 of 2)

This Earthquake Machine (Activity 1 of 2) introduces the basics of an active fault system through a qualitative approach. Using simple and cheap supplies, students learn about the stick-slip behavior of faults and the frictional forces that give earthquakes their unpredictability.

## Learning Objective:

Students will:

- Use the earthquake machine model to demonstrate the causes of earthquakes, noting the flow of energy through the system.
- Describe basic physics concepts to include sliding and static friction, forms of energy and conversion from one form to another, and the elastic properties of materials.

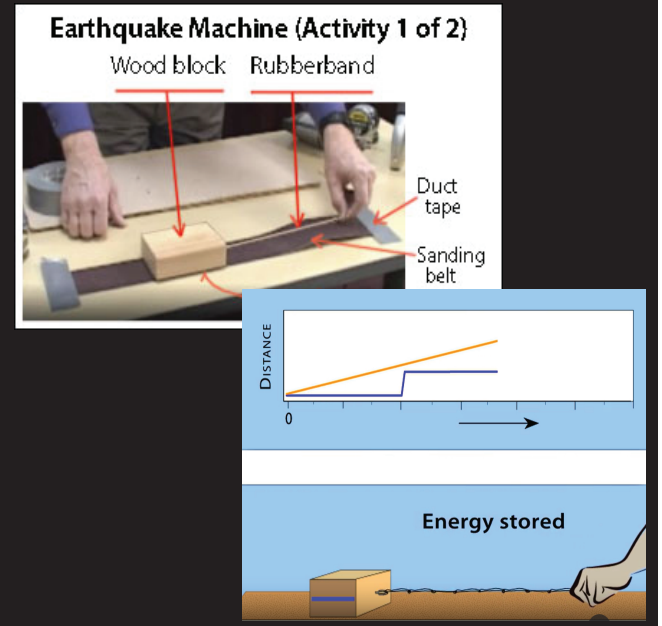
## Steps

Step 1: **Introduce the Model:** “This machine helps us see how stress builds and releases along a fault.”

Step 2: **Run it Slowly:** Let students observe “stick-slip” behavior and identify where energy is stored vs. released.

Step 3: **Explain the Science:** Discuss forces, friction (static vs sliding), and energy transformation (potential to kinetic energy).

Step 4: **Model-based Reasoning:** Students make a T-chart with “Model Shows” and “Model Does Not Show” headings. Ask, “What does this model capture well and what can it not show?”



Also featured in an activity

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**ShakeAlert**



- Use Newton scales for quantitative observations.
- Use different sandpaper grits and/or different number or sizes of rubberbands for variables.
- NGSS: MS-ESS2-2, MS-PS2-2, Developing and Using Models, Stability and Change

Find more at [earthscope.org](http://earthscope.org)!

