



BUILDING A SIMPLE SEISMOGRAPH

A seismograph is an instrument that detects and records ground motion, such as earthquakes.



GOAL

Build a simple seismograph and use it to detect and record ground motion.



MATERIALS

- Small cardboard box (open on one side)
- String (about 30–40 cm / 12–16 in)
- Small weight (washer, nut, or metal bolt)
- Toilet paper roll
- Wooden skewer or pencil
- 2 drinking straws or small cardboard tubes
- Tape
- Paper
- Marker or pen
- Scissors
- (Optional) Ruler



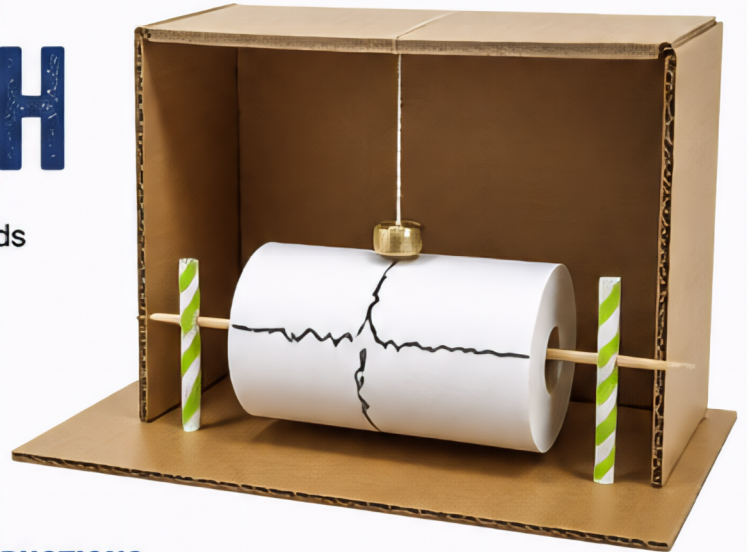
SAFETY

- Use scissors carefully.
- Do not swing the box wildly.
- Keep small parts away from young children.



INSTRUCTIONS

1. **Build the Frame:** Turn the cardboard box on its side so the opening faces you. This is your seismograph frame.
2. **Make the Paper Drum:** Wrap a sheet of paper around the toilet paper roll. Tape it so it stays in place.
3. **Install the Drum:** Insert the wooden skewer or pencil through the roll so it can spin. Rest each end on a straw or tube that is taped inside the box as supports.
4. **Make the Suspended Weight:** Tie the string to the weight. Tape the other end of the string to the center of the top of the box so the weight hangs down over the paper drum.
5. **Position the Pen:** Lower the weight so it just touches the paper on the drum. It should be light enough to let the drum turn smoothly.
6. **Test It:** Gently shake or tap the box from side to side. Watch the weight stay mostly in place while the drum moves and records the motion as a wavy line.
7. **Record Observations:** Try different kinds of motions (slow push, quick tap, strong shake). Compare the lines your seismograph makes.



OBSERVATIONS

1. What did your seismograph record when you tapped the box lightly?

2. What happened when you shook the box more strongly?

3. How did changing the speed or strength of the motion affect the recording?



THINK & LEARN

1. Why does the weight stay in place when the box moves?

2. How is this similar to how real seismographs work?



CHALLENGE: Can you improve your seismograph to make clearer recordings? What changes will you try?