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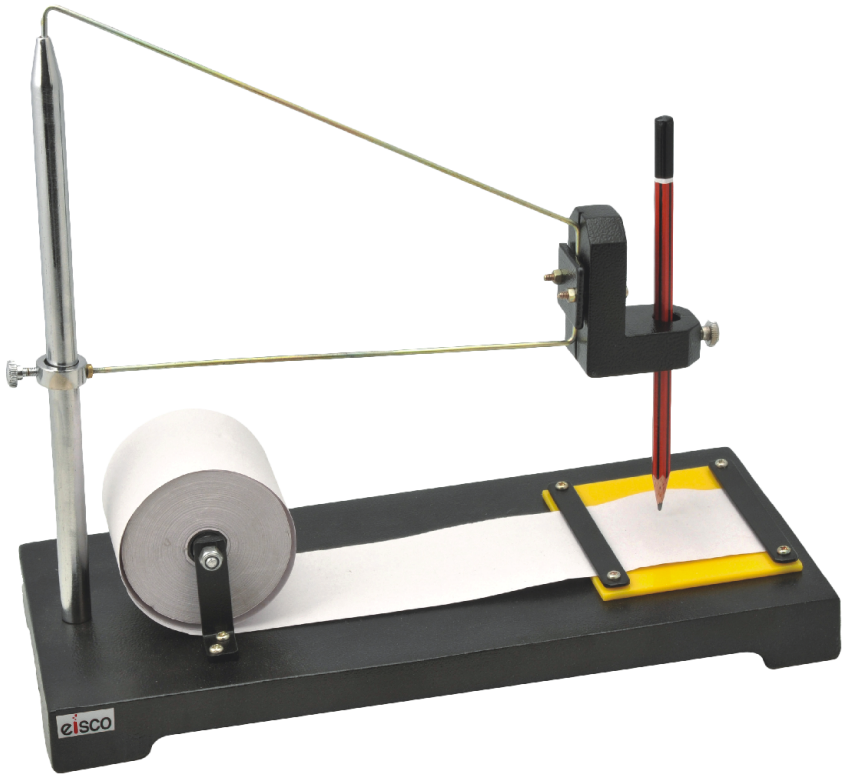
SEISMOGRAPH MODEL

CAT NO. BG0014



Instruction Manual

INTRODUCTION

Seismographs are used to measure the frequency and intensity of seismic waves generated by earthquakes. This freestanding model is designed to simulate these measurements by running a pencil over a roll of paper.

KIT COMPONENTS

Name of Part	Quantity
Seismograph Metal Base	1
Seismograph Arm	1
Standing Metal Rod with nut	1
Paper Roll	1
Pencil	1

GENERAL BACKGROUND

Earthquakes are caused by the shifting of rocks underground. As the rocks slide past each other, they release energy in the form of seismic waves. These waves travel through the earth's crust and cause shaking at the surface. These tremors can lead landslides, floods, and tsunamis, not to mention damage to people's buildings and homes.

For this reason, it's important to know when and where earthquakes are likely to occur. Seismographs are used to track the location of an earthquake, and can measure how strong of a movement has occurred. A sensitive needle within the seismograph oscillates with subsurface movement, recording the amplitude on a roll of paper.

The Richter scale is used to contextualize this amplitude and estimate the magnitude of energy released during an earthquake. The scale runs from 1 to 10 on a logarithmic scale, with each level measuring ten times stronger than the previous level.

This model simulates all the parts of a seismograph and can produce a record of localized movement. The measurements made by the seismograph can be studied and analyzed, allowing students to compare several different seismic events.

ASSEMBLY

Remove the nut from the standing metal rod, and insert rod into the metal base via the hole behind the paper roll. Reattach the nut to the rod on the underside of the metal base, and tighten. Attach seismograph arm to the metal rod using the clamp, threading the upper arm into the opening at the top of the rod. The end of the arm should be 2”-3” above the yellow plate on the metal base. Unwrap paper roll and feed through the metal over the yellow plate. Insert pencil into the clamp over the yellow plate and tighten, making sure the pencil tip is making contact with the paper.

IDEAS FOR CLASSROOM USE

- **Magnitude:** Ask one student to jump next to the seismograph, then have the entire class jump next to the seismograph. Have students measure and observe differences in the seismograph reading.
- **Proximity:** Have students jump near the seismograph, then take a step back and jump again, repeating until the seismograph no longer registers the tremor. Have students measure how far the seismograph could record their motion.
- **Location:** Ask students to jump on one side of the seismograph, then the other side, and then in a full circle around the seismograph. Ask the students if the seismograph was able to tell any difference in where they jumped.
- **Wave Generation:** Not every reading on a seismograph corresponds to an earthquake. Challenge students to come up with other ways they might cause the seismograph to record motion.

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