



Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences –particularly students of color and girls – by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, engineering, and math accessible and fun to do at home. This STEMbook activity, resources, and more are available at www.projectexploration.org/stemathome.

In this activity, you will:

learn how seismometers work to measure earthquakes!



Supplies Required:

6 paper cups
1 ball
Modeling clay

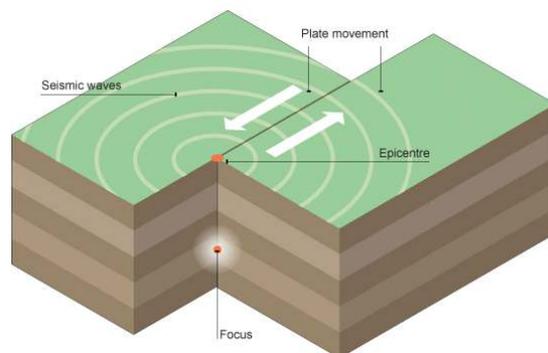
Pencil
Tape
Paper

Video

What is an earthquake? <https://tinyurl.com/hg4fcrz>

Overview

What is an earthquake? Earthquakes are the shaking, rolling, or sudden shocks of the Earth's surface. They are the Earth's natural means of releasing stress. Earthquakes, also known as temblors, occur along areas of weakness in the subterranean rocks that make up the Earth's crust. Ordinarily, the rock layers on either side of these zones, or faults, are held in place by friction. But when the friction is overcome by mechanical stresses, the rocks slip and unleash vast amounts of energy that we experience as an earthquake. The most destructive earthquakes occur at the edges of tectonic plates, which are giant rocky slabs that float on layers of molten rock deep within the Earth. About a dozen tectonic plates make up the world's land surfaces and ocean floors. A seismometer or seismograph is an instrument that measures motions of the ground, including those generated by earthquakes, nuclear explosions and other sources. Records of seismic waves called seismograms allow us to map the interior of the Earth, and to find and measure the size of those different sources.



Instructions

1. Stick the pencil straight down into modeling clay.
2. Arrange the cups in a circle, with the opened part facing up, and tape the the cups down to the paper.
3. Place the pencil, and modeling clay, in the middle of all of the cups.
4. Take the ball and balance it on the pencil.
5. Hit the table and the ball will fall in a cup in direction that you hit the table.
6. This is how a seismometer works! It tells you the origin of the tremor and the direction of the shock waves.



Additional Resources

Think About It! Why is it important to measure the size of an earthquake? What would it be like to live on a fault line? What are some things engineers need to think about when building things near fault lines?

1. What is seismology? <https://tinyurl.com/y35etsh8>
2. What is the richter scale? <https://tinyurl.com/ooo5kqb>
3. Learn more about earthquakes and seismic activity with Science Max! <https://tinyurl.com/ygcrsdab>

Share It Out

Share on social media: Take a video of your seismometer in action, and explain to family and friends how it works! Share your knowledge on social media using the hashtags:

#Seismometer
#ProjectExploration
#StemAtHome

For more activities like this one, go to www.projectexploration.org/stemhome. If you're interested in learning more about Project Exploration and our free events, programs, and activities, please find us on social media and be sure to follow!



Call or text us for help: 312-772-6634

www.projectexploration.org