Marble Tongs Demonstration and Elastic Deformation

Ground deformation occurs at plate boundaries and within tectonic plates. Rocks deform elastically over time, storing potential energy, which is released as kinetic, thermal and acoustic energy during earthquakes. The Marble Tongs demonstration provides a direct experience with marble deforming elastically.

Learning Objective:

- Students will be able to describe that rocks have elastic properties and how this relates to earthquakes.

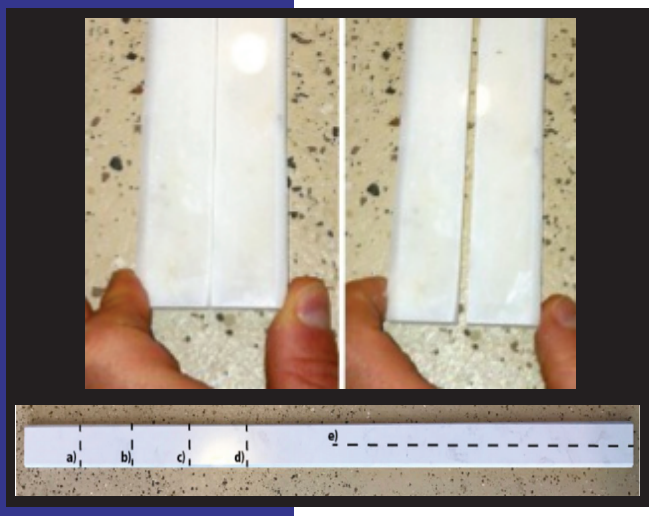
Steps

Step 1: **Set up the Misconception** - Give students a small sample of marble to try to change its shape. Ask: "Can you bend a rock?"

Step 2: **Begin Demonstration** - Show students the marble tongs. Press and release the ends of the tongs or have students squeeze the tongs together.

Step 3: **Prompt Students** - Ask how this is similar to stretching a rubber band or squeezing a tennis ball.

Step 4: **Students Explain** - Students describe how the tongs show that rocks can bend slowly under stress, helping them understand why earthquakes occur.



Also featured in an activity POWERED BY ShakeAlert

- When you pinch the tongs you apply compressional stress which deforms the rock or changes its shape. Energy gets stored as potential energy which changes to kinetic energy when the stress is removed and the tongs rebound to their original position.
- Tongs can break if dropped or if they wear out. You will need a back up set of tongs.
- NGSS: MS-ESS2-1, MS-ESS2-2, HS-ESS2-1, Developing and Using Models, Cause and Effect, Stability and Change