QUAKE SAFE

Build a structure that can withstand an earthquake

POSSIBLE BUILDING MATERIALS

- Recycled paper materials
- Straws
- Sticks
- Toothpicks
- Chenille stems
- Playdough/Clay

TOOLS

- Tape
- Scissors

TESTING MATERIALS

Base for building and to simulate an earthquake:

- Blanket/Sheet/Box (shake the base to see how the design performs)

SET UP THE PROBLEM

1. An earthquake feels like the earth shaking and happens when underground blocks of earth (called plates) move, stretch, or squeeze. They usually last for less than one minute.
2. Build a building or structure that can withstand an earthquake.

ENGINEERING BACKGROUND

Earthquake Engineers help design and analyze structures so that they are resistant to earthquakes. It is an interdisciplinary branch that includes many different fields of engineering such as: civil, structural, geotechnical, mechanical, chemical, mechanical, and nuclear engineering.

LEARNING GOAL

Children will be practicing their *causal reasoning skills* as they think about the relationship between an earthquake and the structure they are building ("What effect does an earthquake have on a building?") as well as how the individual parts within their structure effect the outcome. After seeing the impact of the shaking on their structure, children will reason about what changes they want to make to help make their structure be even more earthquake safe.

TIPS FOR ADULTS

Before building: Ask children what they already know about earthquakes and what features might be important for their structure to stay standing "What are you going to build? What features are going to help keep your structure standing when you shake it like an earthquake?"

During/after building ask children to make predictions about what will happen when they shake their structure "What is going to happen when you shake the building in the box?"

And, as they test their structure, ask them to interpret how it worked and what they might want to redesign "Did the parts work like you predicted? Which parts might you change to make your design even better?"

Encourage children to make modifications and compare how the modifications work when they shake their structure again.

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THINK, MAKE, TRY

For more ideas visit: BayAreaDiscoveryMuseum.org/ThinkMakeTry