

Engagement:

Ask students what they learned about Earthquakes when they went to The Discovery. When they experimented with the different building materials on the shake table, what did your students need to make a stable building? What were the common elements in the buildings that could withstand an earthquake? The building that had a wide base and cross bracing! Wide buildings are more equipped to handle side-to-side forces emitted by quakes. Cross-bracing also helps to strengthen building so they can withstand shaking during earthquakes

Exploration:

Teachers will play the role of an architect. And students will play the role of engineers. Using LEGO's create a tall tower. Then on an earthquake table place your structure. And show your students how stable or unstable. It will be up to the students to not change your design but make your existing design more stable! Students should draw up plans then, using LEGO's recreate a more stable version of the teachers tower.

What patterns emerged when students were adapting and building their building towers? Have them discuss their ideas and designs with you group!

More to Explore:

- *"Building BIG: All about Skyscrapers,"* from PBS
- *"Learning with LEGO: School-University Partnership (SUP) for Earthquake Engineering Education,"* from Pacific Earthquake Engineering Research Center (PEER)
- *"Introduction to Lateral Forces"* (pdf), from Professor Deborah J. Oakley for Technology III, University of Maryland, College Park
- *"Building the Tallest Tower,"* from Science Buddies

Educational Standards:

- **3-ESS2-1:** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. *This standard can be adapted to an earthquake-themed field trip by having students analyze and present data on when earthquakes typically occur and their correlation with specific times of the year or conditions, if applicable
- **4-ESS2-2:** Analyze and interpret data from maps to describe patterns of Earth's features.
- **5-ESS3-1:** Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.