



## Fernbank Science Center

**Title:** WHY BUILDINGS DON'T FALL DOWN (D4120) **Type:** Outreach  
**Level:** 6<sup>TH</sup> Grade Discovery **Length:** 90 min.  
**Location:** Local School **Limit:** 20 students

### Program Description

Earthquakes and other natural disasters force us to think about the structures we build and how resistant they can be. For this activity, students will investigate earthquakes to better understand the processes they arise from and consider the following questions: How do bridges need to be constructed in order to withstand earthquakes and other geological forces? Why is it important to know whether parts of a bridge will be subjected to tension or compression? Why is a triangle the strongest polygon? We will investigate the forces in structures and build a bridge of our own to determine which 6th grade engineer can build the strongest structure.

### S6E5.

Obtain, evaluate, and communicate information to show how Earth's surface is formed.

- a. Ask questions to compare and contrast the Earth's crust, mantle, inner and outer core, including temperature, density, thickness, and composition.
- b. Plan and carry out an investigation of the characteristics of minerals and how minerals contribute to rock composition.
- c. Construct an explanation of how to classify rocks by their formation and how rocks change through geologic processes in the rock cycle.
- d. Ask questions to identify types of weathering, agents of erosion and transportation, and environments of deposition. (Clarification statement: Environments of deposition include deltas, barrier islands, beaches, marshes, and rivers.)
- e. Develop a model to demonstrate how natural processes (weathering, erosion, and deposition) and human activity change rocks and the surface of the Earth.
- f. Construct an explanation of how the movement of lithospheric plates, called plate tectonics, can cause major geologic events such as earthquakes and volcanic eruptions.

### Objectives

The student will be able to:

- 1) Investigate earthquakes and other catastrophic phenomena

- 2) Use models to identify 3 types of bridges
- 3) Construct and test a bridge that can withstand forces.

**Vocabulary**

compression  
girder  
tension  
Earthquakes

deck  
span  
torsion  
model

engineer  
stress  
truss  
geologic

**Pre-Visit Activities**

Review the vocabulary.

**Post-Visit Activities**

SB 5/8

(D4320)

**Resources**

<http://www.pbs.org/wgbh/buildingbig/skyscraper/basics.html>

