Quake Shake (6-7)

Hello! This document includes a brief outline of our Quake Shake workshop, as well as relevant BC ADST curriculum connections. In this workshop, students will learn about earthquakes & different systems Civil Engineers utilize to protect buildings. Afterwards, students will build their own earthquake-proof buildings that will be tested & shaken!

If you’d like to register for our workshops, please fill out our registration survey linked here.

<table>
<thead>
<tr>
<th>BC Curriculum Ties (In addition to satisfying multiple core competencies)</th>
<th>BC Applied Design, Skills, and Technologies Curriculum Links 6-7:</th>
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| Complex tasks require the acquisition of additional skills & complex tasks may require multiple tools and technologies. | **Applied Design:**  
  o Ideating – Generating potential ideas and add to others’ ideas, Screen ideas against criteria and constraints, & choosing an idea to pursue.  
  o Making – Identify use of appropriate tools, technologies, and materials for production, & making a plan for production and carrying it out, making changes as needed.  
  o Sharing – Demonstrate their process, using appropriate terminology and providing reasons for methodology, Reflect on their design thinking and processes.  
| **Applied Skills:**  
  o Identify and evaluate the skills and skill levels needed, individually or as a group, in relation to a specific task, and develop them as needed  
| **Applied Technologies:**  
  o Select, and as needed learn about, appropriate tools and technologies to extend their capability to complete a task.  
  o Identify the personal, social, and environmental impacts, including unintended negative consequences, of the choices they make about technology use.  

Grade Levels | 6-7
---|---
Time | 1~1.5 Hours
Goals of the Workshop | 1. Understand how earthquakes occur and the different systems civil engineers utilize to protect civilians during earthquakes.
2. Experience & understand the engineering design process through their projects.

## Activity Descriptions

**Earthquake Theory**

Objective: To teach students how earthquakes occur, and the different systems civil engineers utilize to protect buildings and civilians against earthquakes.

Participants will:
- Learn about tectonic plates and why earthquake-proofing buildings are important.
- Learn about three specific systems that civil engineers use to protect buildings against earthquakes and why building damage is decreased as a result.
  - *(Base Isolation, Tuned Mass Dampers, & Shear Walls)*

**Earthquake Engineering Design Challenge**

Objective: To have students implement the previously learned systems by designing their own earthquake-proof buildings!

Participants will:
- Design their own buildings from scratch, construct a prototype using household materials, & test its abilities to withstand an earthquake by placing their creations on a shake table!
- Learn the engineering design cycle & how to improve their building designs based on testing results.

*We can't wait to connect with your school & expose your students to the STEM field with our exciting, hands-on STEM activities!*