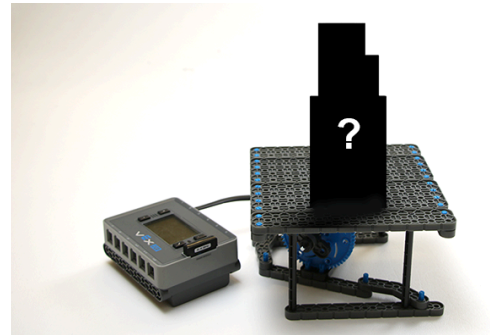


Introduction

Science, Technology, Engineering and Mathematics (STEM) education provides students with the opportunity to explore the physical world around them. Students will explore engineered building designs and structures that demonstrate stability and strength to withstand natural disasters such as earthquakes or hurricanes using iterative design methods.

The following VEX STEM Lab supports students as they learn about the importance of structure stability in their robotic design. Students will experiment with the Earthquake Platform build to explore how a structure should be built in order to withstand severe shaking through the process of iterative design.



Please keep this letter for your reference as your student works through the Tallest Tower STEM Lab. It contains information that you can use to keep up to date on what students are learning and to spark discussions about STEM and Robotics at home.

Look Inside the STEM Lab

In this lab, students will have the opportunity to build an Earthquake Platform as a team. After recording their reflections of the build in their engineering notebooks, they will learn about the science and benefits of the stability of structures. Students will explore how weight and gravity can affect a tall structure. Students will contemplate where they have seen tall buildings such as skyscrapers in their daily lives and how they might be designed in order to maintain stability and strength. Students will discuss how they can use structure stability in competition scenarios. Students will then explore ways to improve upon their structure's design by recording their ideas through detailed writing and sketches. Once students have brainstormed about different ideas that can improve the build of their structure, the students will implement these design improvements and test their structure to see if it has improved. Students will record these changes in writing using the iterative design process.

Vocabulary

Stability (to be stable)

To be unlikely to move or change.

Earthquake

A violent shaking of the ground caused by volcanos or movements in the earth's crust.

Weight

The heaviness of an object.

Gravity

The force that attracts a mass towards another mass.

Conventional

Based on acceptable standards or what is generally done.

Real World Connection

Students will investigate and discuss how structure stability and iterative design can help them create stronger structures or robots that can withstand unpredictable situations.

Guiding at Home Questions

- Why is structure stability important?
- How can knowing about structure stability help you?
- How does structure stability relate to skyscrapers?

You can explore the STEM Labs at education.vex.com.