

Robust Structures

What other factors make structures earthquake-resistant?

Key Objectives

In this project, you will:

- Explore the origin and nature of earthquakes.
- Create and program a device that will allow you to test building designs.
- Document evidence and present your findings about which structure design(s) are best for withstanding earthquakes.



1. Explore phase

Max and Mia have noticed that not all the buildings around the world look the same.

They wish to investigate how buildings can be designed to be stronger and safer.

Explore Max's and Mia's questions:

1. What causes earthquakes, and what are the hazards they create?
2. How do scientists rate the strength of an earthquake?
3. What factors can influence the resistance of buildings during an earthquake?

Share your ideas with the documentation tool.



2. Create phase

Use the bricks:

Build an earthquake simulator that can shake buildings.

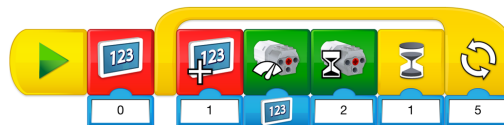
Connect your Smarthub

Turn on the Smarthub and connect it to your device. Watch the video if you need help.

See the Help panel for more guidance.

Program your model

Program your earthquake simulator to simulate an earthquake with various magnitudes.



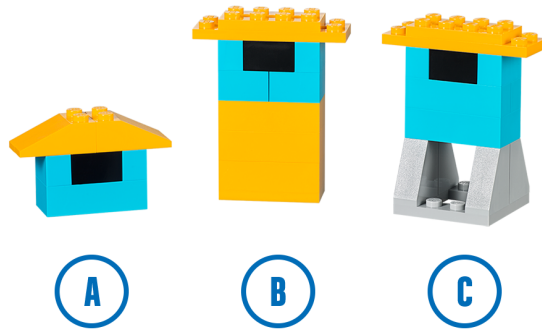
Investigate with Max and Mia

1. Find the smallest magnitude earthquake to make building B fall. Test building A with the same magnitude.

Document and compare your results for both tests.

2. Run the same program to shake buildings B and C.

Document and compare your results for both tests.



Investigate more with Max and Mia (optional)

1. Predict what would happen if you repeated your investigation with a high-magnitude earthquake. Document your predictions, and document and compare your results for both tests.
2. Build the tallest structure that can withstand an earthquake with a magnitude of 8.



3. Share phase

Share your findings:

Based on your findings during these investigations, present evidence in your own words about what factors make a building better suited to withstand earthquakes.



Finalize your document

1. Review your prediction and explain what happened in this investigation.
2. Organize your information to share with others.
3. Insert important text, pictures, screen capture or videos into your project.

