



Home Lesson

Zip Line Engineering

Appropriate Age or Grade Level: **K to 1**
Estimated Duration: **1 hour**

Objectives/Key Concepts: Experiment with zip lines and how they are built and what engineers have to take into account when constructing a new zip line.

Materials:

- Yarn or string
- LEGOs
- Masking tape

Instructions:

1. Explain what a zip line is and that it is usually used to ride for fun, to study the environment or in the best heist movies.
2. Now lay out the challenge: Who can design a zip line to get a LEGO across the room the fastest?
3. Grab a LEGO and now figure out how your LEGO will hold on to the zip line.
4. Time to assemble your zip line. Use tape to attach your yarn to two walls. Allow for a little trial and error as you discover that one end needs to be higher than the other so gravity and momentum carries your LEGO to the other side.
5. It's zip line time! Send your LEGO down the zip line and time it to see how quickly it gets across. Think of what engineering tweaks you need to make so your LEGO goes faster.

Background Information:

- What is a zip line? The overall concept of a zip line is to connect two locations that are at different elevations.
- What was the zip line originally used for? The zip line was originally engineered so that certain environments and ecosystems could be studied scientifically; however, we cannot be sure when the first zip line was invented and used. Today they are mostly used recreationally.

Bibliography (optional):

<https://www.aa-engineers.com/ziplines>

Looking for more Learning from Home resources? Keep learning with us!

We are creating virtual learning opportunities and online resources – including exhibits, videos, blogs, curator interviews and activities – to help students keep their minds active during school closure.

Visit <https://www.cincymuseum.org/learning-from-home/>