KOHL CHILDREN'S MUSEUM

THE PLACE WHERE AWESOME LIVES

STEAM Explorers

Lego Ziplines

How can you get your Lego to travel from the top of a zipline to the bottom? Create a safe transportation vessel for your favorite toy!

Big Idea

The weight of objects makes the gravitational pull greater, meaning it will travel from top to bottom quicker.

Illinois Early Learning Standards

11.A.ECa Express wonder and curiosity about their world by asking questions, solving problems, and designing things.	Children will aim to solve the problem of getting the Lego from the top of the zipline to the bottom by designing a vessel to help the Lego travel safely.
11.A.ECc Plan and carry out simple investigations.	Children will investigate ways to help the Lego safely travel, while also investigating places to test out the zipline for speed and steepness.
11.A.ECg Generate explanations and communicate ideas and/or conclusions about their investigations.	Children will draw conclusions about their vessels and about travelings speeds through observing their traveling vessels.

Materials

- **One piece of string, at least 5 feet long (get multiple pieces of string for "races")**
- **Lego figurine**
- **various recycled materials, such as old containers, lids, plastic bags, or newspapers**
- **Tape**
- **String or pipe cleaners**
- **scissors**

Setup

One table set up with recycled materials to create your vessel. Take the long string and tie it from one spot higher in the air to one spot closer to the floor (from a doorknob to the leg of a table, for example). This string will be your zipline.

Directions

1. First, invite the children to explore the zipline that has been created. What do they notice, and what do they think they will need to create to ensure their lego makes it to the bottom safely?
2. Have children investigate all of the design materials and make a plan for their vessel. Once they've talked over potential designs, they can begin crafting their zipline creation.
3. When children are finished with their vessel, they should begin testing on their zipline.
4. Based on what children notice works and doesn't work, children can revisit the design station to try to improve their design.
5. To extend this activity, invite children to conduct the zipline test in different environments, using different heights, or hanging up and testing multiple ziplines at once.

Investigation Questions:

- Why do you think your Lego zip line traveled so quickly? Do you think there's a way you can slow down your vessel?
- Why did you choose those materials for your zipline?
- How could you create a safe vehicle for your Lego to travel in?
- Is there a way you could slow the zipline toward the end to ensure a safe stop?
- What pieces are necessary to create a successful zipline vessel?