

Build a Bridge

Best for Ages

5+

Workspace

Flat indoor or outdoor surface

Is electricity required?

No

Description

Become an engineer and try your hand at building a bridge! Don't worry, you don't need steel, we're going to build our bridge with everyday items that are found around your home.

Materials

- Cups- paper, styrofoam, plastic
- Recyclables-toilet paper rolls, cardboard, egg cartons, old CDs
- Adhesive- tape, glue, sticky tack
- Connectors- pipe cleaners, rubber bands
- Structural Materials- craft sticks, straws, chopsticks, pens, markers, dowels, silverware
- Weight- toy car, coins, washers, etc.
- Scissors

Concepts Explored

- Engineering
- Design Thinking

What to Do

1. Gather materials.
2. Take some time to plan and design before you start building.
What bridges have you seen before?
What do they look like? Make a sketch of your bridge design.
3. Start with your structural materials.
Make a foundation for your bridge.
What materials will work best to hold weight?
4. Now add your bridge or road on top.
What are good qualities of roads?
What building materials have those same qualities?
5. Be sure to adhere or connect your pieces. You don't want things to fall off your bridge!
6. Test your bridge with your weight.
How much weight is too much?
How can you modify your bridge so that it holds more weight?



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Troubleshooting Tips

- If your bridge is too wobbly or shaky for your weight, try using different materials in your base.
- If your first attempt doesn't work, it's absolutely okay to try it numerous times. Many bridges in history have failed, but we learned from their design flaws to make better bridges.



What did you find most difficult about building a bridge?

What would happen if you build the bridge on sand or water?

What happens to your bridge if you put it in a windy area?

What is Happening?

- **Engineers** are everyday problem solvers who think outside of the box to create solutions. Engineers identify challenges and design, build, and test solutions to those challenges.
- **Design thinking** is a series of steps that inventors use to create solutions. They figure out their audience and its problems, design solutions to the problem, and then tweak their design based on the feedback they receive. How did you use design thinking when building a bridge?

Taking it Forward

- **Connecting this activity to the real world:**

Do you have bridges in your town that you cross often? Visit that bridge and make observations. Ask your child what they notice about the bridge. Sketch the interesting features of the bridge. Try building a bridge with similar features.
- **Want to learn more about engineering or bridges?**

Check out these books at your local library:

Engineer It!: Bridge Projects by Carolyn Bernhardt

Golden Gate Bridge by K.A. Robertson