

Engineering Family Guide



Build at Home: Make Life Easier with Your Own Zipline!

Forgot something from upstairs? Need to pass the salt? Bridges are one way of moving across a gap. Zip lines are another! Create a zipline to transport small items from here to there.

You'll need:

- A 4-foot length of smooth string, dental floss, or thread
- Scissors and a hole punch
- Masking tape
- A small container like a paper cup or small box
- A support such as wooden skewers, pencils, or straws
- Something for attaching the carrier to the zipline, like paper clips, ornament hooks, or ribbon
- A small, sturdy item like an action figure or ball to transport in your carrier
- Small weights such as pennies or metal washers (optional)
- Missing an item? Use your engineering creativity to come up with a replacement!

What to do:

1. Think about how you would like to design a carrier for your zipline. Does anyone in your family have ideas that could help you? Here are a few kid-tested designs:



What to do (continued):

2. With help from an adult, attach one end of the string to something sturdy, like a railing, chair, or wall. Be sure that no one will walk into the string by accident! Attach the other end of the string at least two feet (60 cm) lower in another sturdy place.
3. Create a carrier big enough to carry a small action figure.
4. Attach the carrier with the action figure at the upper end of the zip line and let it go. What happened? Did it work?
5. Make one change and try again! Try adding washers to make the carrier heavier. Try a different kind of string for your zip line. How slow can your carrier go down the line? How fast?

Adapted from the Dream Big activity, "Zip Line Challenge," with permission from the American Society of Civil Engineers.

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You Are the Most Important Role Model Your Children Have!

- Nurture your child’s curiosity.
- Grow your child’s ability to persist and maintain a “can do” attitude.
- Explore engineering with your child to help them build life skills and to seek out new learning opportunities...and eventually, diverse career possibilities.
- Develop your child’s critical thinking and problem-solving skills by doing hands-on activities or household improvement projects together – and iterating on your solutions to make them even better!

What You Can Do: Watch, Play, and Learn Online!

Engineers make a world of difference. From bridges and safer drinking water to electric cars and better phones, engineers use their knowledge to improve people’s lives in meaningful ways.

Dream Big: Engineering Our World

<http://www.dreambigfilm.com>

Engineers travel to amazing places and tackle the world’s most challenging problems. Watch video clips of engineers at work and try more hands-on activities from this website.

DiscoverE

<http://www.discovere.org>

This website has engineering activities, as well as career profiles, career facts, and news in the engineering world.

Engineering for Kids

<http://tryengineering.org>

Play engineering games, and adults can download guides to learn more about what it takes to become an engineer.

Ziplines in Real Life:

- For many years, children in the village of Los Pinos, Columbia used a zip line to cross a canyon to get to school. Using the zipline saved a two-hour walk!
- The idea of zip line trails through the tops of trees was started as a way to study the rainforest.



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