



## 12 STEM Challenges to Engage the Whole Family!

These 12 STEM challenges bring together activities in science, technology, engineering, and mathematics to engage the whole family in learning. Check out these hands-on STEM activities and take the challenge to have fun learning!

### Grades K-5

- 1. Flip for Fun.** Design and build [catapults](#) that can project an object over a distance. Use your knowledge of measurement to see how far everyone's object flew and to determine whose object went the farthest distance!
- 2. Boat Builders.** [Construct a boat](#) that can hold the most pennies without sinking in water.
- 3. Lose Your Marbles!** Using everyday materials around your home, design your own [marble run](#). The possibilities are endless, so let your imagination soar!
- 4. Keep It Cool!** Design and create a device that keeps ice from melting outside in the sun. Set a timer and record how much time it takes for the ice to melt completely. After you complete your device and test its effectiveness, see if you can improve your initial design to keep the ice cooler for even longer!
- 5. Whose Tower is Taller?** Using only two pieces of newspaper and a ruler, see who in your family can build the tallest [tower](#). No glue, tape, or scissors allowed! If you enjoy engineering and architecture, check out other cool resources from [Building Big](#), including career information and activities as well as designs, profiles, and facts about famous buildings and skyscrapers, bridges, tunnels, domes, and dams.
- 6. Simple Machines at Home.** Engage in the physics of simple machines and design your own [hand crank winch](#), using everyday materials around your home.

### Grades 6-12

- 7. Keep It Hot!** Design and create an insulating cup that keeps a hot beverage warm the longest.
- 8. Energetic Science!** Launch into projectile motion by building [tabletop catapults](#) using household materials.
- 9. Falling for STEM!** Engage in the physics of falling objects by designing and creating a parachute from household material that helps an egg land safely when dropped from a height.
- 10. Happy Building!** Explore simple machines by designing and engineering a [Rube Goldberg machine](#)— a wacky, multi-step contraption that solves a simple task in an overcomplicated and inefficient way. ([Rube Goldberg](#) was a prize-winning cartoonist best known for the zany inventions he designed for his cartoons.) Get the whole family in the act and enter the [Rube Goldberg Bar of Soap Video Challenge](#)! Find more [Rube Goldberg resources](#) online.
- 11. Fore!** Who knew that mini-golf was so full of science! Have fun with angles, force, and motion as your family builds (and plays!) an [indoor mini-golf course](#).
- 12. You be the Weather Forecaster!** With this weather-predicting science project from Science Buddies, you can create your own [barometer](#) at home! Compare your barometer readings with your observations about the weather to identify patterns. Check out more from [Science Buddies](#), including science videos, resources for families, STEM career exploration, and more!

We'll be sharing more tips so watch for the next installment of DLD Daily Dozen!

