

Everyday Engineering

Use objects from around your home to create an invention that's uniquely useful to you! Start by figuring out a problem in your life that you want to solve, then move on to brainstorming, prototyping, and testing your invention that will solve your problem! Tweak and re-design your invention until you are happy with it in this activity that heavily relies on the design thinking process!

How-to video

<https://youtu.be/VllhZ1afvas>



Materials:

- **Materials will vary for everyone- Use anything from around your home that may be useful for making the invention you want to make!**
- **Something to attach items together- Tape or glue**
- **Something to safely cut materials up- scissors or another tool with adult supervision**

Steps:

1. Think about a problem or inconvenience you have in your life that can be fixed by an invention. In the video, we chose the problem of helping your book to stay open when reading.
2. Brainstorm a list of inventions that could be useful to solve this problem.
3. Pick one invention and make a prototype of it- a drawing or small model that gets your ideas across. Be sure to list out certain useful features you think you'll want your invention to include.
4. Collect some items from around your home and begin building! You may realize halfway through that other materials will work better for your invention- you are encouraged to switch materials whenever you need to!
5. Test, innovate, re-test, and re-innovate as many times as you need to until you are happy with your invention!
6. Use your new useful gadget in your everyday life and see how you can keep innovating on your invention!



Caregiver tip:

This activity is strongly based on the Engineering Design Process. It is important to realize that inventions aren't ever created perfectly on the first try—in fact, they may never be perfect! Professional designers and engineers use this process of brainstorming, prototyping, testing, re-designing, and re-testing over and over again while making a product. Everytime they test their product and it doesn't work the way that they had hoped it would, they don't feel defeated, they feel excited. One of the key lessons in design thinking is that *failure is actually a good thing!* Everytime you “fail” or your invention doesn't work as you hoped, you have learned something new for next time. So when you face failure, try to think like an engineer and see it as learning something new and as a necessary part of success. As David Kelly said, “fail often so you can succeed sooner.”

As your child does this activity, make sure to encourage them to see failure as a normal and positive part of the road to success.