

# Stomp Rockets

Learners will use materials that can easily be found at home and at a local hardware store to build a rocket and a launcher.

**Recommended Age:** 6+ years old

**Time needed:** 20+ minutes

**Link to the Video:** <https://youtu.be/RxghP-uvkXo>



## What You Need

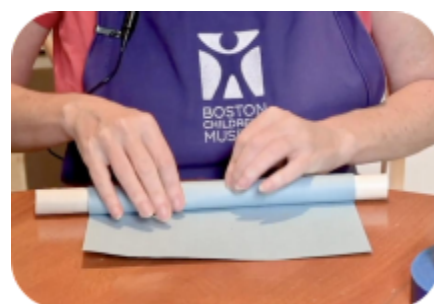
- For the launcher
  - You can get the first two items at a hardware store, and they will probably even cut them to size for you*
  - 2-3' plastic tubing, ½" inner diameter
  - About 2' PVC pipe, ½" outer diameter
  - 2 liter empty soda bottles
  - Duct tape
- For the rocket
  - Construction paper
  - Tape
  - Index cards/cardstock/heavy paper
  - Scissors
  - Markers or crayons (optional)



## What You Do

### To make the launcher (see picture)

- Insert an inch or two of tubing into the soda bottle neck and tape it tight. Try to make an airtight seal.
- Tape the other end of the tubing to the PVC pipe. Again, try to make a nice tight seal.
  - Tip: Heating the tubing with a hair dryer will make it more pliable and easier to work with.



### To make the rocket

- Will your rocket have a tall body, a short one, or somewhere in between? If you want a smaller rocket, cut the construction paper down to size. Make the body of your rocket by rolling the construction paper around the PVC pipe so that it fits loosely enough to easily slide on and off, but not super loose. Close off one end of the rocket by folding it over and taping it.
- Decide if you want a cone on your rocket. If you do, cut a cone shape from another piece of paper, roll it

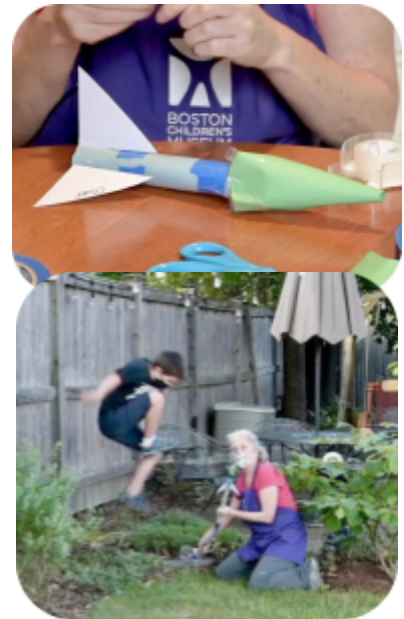


around to make the cone, then fit it to the end of the rocket. Tape it very very securely.

- Decide if you want fins on your rocket, and if so, what shape will they be. Cut fins from index cards and tape them securely to the body of the rocket.
- If you want to, you can decorate your rocket with markers, crayons and/or colorful tape. Give it a name!

### Launching the Rocket

- Get a friend, and find a nice open space.
- Place the launcher on the ground, holding the bottle down on the ground with one hand. Use the other hand to direct the PVC pipe in the direction you want the rocket to go.
- Place the rocket on the end of the PVC pipe.
- Time to countdown! Your friend should stomp on the soda bottle as hard as they possibly can. (You can take turns stomping.) BLAST-OFF!!!



### What Else?

- Did it work? Did it fly the way you wanted? You may have to “go back to the drawing board” and tweak your design or make some repairs. That’s OK! Engineers constantly have to change their designs, it’s all part of the process.

### Tips for Adults

- Your child may get discouraged if their rocket doesn’t launch well the first time. Don’t make a fuss about it, but do encourage them to give it another go.
- Kids may need an extra pair of hands to help with the assembly of their rocket. Help them, but let them take the lead and decide on the design.
- Try making your own rocket!

### Learning and Skills Connection

- **Persisting:** Focusing, sticking to it, repeating, learning from mistakes
- **Taking risks:** Pushing boundaries and trying new things, assessing the potential for (reasonable) risk, testing limits and managing uncertainty, being open to failure
- **Thinking creatively and imaginatively:** Envisioning possibilities, solutions, and forms of expression; having hunches; thinking outside the box; problem finding and solving

### Doing STEAM with Kids

STEAM stands for Science, Technology, Engineering, Art, and Math. There are lots of ways you can explore these letters, apart or together. Ask your child to make predictions, describe what they see, and to imagine possibilities and solutions. Don’t worry so much about the “right” answer. Developing curiosity, and problem-solving skills are important first steps to doing STEAM.

