instructables Roly Poly Rollers Instructions

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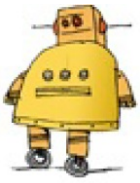

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instructables Roly Poly Rollers

Product Information

The Roly-Poly Rollers by Tinkering Studio are physics toys that contain a weight inside and move in unexpected ways when rolled down a slope. They come in a variety of shapes and sizes, and each roller moves in a unique and interesting way. These rollers are designed to encourage creativity and experimentation, and users can modify the design to create their own one-of-a-kind toy. The kit includes a laser-cut shape that fits into a clear plastic cylinder obtained from a 2L plastic bottle.

Product Usage Instructions

1. Find a 2L plastic bottle and mark a line at the bottom. This line will serve as the baseline for your project.
2. Measure 2.5 inches up from the baseline and cut out a 2.5-inch plastic cylinder from the bottle.
3. Download the laser-cut files for the roller shapes from **https://www.thingiverse.com/thing:5801317/**.
4. Use the laser cutter to cut out the desired roller shape from the provided file.
5. Stick the laser-cut shape onto the clear plastic cylinder using a press fit. No glue is required.
6. Add a weight to the cylinder, such as a ball or two, and experiment with rolling the Roly-Poly Roller down a slope. Try different slopes to see how the roller moves.
7. Feel free to modify the design and experiment with different shapes and weights to create your own unique Roly-Poly Roller.

Please note that the circumference of the bottle used is 13.7 inches, so please double-check that your bottle's circumference is the same if you plan on designing your own shape using Illustrator. Make sure that the circumference of the bottle and the perimeter of your shape are the same.

If you have any questions or would like to share your own Roly-Poly Roller design, please use the hashtag #ExploringRolling on Twitter and tag @TinkeringStudio.

Roly Poly Rollers

by tinkeringstudio

A Roly-Poly roller is a physics toy that contains a weight inside, and when rolled down a slight slope, it moves in unexpected ways, depending on the amount of weight placed inside. These rollers come in a variety of shapes and sizes, and each one moves in a unique and interesting way. We're sharing this Instructable as an early prototype at the Tinkering Studio, so there's still some room for tinkering and making changes in terms of how to build and play with them. We'd love to hear from you if you create your own Roly- Poly roller and even experiment with different shapes to make it truly one-of-a-kind! Please share your remixes, questions, and work in progress here or on Twitter with #ExploringRolling @TinkeringStudio.

Supplies

Essential materials

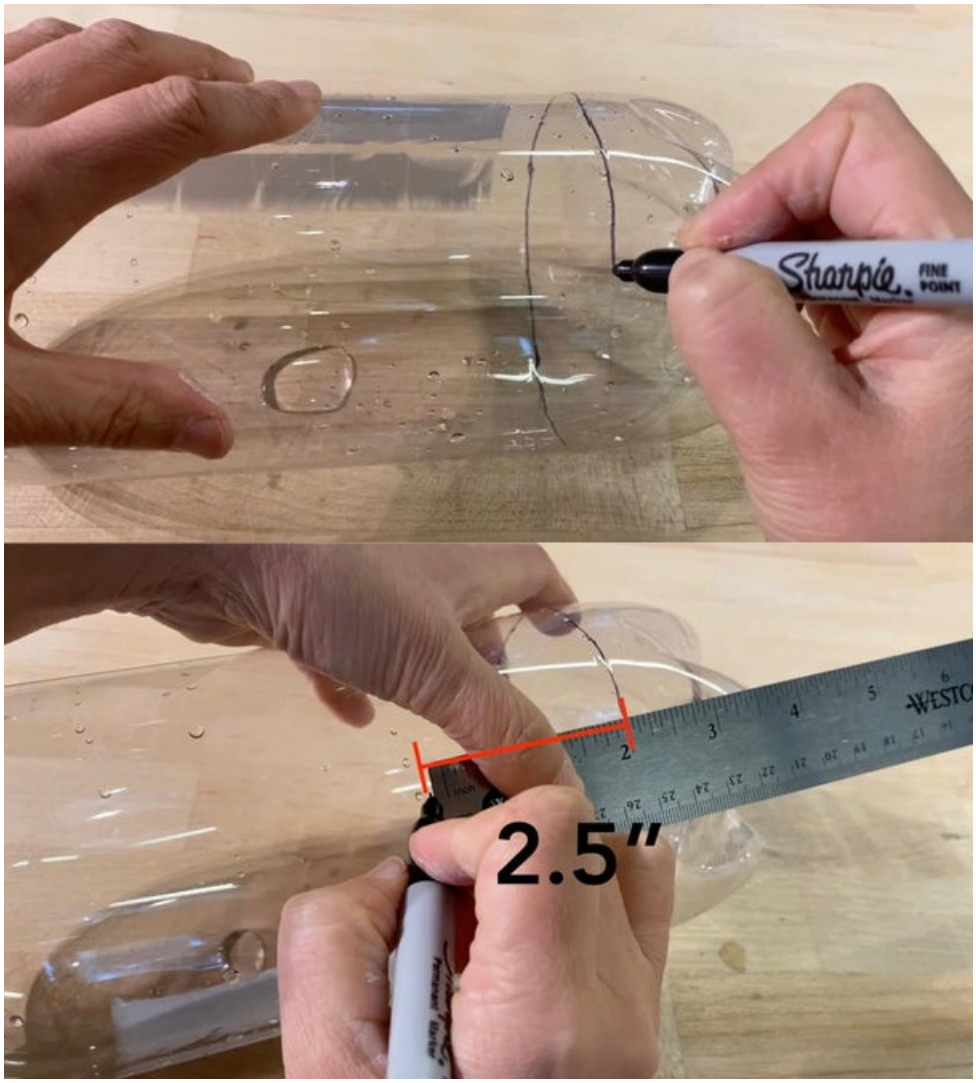
- 2L plastic bottle
- ¼" laser cut plywood
- 1" diameter ball bearings
- Epoxy 3M DP 100 Plus for stronger connections

Tools

- Laser cutter
- Box cutter
- Sharpie

INSTALLATION INSTRUCTION

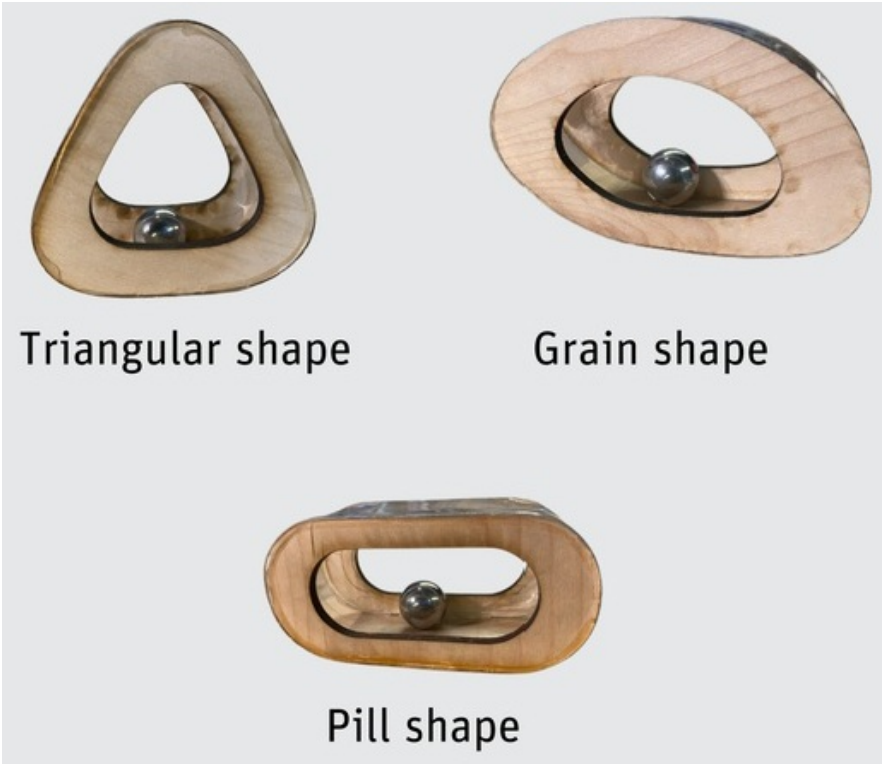
Step 1: Cut a Ring Out From a Plastic Bottle


Sharpie
FINE POINT

2.5”

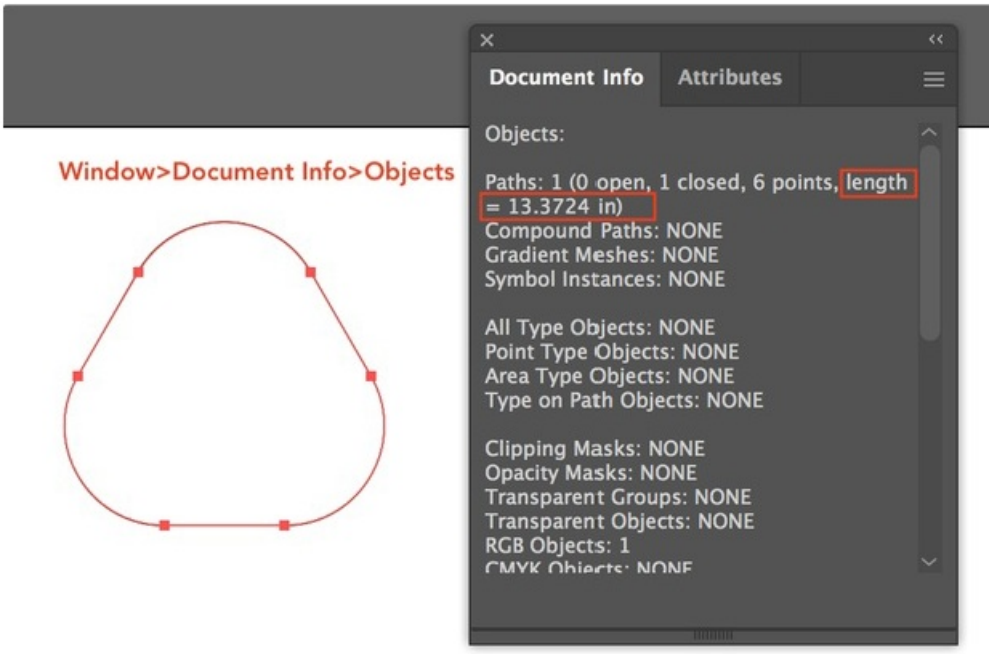
Find a 2L plastic bottle and mark a line at the bottom. This line will serve as the baseline for your project. Starting from the baseline, measure 2.5″ up the bottle and cut it out to get a 2.5″ plastic cylinder (wrapping a strip of tape around the bottle instead of marking it with a pen will also help to cut at the line).

Step 2: Laser Cut the Shapes



We have three different shapes: Triangular shape, Grain shape, and Pill shape. You can download the laser-cut files here. **https://www.thingiverse.com/thing:5801317/files**

We've put both .svg files and .ai files so that you could modify our design. For example, it's up to you whether you want the side openings to be wide open to make it easier to get the ball(s) in, smaller to make it harder for the ball(s) to pop out, or completely closed to prevent the ball(s) from getting in and out.



Important note: The circumference of the bottle we're using is 13.7″. We believe that the circumferences of most 2L bottles are the same, so you can use the file as is, but please double-check that your bottle's circumference is the same. If you're designing your own shape with Illustrator, make sure the circumference of the bottle and the perimeter of your shape are the same. In Illustrator, you can find the perimeter of a shape by going to Window >

Document Info > (Expand the menu) > Objects.

Step 3: Pop in the Shapes and Add a Weight!

After laser-cutting the shape, stick it onto the clear plastic cylinder you cut out of the plastic bottle. The cool thing about making these rollers is that your laser-cut shape will fit right into the cylinder with a press fit. Try pressing the shape into the plastic cylinder and see how well it fits perfectly without needing any glue! Finally, try rolling it down a slope with a ball or two and experiment with how it rolls!

Documents / Resources

	instructables Roly Poly Rollers [pdf] Instructions Roly Poly Rollers, Poly Rollers, Rollers

References

- Yours for the making - Instructables
- Tinkeringstudio's Profile - Instructables
- Roly Poly Rollers : 3 Steps (with Pictures) - Instructables
- Roly-Poly rollers by thetinkeringstudio - Thingiverse