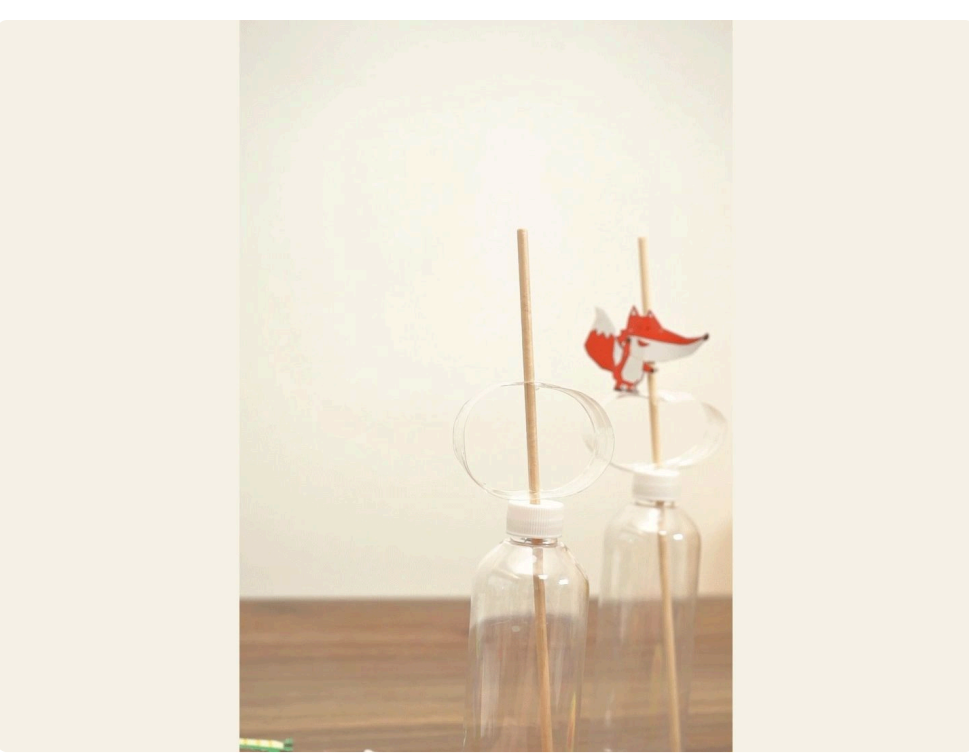


Make a Mini Rocket!

October 10, 2024 / DIY / STEM Activities / Marvelous Mechanics Motion / Ages 3 - 5 / Bottle Shooter



Are you ready for the children's excited squeals? In this thrilling project, we'll use discarded water bottles to create a simple but powerful shooter. You can play with it at home or take it outdoors to explore the joy of science anytime, anywhere.

- Age: 3-5
- Time: Less than 30 minutes
- Mess Level: A bit messy

Materials Needed:

2 empty water bottles (one for making the shooter, another for the launch device)
bamboo skewer or thin wooden stick
knife
Printable materials



Step-by-Step Instructions:

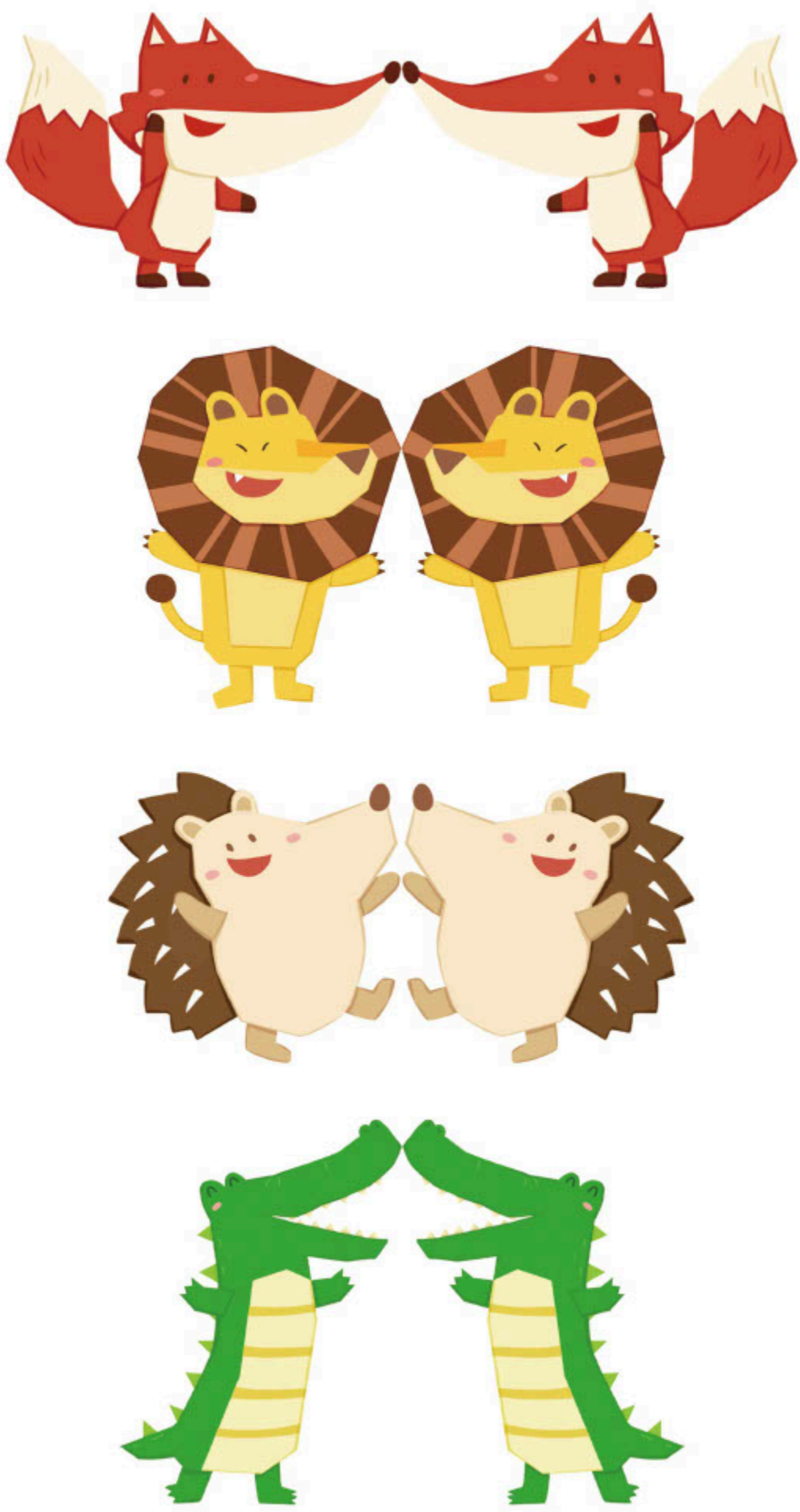
1. Cut a 2cm wide ring from the empty water bottle, as shown in the image below. Flatten it to increase its elasticity.



2. Make two small holes in the ring, opposite each other so the bamboo skewer can pass through. Then make a small hole in the bottle cap as well. Use the wooden stick or bamboo skewer to string the ring and bottle cap together. Screw the strung cap onto the bottle and test the ring's shooting force by pressing it with your finger.



3. Draw your favourite animals. Note that you need to draw two symmetrical patterns of one animal so they can be perfectly glued together later. You can refer to the template in the image below, or you can directly download and print the template.



4. Cut out the two patterns of the same animal and glue them together (remember to leave enough space in the middle for the wooden stick to be inserted). Place the animal on the bamboo skewer.



5. Press the ring. Did your little animal successfully launch?



The Science Behind It:

The core principle of this project is elastic potential energy. When you cut a ring from a water bottle and flatten it, this ring stores elastic potential energy. Elastic potential energy is the energy stored due to the elastic deformation of an object. When the ring is flattened and released, this stored energy is converted into kinetic energy, propelling the small animal forward. The elastic properties of the ring allow it to quickly return to its original shape after being compressed, thus producing a powerful launching force.

