Rocket Launch Mouse

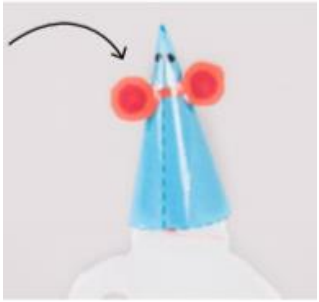
There's an old saying: what goes up must come down. This activity is a perfect chance to challenge that idea, shooting a rocket high into the air by rapidly squashing a plastic bottle launcher. You'll never get this rocket into space – but some real rockets do go fast enough to prove the saying wrong.

You will need:

Empty squishable plastic container like a milk or juice bottle, rocket mouse (see template) tape, scissors, items to decorate rocket with.

What to do:

- Use the template or create your own. Roll it into a cone shape and secure it with tape – this is your rocket.
- Decorate any way you like (possibly think about extras such as attaching parachutes to slow decent!)
- Put your mouse rocket over opening of the bottle (does the size of the hole increase height?)
- Hit the side of your bottle to make your rocket launch.



- What makes your rocket fly?
- What makes it come down again?
- How do you think a real rocket works?
- How could you make your rocket travel higher?
- How could you make your rocket go more slowly?
- Can you make your rocket spin as it falls?

The science behind it:

The bottle used as the rocket launcher is not really empty: there is air inside it. Air is elastic (squashy), and when you compress it, it pushes back and the pressure inside increases. In the activity, the sudden increase in air pressure inside the bottle pushes hard on the bottom of the rocket, sending it flying high into the air. There are also two other forces acting on the rocket: air resistance and gravity. Air resistance always pushes in the opposite direction to the rocket's movement, and its strength depends on the rocket's shape and its speed. Gravity always pulls downwards, slowing the rocket's climb but speeding up its descent.

Using This Science In Our World:

Just as increasing the air pressure in the bottle sends the rocket flying, you use air pressure when you squeeze shampoo or ketchup from a plastic bottle. It's not usually as exciting as watching the rocket shoot into the air in the activity... unless you're having a food fight!

Talking points:

- Did you know that in order to keep going straight upwards and never fall down again, a rocket must reach a speed called escape velocity, which is 11.2 kilometers per second.
- Can you research about any famous rockets and share what you found out?
- Which was the first rocket into space? Which is the most recent rocket to be launched and where was it going?
- Which planet would you like to visit and why?

Rocket mouse template.