STOMP ROCKETS

Age 11-14

Topic:
Forces and motion with reference to rocket design

Key terms:
Friction, air resistance, streamlining, aerodynamics

Estimated time:
45-60 minutes

Methods:
investigation, discussion, evaluation, collaboration

What we need:

Launcher

- *2L empty plastic bottle*
- *Gaffer tape*
- *Cardboard tube insert from aluminium foil or similar*
- *Length of bike inner tube*

Rockets

- *Card*
- *Scissors and sticky tape*
- *Blue tack or play dough*

Activity description:

A great hook lesson for a topic on **space**. This is equally a fantastic opportunity to support skills for **scientific enquiry** through **predictions** and **fair tests**. There are multiple **variables** from which pupils may select one and **investigate** its impact upon the distance travelled by the rocket for example: number of fins; length of rocket; mass of rocket; angle of trajectory or force of the stomp.

The activity also promotes the active use of **maths** through **measuring** values like **angle, height, mass, time, distance** or **speed**. (**speed = distance/time**)

To make the launcher

- Connect the length of inner tube to the mouth of the plastic bottle.
- Connect the cardboard tube to the other end of the inner tube.
- Ensure both connections are air tight with gaffer tape.

To make a rocket

- Roll a piece of card tightly around the cardboard tube to make the body of the rocket and secure it with tape.
- Make a card nose cone and attach it with tape. It can be weighted with blue tack for ballast.
- Attach fins to the rocket using the card and tape if desired.

To launch the rocket

- Slide the rocket down the cardboard tube
- Angle the tube for the desired trajectory
- Stomp on the plastic bottle for thrust!
- Blow into the tube to re-inflate the bottle ready for the next launch.

Curriculum Links:

- Physics - space, forces and motion
- Mathematics - measure, speed distance time calculations

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