

Magnetic Vehicle

Background

A current-carrying conductor experiences a force in a magnetic field.

You will need...

- ✓ Aluminium foil, 15 × 4 mm
- ✓ neodymium magnets
- ✓ 1.5V AA battery.

Follow these steps

1. Roll out a length of aluminium foil.
2. Attach neodymium magnets to each end of the battery so that the north poles are facing each other.
3. Place on the aluminium foil

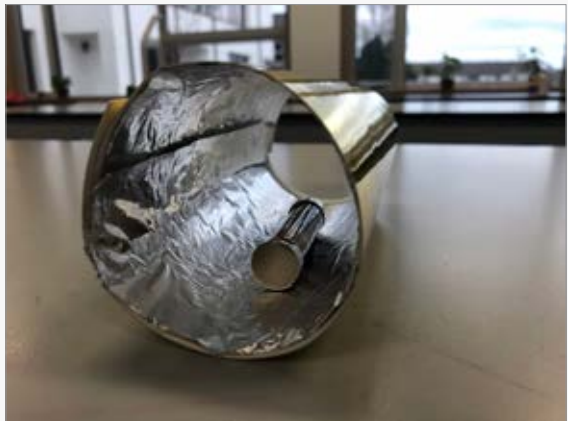
So what happened?

When the battery is placed on the aluminium foil it completes a circuit and current flows. When the same poles are facing each other then the upward current on one side and the downward current on the other experience a force (Lorentz force) in the same direction hence the battery rolls along the aluminium foil in a straight line.

Note: In this demonstration a large current is drawn from the battery.

What next?

1. Try with south and north pole facing each other.
2. Try with south and south pole facing each other.
3. Change one of the neodymium magnets to a one with a larger diameter. The battery will move in a circle this time.
4. Stick aluminium foil to some card and roll the card into a cylinder. Place the battery inside the card on the aluminium foil. The cylinder rolls along the desk.



15mm dia x 4mm thick
N35 Neodymium Magnets
2.8kg Pull (Pack of 10)