

Forces and Magnets

Learning Objective:

To be able to identify magnetic materials.

What forces are in action in this picture?



What is moving?

Why is it moving?

What is in contact to create movement?

The skateboard (and therefore the woman on the skateboard) are being pulled along by the dog. In order for the force to create movement there has to be contact between the objects. The woman is standing on the skateboard, holding a lead that is attached to the dog. This allows the pull force to create movement. If the woman and the dog weren't connected, the skateboard wouldn't be moving.



Can you think of
any forces that do not
need contact to make
things move?



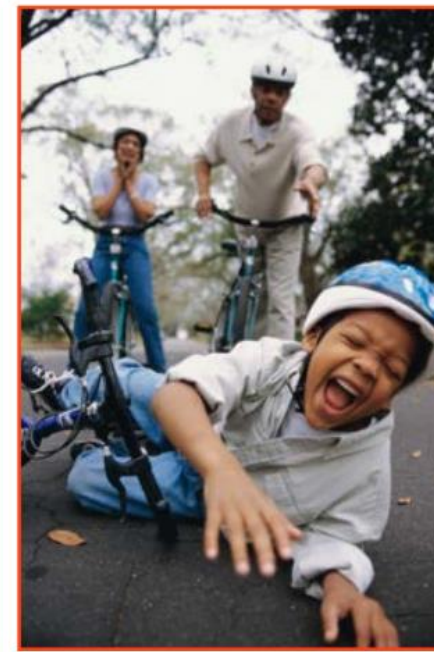
Some forces, such as gravity, do not need contact between two objects to make things move. Gravity is a force that pulls everything towards the centre of the Earth. Without gravity, everything would be weightless.



Gravity is what makes fruits fall from trees.



Gravity is what makes rain fall from the clouds.

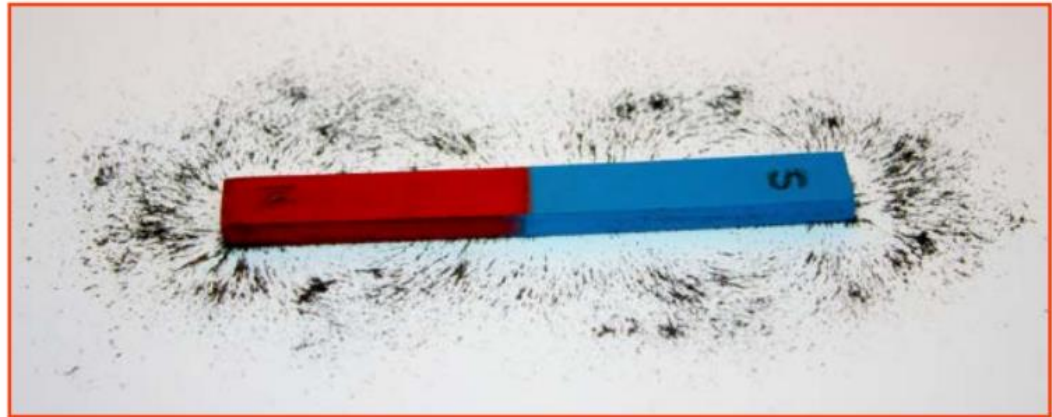



Gravity is what makes you fall downwards.

Another force that doesn't need contact between objects to make things move is magnetism. Magnets are rocks or pieces of metal that have a magnetic field around them. This means they can pull objects towards them or push objects away from them without having to make contact with the other object.



You can't usually see the force around a magnet but if you drop iron filings around one, you can see the magnetic field.







Magnetic
Non-magnetic



Magnetic
Non-magnetic




Magnetic
Non-magnetic




Magnetic
Non-magnetic




Magnetic
Non-magnetic



Magnetic
Non-magnetic



Magnetic
Non-magnetic



Magnetic
Non-magnetic




Which of these materials do you predict would be magnetic? Why?

Today you will be testing different materials to see whether or not they are magnetic. To do this, you can put the material you are testing next to the magnet to see if there is either an attraction (which will draw the material to the magnet) or a repulsion (the magnet will push the material away from it). If nothing happens, it means that the material is not magnetic.



Some objects (such as TVs, computers and other electronic equipment) may be damaged if brought into contact with a magnet, so keep away!

Your task: Using a magnet that you have in the house, I used a fridge magnet and it worked fine, I would like you to explore which materials are magnetic? Test out lots of different materials (objects) and see what you discover. If you come across a material that repels (pushes away from magnet) make a note of it, we are going to explore this and why it happens in future lessons! You can print off this table below, or create your own.

Material	Magnetic	Non magnetic
E.g. Paper clip 	✓	