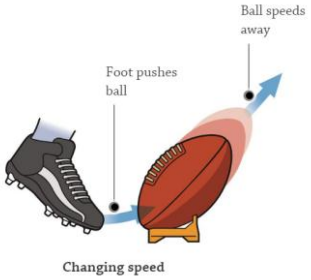
Science Knowledge Organiser Autumn term Year 3

Forces

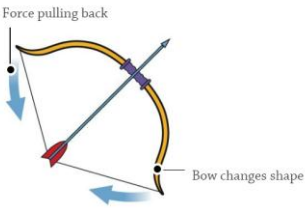
A force is a push or pull on an object.

A **force** can cause something

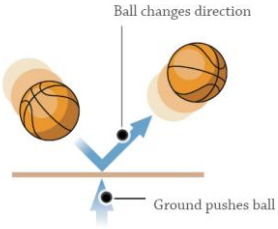
- to speed up
- slow down
- change shape
- change direction



Changing speed



Changing shape



Changing direction

It is easier to push or pull something along a smooth surface than a bumpy surface.

Friction:

The ice skate moves easily on smooth ice. It takes more force to move on rough ground.When two surfaces slide together, a force called **friction** makes them stick very slightly together. Smooth surfaces have less friction than bumpy surfaces.

Natural forces

There are two types of natural forces that we have around us: magnetic forces and gravity forces.

Gravity: gravity makes things fall down towards the centre of the earth . In space there is hardly any because the earth, stars and other planets are far away. That is why astronauts float in space float.

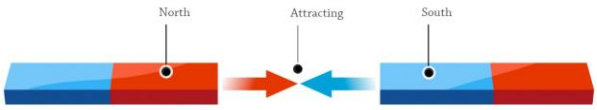
Magnets

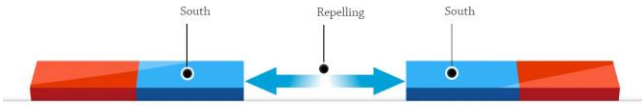
Magnets are objects that pull or push things with an invisible force called magnetism, which pulls on some metals such as iron and nickel. Magnets cannot pull anything made of wood or plastic, or metals such as copper or gold. Objects that are pulled by magnets are said to be magnetic. Objects that are not pulled by magnets are said to be non-magnetic.

Magnetic poles

The ends of a magnet are called its poles. One end is called the **north pole**, the other end is called the **south pole**. When two magnets are close, they create pushing or pulling **forces** on one another. These forces are strongest at the ends of the magnets.

If you line up two magnets so the north pole of one magnet is facing the south pole of the other magnet, the magnets will pull towards each other. This is called attraction. If you line up the magnets so that the same poles face each other, they will pull away from each other. This is called repulsion. Opposite poles attract each other but same poles repel.

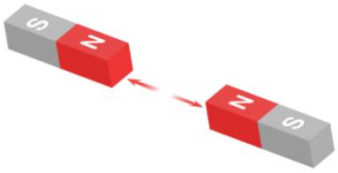




Same poles repel

If you try to put two magnets together with the **same** poles pointing towards one another, the magnets will push away from each other. We say they **repel** each other.

In this picture two north poles are pushing away from each other (repelling each other).



Different poles attract

If you put two magnets together with **different** poles pointing towards one another, the magnets will pull towards each other. We say they **attract** each other.

In this picture a north and a south pole are pulling towards each other (attracting each other).