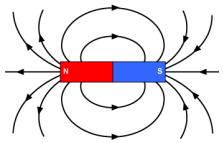
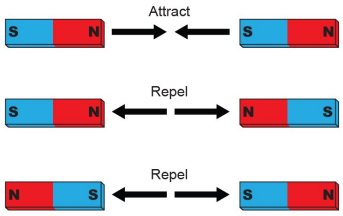
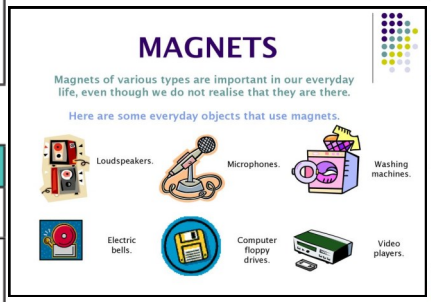
Year 3 Science—Forces and Magnets

Key Vocabulary	
magnet	An object which produces a magnetic force that pulls certain objects towards it.
magnetic	Objects which are attracted to a magnet are magnetic. Objects containing iron, nickel or cobalt metals are magnetic.
magnetic field	The area around a magnet where there is a magnetic force which will pull magnetic objects towards the magnet.
poles	North and south poles are found at different ends of a magnet.
repel	Repulsion is a force that pushes objects away. For example, when a north pole is placed near the north pole of another magnet, the two poles repel (push away from each other).
attract	Attraction is a force that pulls objects together. For example, when a north pole is placed near the south pole of another magnet, the two poles attract (pull together).

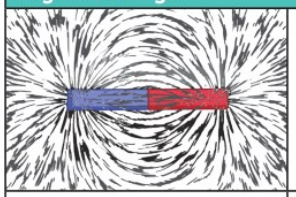




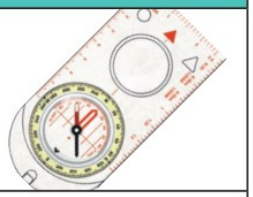


Key Vocabulary	
forces	Pushes or pulls.
friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
surface	The top layer of something.

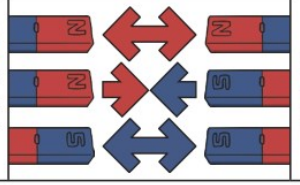
Key Knowledge



Like poles repel.
Opposite poles attract.



A magnetic field is invisible. You can see the magnetic field here though. This is what happens when iron filings are placed on top of a piece of paper with a magnet underneath.



The needle in a compass is a magnet. A compass always points north-south on Earth.

Magnetic ✓

These objects contain iron, nickel or cobalt. Not all metals are magnetic.

Non-magnetic ✗

These objects do not contain iron, nickel or cobalt.

Key Knowledge

Different surfaces create different amounts of friction. The amount of friction created by an object moving over a surface depends on the roughness of the surface and the object, and the force between them.

The driving force pushes the bicycle, making it move.

Friction pushes on the bicycle, slowing it down.

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Harry Bhadesia

If you travel from the UK to France via the Channel Tunnel, your carriage is riding on rails made of a particular kind of steel that Harry Bhadeshia invented. He has also developed the world's strongest armour, called 'super bainite', in part through the discovery of a steel that seemed to sing.

He has done all of this and more by applying physics and mathematics to predict what shapes will be made by crystals in metal, under certain conditions and with certain elements added or taken away. He arrived in London in 1970 after his Indian parents were forced to leave their home in Kenya by political changes. As young teenager he has worked his way up from technician, through part-time study, to become the University of Cambridge's Tata Steel Professor of Metallurgy.

Working Scientifically

Results table

Object	Magnetic	Non-magnetic
Rubber duck		✓
Paper clip	✓	

Object	My prediction	Magnetic	Non-magnetic	What materials is it made from?
Rubber duck	non-magnetic		✓	rubber
Paper clip	magnetic	✓		steel

I know that the paper clip was magnetic because it was ATTRACTED to the magnet. I know the rubber duck was non-magnetic because it was not ATTRACTED to the magnet.