

In this unit: Pupils will investigate what a force is and how it acts on objects. They will compare how things move on different surfaces and explore magnetic forces. Pupils will create a recycling machine, which will select only magnetic items to be recycled.

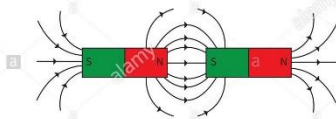
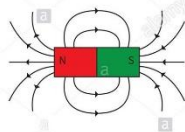
Children should know:

- that some materials will change shape when they are stretched, twisted, bent and squashed.
- when you push or pull an object it will move.

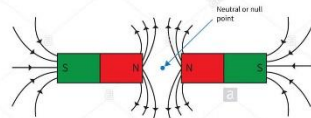
By the end of this unit, children will know:

- that forces are pushes and pulls and that these change the motion of an object.
- that a force will make an object speed up, slow down or even stop.
- that forces act in opposite directions to each other.
- that friction acts to slow down an object when it moves across a surface.
- that some surfaces create more friction than others.
- that gravity acts to make objects move downwards.
- that some objects, such as iron and steel, are magnetic and others, such as copper, are not.
- that the ends of a magnet are called poles – they have a north pole and a south pole.
- that opposite poles attract and similar poles repel.

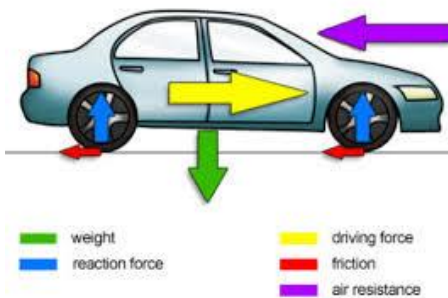
Magnetic Field of a Bar Magnet



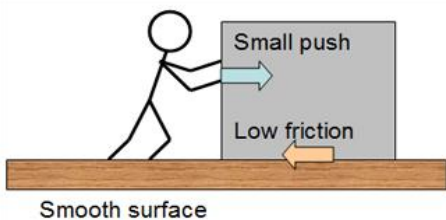
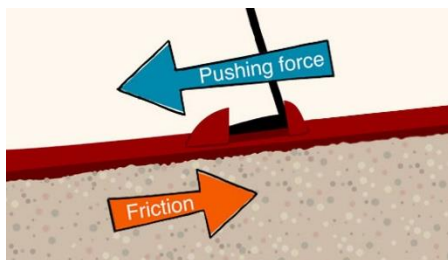
Attraction between opposite poles



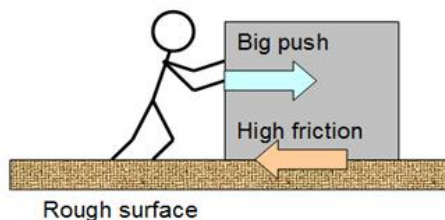
Repulsion between like poles



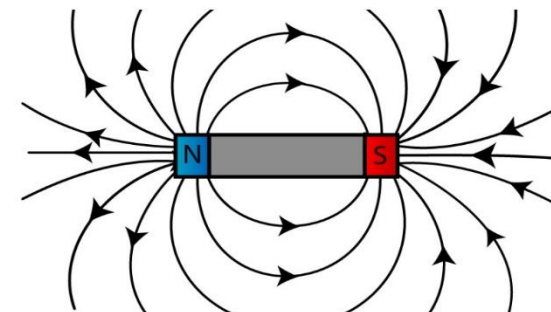
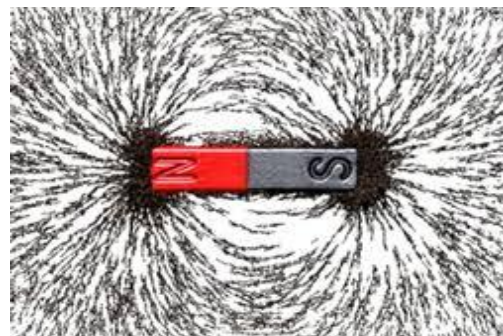
- weight
- reaction force
- driving force
- friction
- air resistance



Smooth surface



Rough surface



Key Vocabulary

attract	the action of causing one object to move towards another
direct contact	is touching something with only itself
force	the pushing or pulling effect that something has on something else
friction	the resistance to motion when there is contact between two surfaces
magnet	a piece of iron or other material which attracts magnetic materials towards it
magnetic	allows a magnet to act upon it
magnetic field	the area around a magnet in which the magnetic force is felt
non-magnetic	does not allow a magnet to act upon it
poles	the ends of a magnet
pull	using a force to make it move towards you
push	using a force to make it move away from you
repel	the action of causing one object to move away from another
resistance	a force which slows down a moving object or vehicle
strength	the amount push or pull of a force on an object
surface	the flat top part of something or the outside of something

Key Questions:

- how do magnets work?
- are all materials magnetic?
- are all metals magnetic?
- how does friction affect the motion of an object?
- what happens when two magnets are next to each other?

Children could investigate: