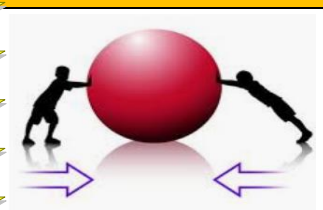
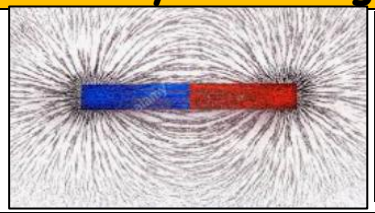
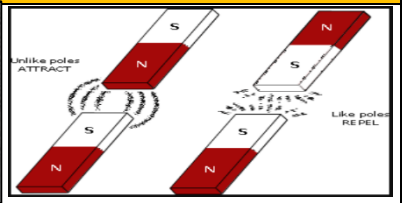
Forces and magnets - Year 3 Sticky Knowledge Mat

Summer 1

Sticky Knowledge







Forces are pushes and pulls which make things move and stop moving.

Most forces need contact between objects, but magnets can act at a distance.

Magnets are made of materials that create a magnetic field (the area in space where the force of magnets can be detected).

Magnets have at least one north pole and one south pole.

Magnets can attract or repel one another. They attract some materials & not others.

Forces are shown by arrows in diagrams. The bigger the arrow, the bigger the force. The direction of the arrow shows the direction of the force.

When two forces acting on objects are not equal in size, they are called unbalanced. Unbalanced forces change the way and/or speed that something is moving, e.g. they can make objects speed up/slow down.

If two forces are balanced, they are the same size but are acting in opposite directions. If the two forces are acting on an object, then its motion will not change.

The north pole of one magnet will repel the north pole of another magnet. However, it will attract the south pole of another magnet.

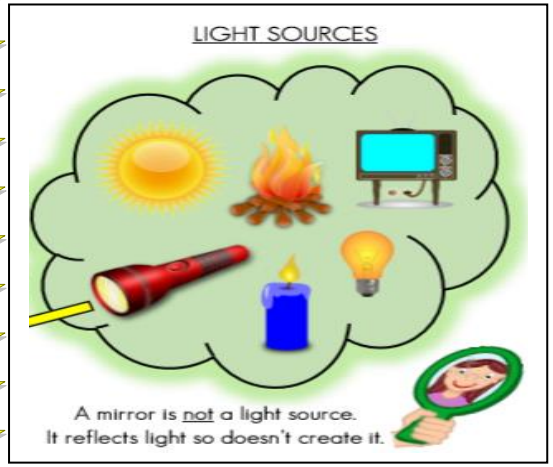
Subject Specific Vocabulary

force	A push or pull on an object which can cause it to move, change speed, direction or shape. Measured in Newtons (N).
Magnet	A material or object that produces a magnetic field. It attracts or repels magnetic objects, including iron.
attract	To pull towards. Opposite of repel.
repel	To push away. Opposite of attract.
friction	The resistance of motion when one object rubs against another. Friction causes objects to slow down and the energy becomes heat.
Weight	The force due to gravity on objects. This force pulls on all objects near the earth. Measured in Newtons (N).
Mass	The amount of matter contained in an object. Measured in units such as g, kg.
Gravity	The area around a large object when a weight can be felt. The sun's gravity keeps the planets orbiting around it.
Air resistance	The frictional force of air against a moving object. The faster an object moves, the greater the air resistance.
Water resistance	The frictional force of water against a moving object. The faster an object moves, the greater the water resistance.

Light and shadows - Year 3 Sticky Knowledge Mat

Summer 1

Sticky Knowledge



Light is a form of energy that makes it possible to see.

Light is given off some objects (for example the Sun). Darkness is when there is no light.

Light can reflect off surfaces (e.g. mirrors). A mirror is not a light source. It reflects light so doesn't create it.

Objects can be labelled as transparent, translucent, or opaque, depending on the amount of light that they let through.

Shadows are formed when light is blocked by an opaque object. Because light travels in straight lines, when it hits an object, it is blocked. It can't bend around the object so it casts a shadow.

Light travels in straight lines. It travels from the light source either directly into our eyes, or reflecting off objects at 670 million mph.

The size and shape of a shadow changes based on the distance and angle compared to the light source.

The moon does not emit its own light – it reflects the sun.

Subject Specific Vocabulary

Light source	An object that produces its own light (e.g. sun, fire).
Reflection	When a light hits a surface and 'bounces' off.
Refraction	When light passes through a different object and its direction changes.
Opaque	An object which **does not allow** light to pass through it (e.g. wood).
Translucent	An object which **allows some** light to pass through it. It may be possible to see some unclear images through the object (e.g. tissue paper).
Transparent	An object which **allows** light to pass through it so that objects behind it can be easily seen (e.g. glass).
Rainbow	An arch of colour caused by the refraction of light on water droplets in the air, usually rain (**R**ed, **O**range, **Y**ellow, **G**reen, **B**lue, **I**ndigo, **V**iolet).
Prism	A solid 3D shape where two end faces are similar and parallel.
Shadow	A dark area or shape caused by the blockage of light.