

What should I already know? (Light)

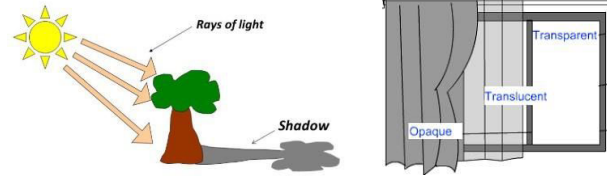
- Certain things produce **light**, usually by burning (e.g. the Sun) or **electricity** (e.g. street **lights**)
- Shiny materials do not make **light** but do reflect it.
- **Shadows** are caused when certain materials block **light**.

Vocabulary

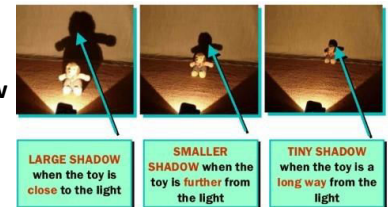
angle	the direction from which you look at something
bright	a colour that is strong and noticeable, and not dark
chemical reactions	a process that involves changes in the structure of something
dark	the absence of light
dim	light that is not bright
electricity	a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for machines
emits	to emit a sound or light means to produce it
light	a brightness that lets you see things.
mirror	a flat piece of glass which reflects light , so that when you look at it you can see yourself reflected in it
opaque	if an object or substance is opaque , you cannot see through it
product	something that is produced
reflects	sent back from the surface and not pass through it
shadows	a dark shape on a surface that is made when something stands between a light and the surface
source	where something comes from
sunglasses	glasses with dark lenses which you wear to protect your eyes from bright sunlight
surface	the flat top part of something or the outside of it
torches	a small electric light which is powered by batteries and which you can carry
translucent	if a material is translucent , some light can pass through it
transparent	If an object or substance is transparent , you can see through it

Diagrams

How are **shadows** formed?



- When **light** is blocked by an **opaque** object, a **dark shadow** is formed. An **opaque** material blocks **light** so we can't see through it and shine a **light** through it.
- When **light** is shone onto a **transparent** object, the **light** travels through it, we can see through it and it makes a very faint **shadow**.
- When **light** is shone onto a **translucent** object, some of the **light** travels through it, we can see **bright light sources** through it and it makes a fairly **dark shadow**.
- The size of a **shadow** changes as the **light source** moves. The further away the **light source** is, the smaller the **shadow** is. The closer the **source** of the light, the bigger the shadow.







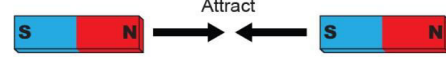




LARGE SHADOW when the toy is close to the light
SMALLER SHADOW when the toy is further from the light
TINY SHADOW when the toy is a long way from the light

What should I already know? (Forces and Magnets)

Vocabulary	
<ul style="list-style-type: none"> • Know how different toys move. • Know what a force is and be able to explain that a push or pull are types of forces. 	<ul style="list-style-type: none"> • If one object attracts another object, it causes the second object to move towards it. • A band bends easily into a curved shape.
<ul style="list-style-type: none"> • That when forces are applied to an object they allow them to move or stop moving. 	<ul style="list-style-type: none"> • Friction is the force that resists motion between two surfaces. • There is contact between two surfaces.
<ul style="list-style-type: none"> • The strength of the force determines how far and fast an object moves. 	<ul style="list-style-type: none"> • The pulling or pushing effect that something has on something else.
gravity	the force which causes things to drop to the ground
magnet	a piece of iron or other material which attracts magnetic materials towards it
magnetic field	an area around a magnet , or something functioning as a magnet, in which the magnet's power to attract things is felt
metal	a hard substance such as iron, steel, gold, or lead
motion	the activity of changing position or moving from one place to another
nonmagnetic	an object that is not magnetic

What will I know by the end of the unit?

<p>What are forces?</p>	<ul style="list-style-type: none"> • Forces are pushes and pulls. • These forces change the motion of an object. • They will make it start to move or speed up, slow it down or even make it stop. • For example, when a cyclist pushes down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves. • When the cyclist pulls the brakes, the bike slows down and eventually stops.
<p>How do different surfaces affect the motion of an object?</p>	<ul style="list-style-type: none"> • Forces act in opposite directions to each other. • When an object moves across a surface, friction acts as an opposite force. • Friction is a force that holds back the motion of an object. • Some surfaces create more friction than others which means that objects move across them slower. <div style="display: flex; justify-content: space-around; align-items: center; text-align: center;">       </div> <p style="text-align: center; font-size: small;">grass gravel carpet concrete sand wood</p> <ul style="list-style-type: none"> • On a ramp, the force that causes the object to move downwards is gravity. • Objects move differently depending on the surface of the object itself and the surface of the ramp.
<p>Which materials are magnetic?</p>	<ul style="list-style-type: none"> • Objects that are magnetic, are attracted to magnets. • Iron and steel are magnetic. • Aluminium and copper are non-magnetic.
<p>How do magnetic poles work?</p>	<ul style="list-style-type: none"> • The ends of a magnet are called poles. • One end is called the north pole and the other end is called the south pole. • Opposite poles attract, similar poles repel. • If you place two magnets so the south pole of one faces the north pole of the other, the magnets will move towards each other. This is called attraction. • If you place the magnets so that two of the same poles face each other, the magnets will move away from each other. They are repelling each other. <div style="text-align: center;"> <p>Attract</p>  <p>Repel</p>  <p>Repel</p>  </div>

opposite	Opposite is used to describe things of the same kind which are completely different in a particular way. For example, north and south are opposite directions
position	The position of someone or something is the place where they are in relation to other things
pull	When you pull something, you hold it firmly and use force in order to move it towards you or away from its previous position
push	When you push something, you use force to make it move away from you or away from its previous position
resistance	a force which slows down a moving object or vehicle
squash	pressed or crushed with such force that something loses its shape
stretchy	slightly elastic
surface	the flat top part of something or the outside of it
twist	turn something to make a spiral shape