



Be the best that we can be.



EBJ Knowledge Organiser Science Year 6

Spring 2

How does light bend?



How do we see?

We need light to be able to see things. Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light. Light travels in straight lines. When light hits an object, it is reflected (bounces off) and enters our eyes. This is how we see the object. Rays of light travel from a light source and hit objects around us. The rays of light reflect, or bounce off an object, and then travel into our eyes. This reflection of light allows us to see the object. Light can change direction when it reaches a different material. **Reflection** is when light does not pass through a material and changes direction. Shiny surfaces **reflect** light **uniformly**, whereas rough surfaces **scatter** the light rays.



Light travels in a straight line and hits the apple.



The ray of light is reflected off the apple and travels in a straight line to the eye allowing it to see the apple.

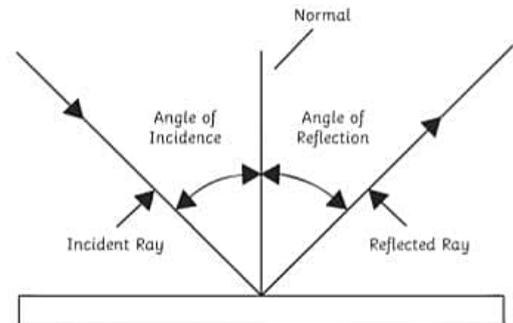
What are shadows?

Shadows are a dark area which is caused by something blocking the light. A shadow is formed when an opaque object is in the pathway of light because light travels in straight lines. Shadows have the same shape as the objects that cause them. The size of a shadow changes as the light source moves.



Law of reflection

The law of reflection states that the angle of incidence is equal to the angle of reflection. Whenever light is reflected from a surface, it obeys this law. The angle of reflection is the angle between the normal line and the reflected ray light. The angle of incidence is the angle between the normal line and the incident ray of light.



Key Vocabulary

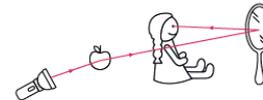
light	A store of energy that can be seen with our eyes.
light source	Where light comes from.
light ray	A narrow beam of light.
luminous	Something that gives off light.
non-luminous	Something that does not give off light.
transparent	A material that allows light to pass through with minimal scattering or reflection so an object is clearly visible.
translucent	A material that allows some light to pass through. Light may be scattered, causing objects behind to appear fuzzy or distorted.
opaque	A material that blocks or absorbs all light, preventing objects on the other side from being seen.

Materials

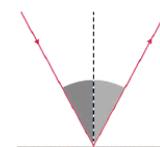
Light can change direction when it reaches a different material. **Reflection** is when light does not pass through a material and changes direction.



Shiny surfaces **reflect** light **uniformly**, whereas rough surfaces **scatter** the light rays.



A **ray diagram** is a scientific drawing to show the pathway of light. It can be helpful to explain observations.

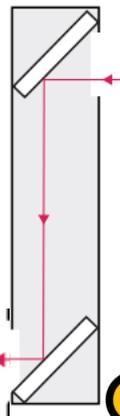


On a smooth surface, the angle of the **incoming ray** is the same as the angle of the **reflected ray**.

Mirrors

Mirrors are useful in lots of situations:

- Looking at the back of your hair when you get it cut.
- Dentists looking at the inside of the mouth.
- Rear view and side mirrors in a car to look at your surroundings in a vehicle.



Periscopes are long, vertical tubes that contain a set of mirrors to give a view the position of the eye.

