

Vocabulary		
1	Light Source	Something that provides light, whether it be a natural or artificial source of light.
2	Light	The natural agent that stimulates sight and makes things visible.
3	Reflection	The throwing back by a body or surface of light, heat or sound without absorbing it
4	Refraction	The bending of light as it passes from one substance to another with the bending caused by the difference in density between two substances.
5	Opaque	Not able to be seen through; not transparent.
6	Translucent	A substance allowing light, but not detailed shapes, to pass through; semi-transparent.
7	Transparent	A material allowing light to pass through so that objects behind can be distinctly seen.
8	Spectrum	A band of colours, as seen in a rainbow, produced by separation of the components of light by their different degrees of refraction according to wavelength.
9	Rainbow	An arch of colours visible in the sky, caused by the refraction and dispersion of the sun's light by rain or other water droplets in the atmosphere
10	Prism	A glass or other transparent object in the form of a prism, with refracting surfaces at an acute angle with each other and that separates white light into a spectrum of colours.
11	Shadow	A dark area or shape produced by a body coming between rays of light and a surface.

How does light travel?

- Light travels in waves. Waves don't always need particles to travel through. They can also travel through outer space or a vacuum.
- Light waves travel in straight lines.
- Light waves travel faster than sound waves.

How do we see?

Light rays travel from the light source in a straight line

The ray of light is reflected off the cat and travels in a straight line to the eye, enabling the person to see the cat.

Light from object travels into the eye

How do we see colour?

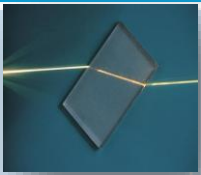
Natural light is actually made up of all the colours of the rainbow, which when mixed together appear white. These colours are known as 'The Visible Spectrum' and as we have done, they can be separated with a prism.

When a ray of white light shines on an object, the object absorbs some colours and reflects others.

How are shadows formed?

Shadows are formed when an opaque object blocks a ray of light. A shadow is always the same shape as the object that casts it. A shadow can change size depending on the distance the object casting it is from the light source. Shadows can also be elongated or shortened depending on the angle of the light source.

Refraction



Light rays usually travel in straight lines, but when they pass from one material to another they can be forced to bend and continue on a new straight path. The bending is called refraction. It happens because light travels at different speeds in different materials.

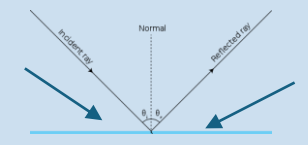
For example, light moves more slowly through water than it moves through air. As the beam of light enters the water, it slows down and bends.

Reflection

Reflection is when light bounces off a surface, changing the direction of a ray of light.

All objects reflect light. However, a smooth and shiny surface reflects all the rays of light at the same angle, but rough and dull surfaces scatter the light rays.

When rays of light reflect, they obey the law of reflection: The angle of incidence always equals the angle of reflection.



Angle of incidence

Angle of reflection

Smooth, shiny surface

Rough, dull surface