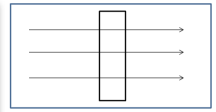
KNOWLEDGE ORGANISER
BIG IDEA: LIGHT AND SOUND
TOPIC: LIGHT

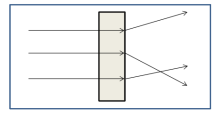
Key Word	Definition
luminous	An object that emits (gives out) light.
non-luminous	An object that does not emit light but can reflect it.
the law of reflection	When a ray of light bounces off a surface, the angle of reflection is always equal to the angle of reflection.
incident ray	The incoming ray.
reflected ray	The outgoing ray.
Normal	The line from which angles are measured, at right angles to the surface.
angle of incidence	The angle between the normal and the incident ray.
angle of reflection	The angle between the normal and the reflected ray.
refraction	Change in the direction of light when going from one material into another.
absorption	When energy is transferred from light to a material.
scattering	When light reflects off an object in all directions.
transparent	A material that allows all light to pass through it. A clear image can be seen through it.
translucent	A material that allows light to pass through it, but scatters it. An unclear image can be seen through it.
opaque	A material that allows no light to pass through it. Nothing can be seen through it.

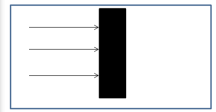
The path that light takes can be represented using a **ray diagram**. This shows where light comes from and in what direction it goes. Light always travels in **straight lines**. It can change direction when it meets a reflective surface. In this case, it changes direction according to the **law of reflection**.



Transparent – these are materials which let all of the light straight through.

Translucent – these materials let light through but it is randomly scattered.

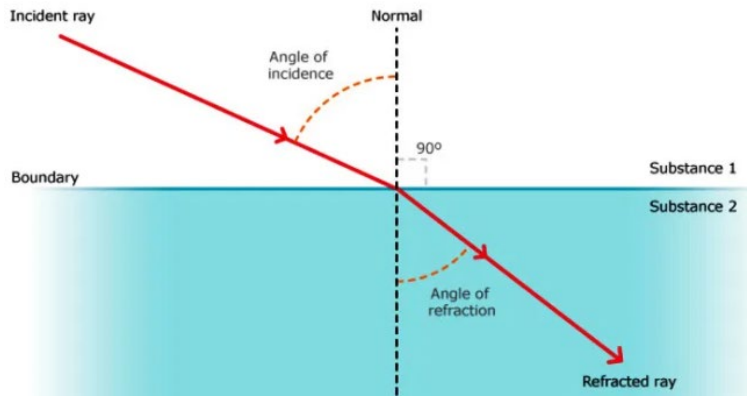


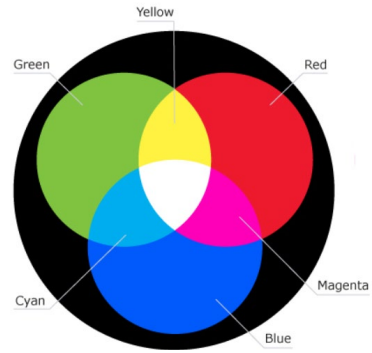


Opaque – these materials let no light through.

Because light is a wave, it can have different **wavelengths**. We perceive different wavelengths of light as different colours. However, light of different wavelengths can be **combined** to make other colours. For example, red and green light combined makes yellow light. **White light** is all the colours combined.

Light can also change direction when it enters a different **medium** (substance) at an angle – e.g. when light travels from air to water. The light changes speed at the **boundary** and this cause the light to change direction. This is called **refraction.**





Humans can only see wavelengths of light in the **visible light** range. Infrared and ultraviolet light cannot be seen by humans but can be detected by some other animals.

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