

Essential Learning

- Light appears to travel in straight lines.
- Light travels faster than sound.
- Light travels in straight lines therefore objects are seen because they give out or reflect light into the eye.
- The human eye sees things because light travels from light sources to the eyes or from light sources to objects and then to the eye.
- Shadows are formed when light cannot pass through an object.
- Shadows are formed in the shape of the object casting them.
- The moon does not emit its own light – it reflects the sun.
- Reflection is when light from an object is reflected by a surface, it changes direction. It bounces off the surface at the same angle as it hits it. Smooth, shiny surfaces such as mirrors and polished metals reflect light well. Dull and dark surfaces such as dark fabrics do not reflect light well.
- Light from a light source travels in all directions. Only a little of this light goes straight into the eye. This is why light sources can look exceptionally bright. The rest of the light reflects off secondary sources and eventually, some of it finds its way to our eyes.

Subject specific vocab

Eye: The human eye is a complex part of the body that is used for seeing.

Light: Light is a **form of energy**. The Sun is a very important source of light energy.

Light source: An object that produces its own light (e.g. sun, fire).

Opaque: An object which **does not allow** light to pass through it (e.g. wood).

Rays (of light): A ray is a **term used in optics** and mathematics to show the movement of light from its origin source to a surface or object.

Reflect: (Of a surface or body) throw back (heat, light, or sound) without **absorbing** it.

Reflection: When a light hits a surface and 'bounces' off.

Shadow: A dark area or shape caused by the blockage of light.

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).

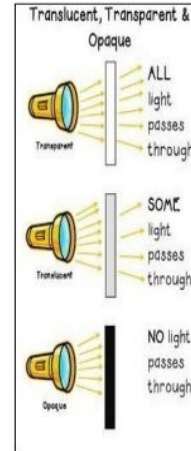
Transparent: An object which **allows** light to pass through it so that objects behind it can be easily seen (e.g. glass).



Left: Light travelling and reflecting off a smooth surface



Right: Light travelling and reflecting off a rough surface



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

As the **light source** moves **higher** in relation to the **object**, the **shadow** gets **shorter**. As the **light source** moves **lower**, the **shadow** gets **longer**.

