

Science- Light - Year 6 Summer Term

Prior Learning:

Year 3:

- Need light in order to see and dark is absence of light
- Light is reflected from surfaces
- Light from sun can be dangerous
- Recognise shadows are formed when light is blocked
- Find patterns in way that size of shadows change

Key Vocabulary

| | |
|--------------|--|
| Light | Radiation that makes things visible |
| Light source | Something that provides light |
| dark | Absence of light |
| transparent | All light passes through |
| translucent | Some light passes through |
| opaque | All light is blocked |
| matt | Not shiny - surface doesn't reflect light |
| shadow | Dark shape that falls on a surface when light is blocked |
| reflect | Send back light from a surface |
| Light rays | Thin lines of light |

Abu Ali al-Hasan ibn al-Haytham - known as Alhazen (965-1040AD)

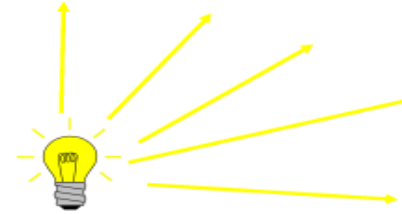
He was an Iraqi polymath - author of 90 works on optics, vision, number theory, geometry, theology, astronomy, poetry, healing and metaphysics. Known as the 'father of optics'.



First, light comes from a light source. Lots of things make light, like fires, light bulbs and the sun.

Natural light sources can be found in nature. Examples are fires, the sun and glow-worms!

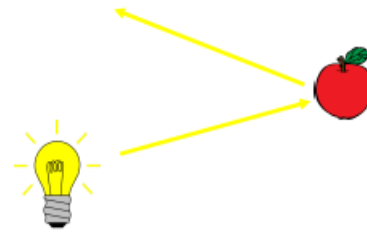
Man-made light sources are made by people, like light bulbs.



Next, the light travels in straight lines away from the light source. It cannot bend around corners!

Light keeps moving in a straight line until it hits an object.

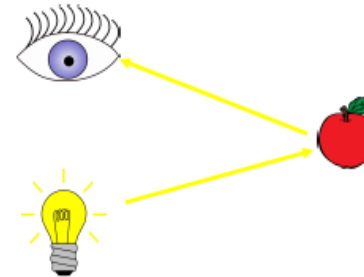
Light can travel a very long way and is very fast!



After the light hits an object, it bounces off. When light bounces off an object, this is called reflection.

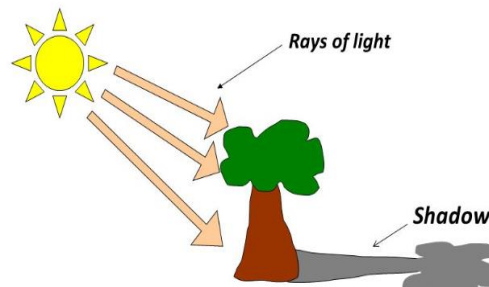
Different objects reflect light in different ways.

When the light reflects, it travels in a different direction. It still moves in a straight line.



Lastly, light that reflects from an object then hits our eye.

When light hits our eye, we see the object that the light came from.

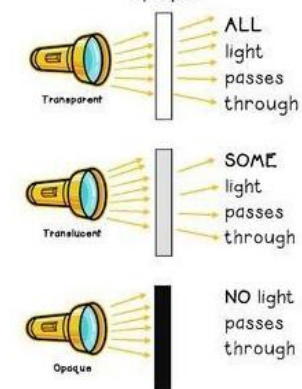


When light shines on an **opaque** object, the light is blocked and a shadow is formed in the shape of the object. This is because light travels in straight lines and cannot bend. The closer the object is to the light source, the more light that is blocked and therefore the larger the **shadow**.

Key Facts

- light appears to travel in straight lines
- we see objects when light from them enters our eyes
- light may come directly from light sources or may be **reflected** from the object into our eyes
- objects that block light (are not fully **transparent**) will cause **shadows**
- the shape of the **shadow** will be the same as the outline shape of the object
- size of the **shadow** is larger when the light source and object move closer to each other as more light is blocked
- the moon does not emit its own light, it **reflects** the sun

Translucent, Transparent & Opaque



Can I answer:

- How does light travel?
- How are we able to see objects?
- Why do shadows have the same shape as the objects that cast them?