

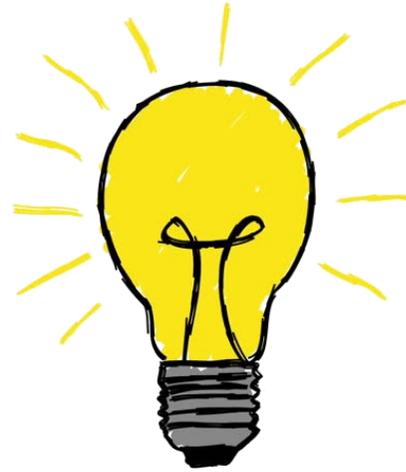
# Knowledge Organiser - Light

## As scientists we know...

- Light travels in straight lines through all things transparent.
- Shadows are made when an object blocks the light. Shadows are the same shape as the object because the light not hitting the object carries on travelling around it.
- The size of a shadow is affected by the distance between the light source and the object and the distance between the object and the surface where the shadow is cast.
- A lens works by bending the rays of light as they pass through changing their path or direction.
- Light is made up of all the colours of the spectrum/ rainbow. The colour of the light you see depends on its wavelength.
- Telescopes have two lenses (one big and one small) which

This unit will help you understand how light travels, as well as exploring how the path and colour of light can change. A key focus is lenses, and how lenses in our eye and in cameras can change the way we view an object.

It is important to think about how lenses are used in research and industry, which is why many of the activities in this unit will help you build your own lenses or observe objects through a lens. We take light for granted, but it is amazing how it moves, reflects and changes.



## Light:

Light is a type of energy that makes it possible for us to see the world around us. We need light to see. Light comes from different sources called light sources; our main natural light source is the sun. Other sources include fire, stars and man-made light sources such as light-bulbs and torches.

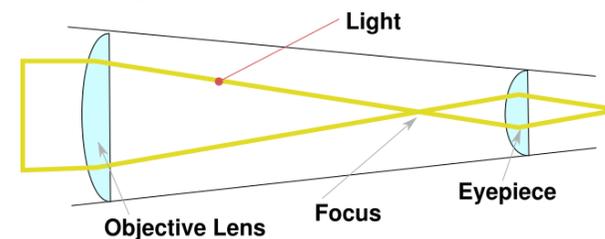
### Natural light sources:



### Artificial light sources:



### Telescope diagram:



## Key Vocabulary:

**Light ray** - a line of light that is travelling in a given direction.

**Fluorescent** - very bright, tube-shaped electric lights, often used in offices.

**Primary colour** - the three colours from which all other colours can be created by mixing. Red, green and blue light.

**Secondary colour** - a colour resulting from the mixing of two primary colours.

**Light filter** - a transparent filter that reduces the light passing through it.

**Spectrum** - colours that a ray of light can be separated into: red, orange, yellow, green, blue, indigo and violet.

**White light** - light which appears to be colourless, but is a mixture of all the colours of light.

**Magnify** - to make something greater.

**Focal point** - the point which rays of light meet after passing through a lens.

**Lens** - a transparent material which changes the direction of light.

**Refraction** - the change in direction of light which happens due to the light passing through two different substances.

**Refracting telescope** - a type of telescope that uses lenses to magnify images of things far away.

**Light source** - an object that emits light around itself.

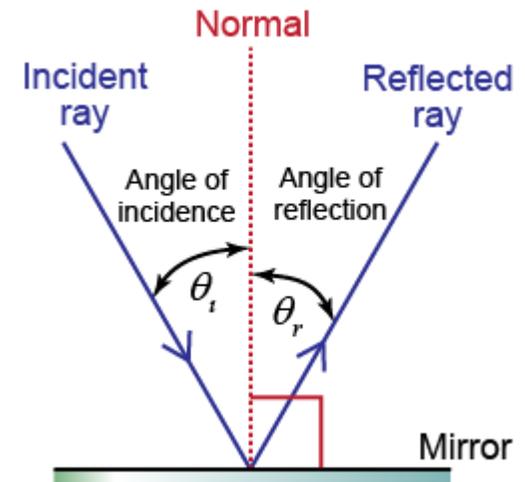
**Transparent** - allows light to pass through easily.

**Opaque** - an item that cannot be seen through at all.

**Luminous** - an object that gives out and produces its own light.

**Non-luminous** - an object that reflects light.

## Angles of Incidence and Reflection



## Shadows

Shadows are formed when light from a source is blocked by an opaque object.

The closer an object is to the source of light the bigger the shadow.

