Coley Primary School – Knowledge Organiser

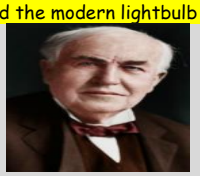
SUBJECT FOCUS: Physics strand	Science: Light	YEAR 6	TERM 4

WHAT? – Key Knowledge

- Recognise that light appears to travel in straight lines.
- Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.
- Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
- Exploring the way that light behaves, including light sources, reflection and shadows. Talk about what happens and make predictions.
- Use scientific language: say, read and spell scientific vocabulary.

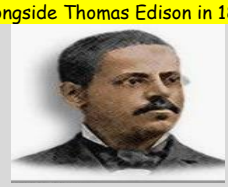
Famous Scientists

Thomas Edison
(1847 - 1931)
Invented the modern lightbulb in 1879



Thomas Edison invented the modern lightbulb. While lightbulb were not a new idea, he did improve on the previous designs which were not useful as they did not stay lit for very long.

Lewis Latimer
(1847 - 1931)
Invented the filament part of the lightbulb alongside Thomas Edison in 1881

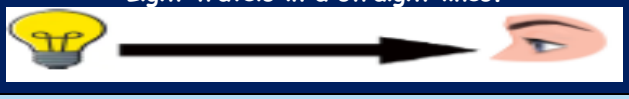


Lewis Latimer worked for Thomas Edison and invented a **filament** (the metal part that you see in lightbulb, through which the electric current passes) which enabled Edison's lightbulb to stay lit for a long time.

Did you know...?

Light travels as a wave, which is unlike waves of water or sound waves. It does not need a medium to travel through. This means light can travel through a vacuum – a completely airless space.

Light travels in a straight lines.



Light travels very fast!



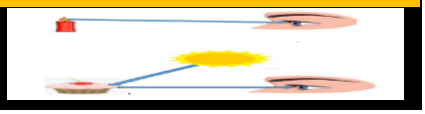
300,000,000 metres per second!

When light is blocked it creates a shadow.



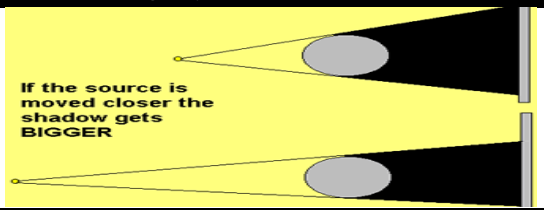
Amazing Facts…How We See

We can see objects because they give out light or reflect light into our eyes.



SHADOWS

Shadows change in size depending on the distance between the object and light source.



Working Scientifically Challenge:

Let's think like scientists…

Can they…

- explain how light travels?
- explain how the human eye sees objects?
- explain how different colours of light can be created?
- use and explain how simple optical instruments work? (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope)

WHAT? – Key vocabulary

light	A form of energy that travel in a wave from a source.
light source	A light source is an object that makes its own light.
reflection	Reflection is when light bounces off a surface, changing the direction of a ray light.
incident ray	A ray of light that hits a surface.
reflection ray	A ray of light that has bounced back after hitting a surface.
The law of reflection	The law states that the angles of the incident ray is equal to the angle of the reflected ray.
visible spectrum	Light that is visible to the human eye. It is made up of a colour spectrum.
prism	A prism is a solid 3D shape with flat sides. The two ends are an equal shape and size. A transparent prism separates out visible light into all the colours of the spectrum.
shadow	An area of darkness where light has been blocked.
refraction	This is when light bends as it passes from one medium to another. E.g. Light bends when it moves from air into water.

Opaque	A material which does not allow light to pass.
Transparent	Objects behind can be seen clearly.
Translucent	A material which allows light to pass through but is not clear.

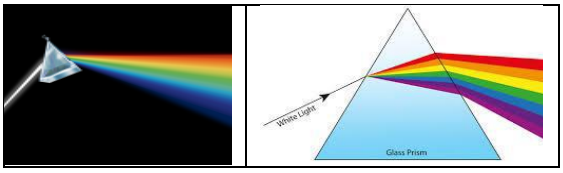


Transparant **Translucent** **Opaque**

Diagrams and symbols

Refraction & Spectrum of Light

White light can be refracted through a prism to split it into its different colours (spectrum)



The spectrum of white light is **red, orange, yellow, green, indigo and violet.**

I wonder… Can I …

- use the ray model to explain the size of shadows?

Possible experiences: *Curious minds…*

- **The National Media Museum** – **Discover more about light.**
- **Light, (Foxton Primary Science)** by Nichola Tyrrell