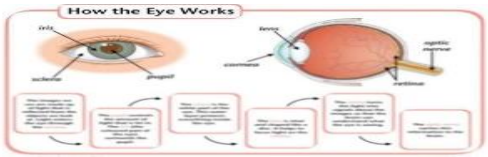
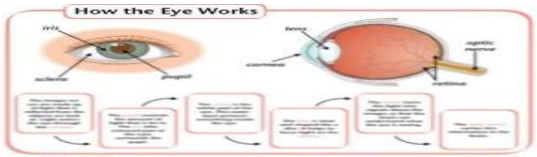


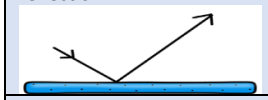
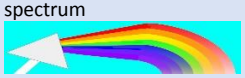

# Light Up Your World!




## What are the key physical facts that I need to know?

| Scientific Fact 1 | Scientific Fact 2 | Scientific Fact 3 | Scientific Fact 4 | Scientific Fact 5 | Scientific Fact 6 |
|---|---|---|---|---|---|
| The information our eyes receive is sent to our brain along the optic nerve. | Around 95% of animals have eyes. Some are very simple, while others are more complex, allowing for the recognition of shapes, colour and depth. | The light sensitive tissue lining the inner surface of your eye is known as the retina, acting in a similar way to film in a traditional camera. | Glasses and contact lenses are worn to correct common sight conditions such as short and long sightedness. | Throughout the animal kingdom there are many different types of eyes. The human eye is very different to the compound eye of a fly which detects fast movements. | Scientists believe that animal eyes evolved around 500 million years ago, beginning in simple form but giving a distinct advantage. |

### Key Scientific Vocabulary - words that are related to the topic you are investigating and that must be used in your work

| Word | Definition |
|---|---|
| beam  | A line of light or particles. |
| dispersion  | The process of splitting of white light into seven colours. |
| opaque  | An object that is not clear enough to see through or allow light through. |
| periscope  | A device consisting of a long tube containing mirrors that enable the user to see over the top of something. |
| reflection  | Reflection is when light hits the surface of an object, then travels to our eyes so we can see. |
| refraction  | When light travels from air through water, glass or anything that lets light through, it gets bent. |
| spectrum  | A band of coloured lights as seen in a rainbow. |
| ultra-violet  | Having a wavelength shorter than that of the visible spectrum |

### Sticky Knowledge- what we want you to know at the end of the unit

To know that our senses helps us explore the world around us.

**To know what a light ray or beam is**

- a **source** of light makes light
- it is a source of energy
- **the Sun** and other **stars, fires**, **torches** and **lamps** all make their own light and so are examples of **sources of light**

**To know what 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

**To know how we see**

- when we see something, what we actually see is reflected light
- light bounces off the object and that is how we see

**To know how shadows are formed**

- **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**
- s**hadows** from the sun can be used to tell the time in a sundial

**To know what happens when light is scattered**

- when you try to run in water, you slow right down
- the same thing happens to light if you shine it into water, glass, plastic or another more dense material: it slows down quite dramatically
- this tends to make light waves bend—something we usually call **refraction**

**To know how to make a rainbow**

- **rainbows** are **formed** when light shines through water, like when the sun shines through the rain
- his light is bent and reflected, like a reflection in a mirror, and this causes all of the amazing colours that you see

### The scientific skills that you will be learning to use to answer the scientific questions

**What is science?**
Science is the exciting study of the nature and behaviour of natural things and the knowledge that we obtain about them. We ask questions that need answers. In order to answer these questions successfully, you will lean to use all these skills.

**Comparative and fair testing:**
With this type of enquiry, you will learn what to explore and observe what happens when one variable is changed, another variable is measured, and other variables are controlled. They will enable you to examine the relationship between cause and effect.
**Which material is most reflective?**
**Can you explain your answers?**

**Using secondary sources of information:**
You will learn to develop your research enquiries help to develop your scientific literacy, since you will learn to compare and evaluate information from different sources. You will understand the difference between facts and opinions, developing skills to become citizens of the twenty-first century.
**Why do some people need to wear glasses to see clearly?**
**Can you explain your answers?**