

| Key Vocabulary |                                                                       |
|----------------|-----------------------------------------------------------------------|
| Dark           | The absence of light                                                  |
| Direction      | The way that something is moving                                      |
| Light          | A source of energy that allows you to see                             |
| Light ray      | An imaginary line that represents the line of light.                  |
| Light beam     | A group of light rays                                                 |
| Light source   | Something that makes light                                            |
| Opaque         | Cannot be seen through                                                |
| Reflect        | Bounces or changes direction of light                                 |
| Refraction     | When light changes direction when going through a boundary of matter. |
| See            | To perceive with the eyes                                             |
| Shadow         | A dark area or shape produced by an object.                           |
| Transparent    | Can see through                                                       |
| Translucent    | Can see through partially, but not in detail.                         |

## Light – Knowledge Organiser

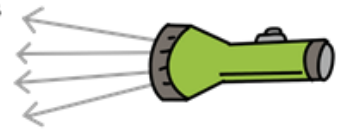
### Light sources

A **light source** makes light. The **Sun** and other **stars**, **fires**, **torches** and **lamps** all make their own light, so they are examples of sources of light.

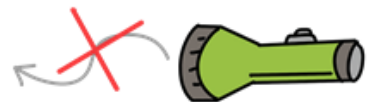


### Travelling light

Light travels very fast in **straight lines** called **light rays**. Even though light travels in straight lines, it travels in **different directions**.



Light rays from a torch travel in different directions but **always in straight lines**.

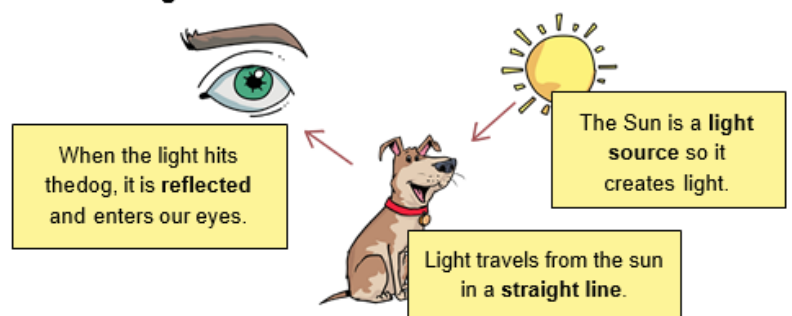


### Reflective light

We can see things because light is **reflected**. Some materials reflect light better than others.

Light travels in straight lines. When light from an object is reflected by a surface, it changes direction.

**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**.



When light hits an object, it is **reflected** (bounces off) and enters our eyes. This is how we see the object.

We need **light sources** to be able to see; otherwise, there is no light to reflect off surfaces and into our eyes. This is why we cannot see in the dark.

# Shadows

A **shadow** is made when an **object blocks light**. A shadow is a **dark area** or **shape** caused by a solid object blocking the rays of light from a light source.



# Refraction

Light doesn't always travel in straight lines like it wants to; it can **change direction**.

Light rays change speed when they pass across the boundary between two states of matter, such as gas and liquid. This causes them to **change direction**, and this effect is called **refraction**.

An example of refraction is a straw in a glass of water.



# Light through a Prism

Isaac Newton shone a **light** through a **transparent prism**, separating out **light** into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) - the colours of the **spectrum**. All the colours together merge and make visible **light**.

