

# Year 6 Spring Term

## Light

### Prior knowledge learned in 3

recognise that they need light in order to see things and that dark is the absence of light, notice that light is reflected from surfaces, recognise that light from the sun can be dangerous and that there are ways to protect their eyes, recognise that shadows are formed when the light from a light source is blocked by an opaque object, find patterns in the way that the size of shadows change

### National Curriculum for year 6

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 -



## LIGHT

### KNOWLEDGE ORGANISER

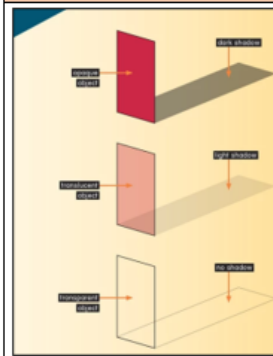


#### What you should already know...



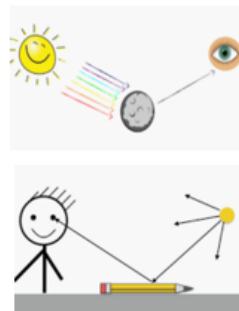
- Light is a form of energy that makes it possible to see.
- Light is given off some objects (for example the Sun). Darkness is the absence of light.
- Light can reflect off surfaces (e.g. mirrors). Light is absorbed by other materials.
- Objects can be labelled as transparent, translucent, or opaque, depending on the amount of light that they let through.
- Shadows are formed when light is blocked by an opaque object.

#### How Light Travels



- Light originates from light sources.
- Light sources can be natural (e.g. The Sun, the stars) or man-made (e.g. street lamp, Christmas tree lights, glow stick, mobile phone, TV).
- Light travels in a straight line from light sources.
- We can see that light travels in straight lines when we shine a torch in a dark room, or when a ray of light comes through a window.
- When an object passes in front of a ray of light, the light can be blocked, creating a shadow.
- Opaque objects let no light through (creating the darkest shadows), translucent objects let some light through (creating fainter shadows), transparent objects let all light through (no shadow).

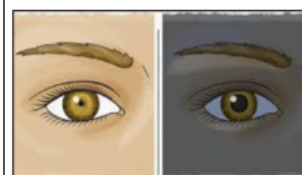
#### How We See Things



- We see things because...
  - they are a light source, sending light into our eyes, or
  - light is reflected from a light source off them and into our eyes.
- When the light enters our eyes, we see the object!
- For example, we see The Sun because it is a light source, sending light into our eyes.
- However, The Moon is not luminous (does not produce its own light). We see it because light from The Sun reflects off it into our eyes.
- After light reflects off objects, it continues to travel in a straight line, but in a new direction.

#### Our Eyes

Our eyes have a small window at the front called a pupil, through which light can enter. The pupil looks as though it is black because it is dark inside our eyes.



- When it is dark, our pupils go larger, in order to let more light in so that we can see better. In bright lights, our pupils go smaller.
- At the back of our eye is a sensitive sheet of nerves called a retina. They can detect light when it comes in through the pupil, and send messages to the brain about what we can see.

#### Key vocabulary

Refraction, Spectrum, Reflection, Light, Rainbow, Colour

#### Suggested texts

Foxton – Light

use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

#### Scientists

Thomas Edison -Invented electric light bulb, Patricia Bath (BP website)- saving sight, Thomas Young (Wave Theory of Light), Ibn al-Haytham -Light and our Eyes, Percy Shaw - The Cats

Light Spectrum



What direction does light travel in? How can this be tested?

Where on the body does light enter? What does this allow

How are objects seen by the human eye?

Why do shadows hold the same shape as the object

