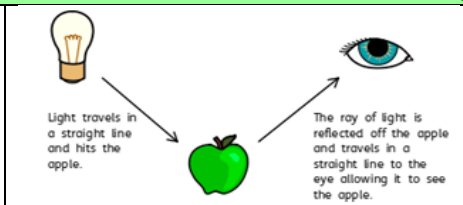
Boarshaw Primary School - Science

Topic: Light | Year 6

Previous knowledge: What should I already know?	Key knowledge: What should I know by the end of the unit?
• Certain things produce **light**, usually by burning (e.g. the sun) or **electricity** (e.g. street **lights**) • Shiny materials do not make **light** but do reflect it. • **Shadows** are caused when certain materials block **light**. • **Light** travels in straight lines. When **light** is blocked by an **opaque** object, a **dark shadow** is formed. • The further away the **light source** is, the smaller the **shadow** is. The closer light, the bigger the shadow.	By the end of this unit we will understand: • How light travels to your eyes. • The process by which we see. • Why shadows are the same shape as the object that makes them. • How a mirror works. • How binoculars work.

Key facts / information

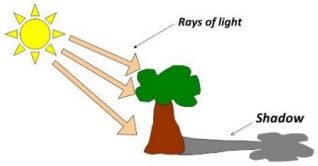
How do we see?



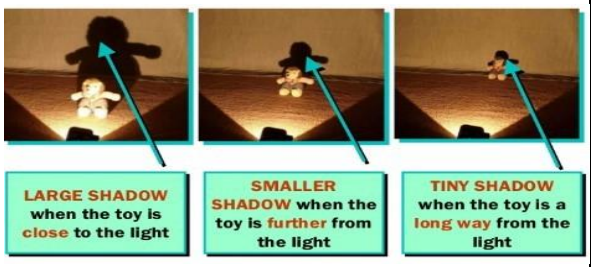
How does **light** travel?

- **Light** travels in a straight line.
- When you place a torch on a table in a **dark** room, the beam travels in a straight line.
- **Reflection** is when **light** bounces off a surface - this changes the direction in which the **light** travels.

- Because **light** travels in straight lines, when there is an **opaque** object blocking the **light**, a **shadow** is formed.
- These **shadows** have the same shape as the objects that cast them.



- The size of a **shadow** changes as the **light source** moves.



- What happens when light is **reflected** from different **surfaces**? What happens when light is **reflected** from a **mirror**? What happens when the **angle** of the **mirror** (or **light source** changes?)
- Be able to draw diagrams to show how **light** travels and what happens when **light** is **reflected** from a **mirror.**
- Be able to draw diagrams to show how we see.
- Understand how to design an experiment to measure **shadow** length by changing a variable. Show your results in a line graph to show the relationship between distance of **light source** and **shadow** length. Explain your findings using scientific vocabulary.
- Create **shadow** puppets to show how **light** travels and to demonstrate that a **shadow** has the same shape as the object that casts them.
- Understand how **mirrors** are used in different contexts (e.g. rear view mirrors) and explain why and how they work.
- Explore different contexts in which **light** travels including rainbows, colours on soap bubbles, coloured filters and how light bends in water.

Vocabulary

angle	the direction from which you look at something
dark	the absence of **light**
dim	**light** that is not **bright**
electricity	a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for machines
emits	to **emit** a sound or **light** means to produce it
light	a **brightness** that lets you see things
mirror	a flat piece of glass which **reflects light**, so that when you look at it you can see yourself **reflected** in it no longer
opaque	if an object or substance is **opaque**, you cannot see through it
reflects	sent back from the **surface** and not pass through it
shadow	a dark shape on a **surface** that is made when something stands between a **light** and the **surface**
source	where something comes from
surface	the flat top part of something or the outside of it
torch	a small **electric light** which is powered by batteries and which you can carry
translucent	if a material is **translucent**, some **light** can pass through it
transparent	if an object or substance is transparent, you can see through it

	Start of unit	End of unit
1. What is a light source? Give 3 examples of a light source.		
2. What happens when an object is put in front of a source of light? What is made?		
3. Does light travel through water? How do you know?		
4. What affects the shape and size of a shadow?		
5. What happens to a shadow when it moves further away from the light?		
6. What does opaque mean?		
7. How does a mirror work?		
8. How do we see?		