



Catholic Social Teaching Big Question:
How does light affect the environment?

Year 6 – Light

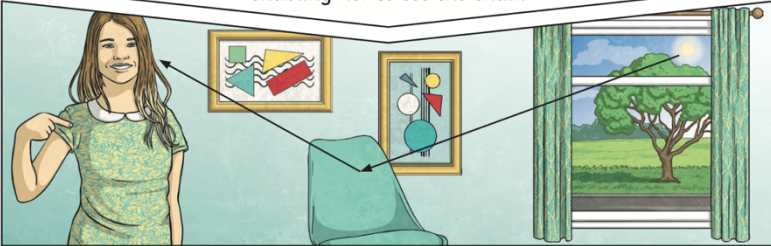


1. Key Scientific Knowledge Concepts and Skills

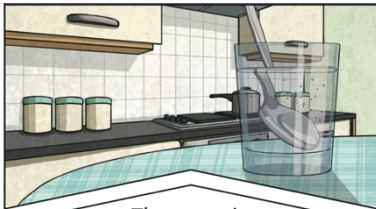
Key Knowledge

We need **light** to be able to see things. **Light** waves travel out from sources of **light** in straight lines. These lines are often called rays or beams of **light**.

Light from the sun travels in a straight line and hits the chair. The **light** ray is then **reflected** off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.



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**.

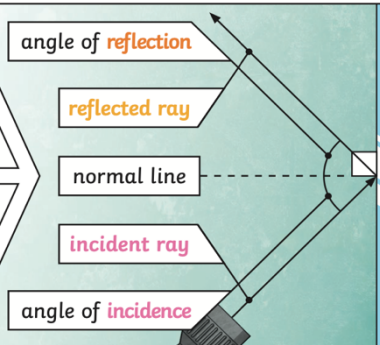


The spoon in this water looks as if it is bent. This is because **light** bends when it moves from air to water. When **light** bends in this way, it is called **refraction**.

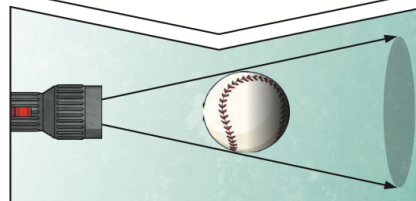
The law of reflection states that the angle of **incidence** is equal to the angle of **reflection**. Whenever **light** is **reflected** from a surface, it obeys this law.

The angle of **reflection** is the angle between the normal line and the **reflected ray** of **light**.

The angle of **incidence** is the angle between the normal line and the **incident ray** of **light**.



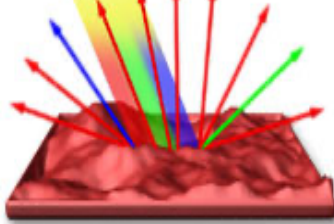
A shadow is always the same shape as the object that casts it. This is because when an **opaque** object is in the path of **light** travelling from a **light source**, it will block the **light** rays that hit it, while the rest of the **light** can continue travelling.



specular reflection



diffuse reflection



2. Key Scientific Vocabulary and Definitions

light	A form of energy that travels in a wave from a light source .
light source	An object that makes its own light .
reflection	Reflection is when light bounces off a surface, changing the direction of a ray of light.
incident ray	A ray of light that hits a surface.
reflected ray	A ray of light that has bounced back after hitting a surface.
law of reflection	The law states that the angle of the incident ray is equal to the angle of the reflected ray .
refraction	This is when light bends (refracts) as it passes from one medium to another. e. g. Light bends when it moves from air into water.
specular reflection	Where smooth and shiny surfaces reflect all the rays of light at the same angle.
diffuse reflection	Where rough, dark or dull surfaces scatter the rays of light in different directions.
the visible spectrum	Light that is visible to the human eye. It is made up of a colour spectrum.
absorption	When a ray of light shines on an object, the object absorbs some of the colours and reflects others, allowing us to see it.
shadow	An area of darkness where light is blocked

3. Prior Scientific Knowledge, Concepts and Skills

- Describe that shadows are formed when the light from a light source is blocked by an opaque object.
- Explain that the concept of reflection and how light from an object is reflected by a surface, it changes direction and bounces off the surface at the same angle as it hits it.