



### Lesson Sequence



1. Explore how light travels



2. Explore reflection



3. Explore reflection and explain how it can be used to help see things



4. Investigate how shadows can change

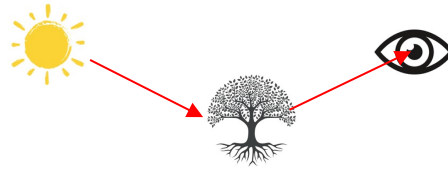


5. Investigate how we can show why shadows have the same shape as the object that cast them



6. Explore light phenomena

### How We See

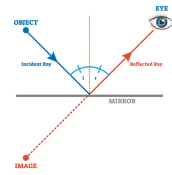


Light travels in **straight lines**. The light **rays** from a light source **reflect** off the object we are looking at. The light travels in a **straight line** and enters the eye through our **pupil**.

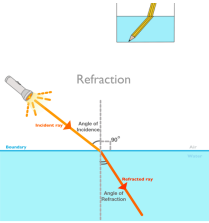
### Bending Light



REFLECTION

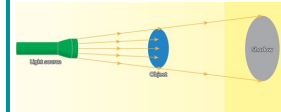


**Reflection**  
Light reflects off shiny, bright or light surfaces. That is why you can see your reflection when you look in a mirror.



**Refraction**  
Water and bent shiny surfaces cause light rays to be reflected at different angles, meaning the reflection of the image is distorted.

### Shadows



**Opaque** objects block the light rays so they can only travel around the edges of the object in straight lines. That is why a shadow is the same shape as the object.

The **closer** an object is to the light source, the **bigger** the shadow.

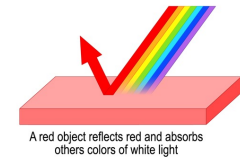
The **further away** the object is from the shadow, the **smaller** the shadow.

### Colours

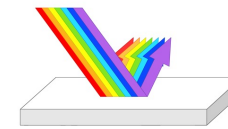


#### Absorption and reflection of light

White light is made up of the colours of the rainbow. When light is refracted through a transparent object, a rainbow is formed.



A red object reflects red and absorbs others colors of white light



A white object reflects all colors of white light equally



An object is seen as black if it absorbs all colors of white light



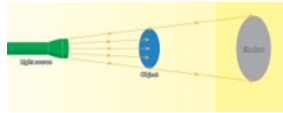
Add arrows to the diagram below to show how we see things.



Use these words to help you write an explanation of how we see:

Light rays straight lines pupil reflect

Handwriting lines for writing an explanation of how we see.



Describe how a puppet's shadow changes if it is moved closer to a light source.

Handwriting lines for describing shadow changes.

Label the statements below 'reflection' or 'refraction'.

Blank line for labeling the first statement.

Light reflects off shiny, bright or light surfaces. That is why you can see your reflection when you look in a mirror.

Blank line for labeling the second statement.

Water and bent shiny surfaces cause light rays to be reflected at different angles, meaning the reflection of the image is distorted.

True (T) or False (F) ?

Light rays reflect off shiny surfaces.

True/False box

Light travels in wavy lines.

True/False box

An iPhone is a light source.

True/False box

The moon is a light source.

True/False box

White light is made up of 5 different colours.

True/False box

Green objects look green because the green is reflected into our eyes, but the other colours are absorbed by the object.

True/False box

Why doesn't glass create a shadow when a light source is shining on it?



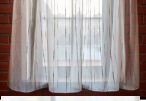



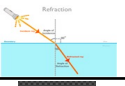


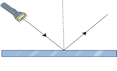
Handwriting lines for explaining why glass doesn't create a shadow.



## Unit Rocket Words: Electricity



### Rocket Words

	<b>opaque</b>	A material that does not let light pass through.
	<b>transparent</b>	A material that lets all light pass through it.
	<b>translucent</b>	A material that lets some light pass through it
	<b>reflection</b>	A mirror image caused by rays of light reflecting off an image onto a reflective surface then into our pupils.
	<b>reflects</b>	Bounces off.
	<b>light source</b>	Any man made or natural means of producing light.
	<b>refraction</b>	Where light rays are reflected of an uneven surface at irregular angles, causing an illusion.
	<b>light ray</b>	Beams of light that travel from a light source in straight lines.
	<b>pupil</b>	The black part of the eye that is a hole.
	<b>angle</b>	An angle is formed when 2 straight lines meet at a common point.