Year 6
Physics:
Light

Key Knowledge:
What is Light?

Light is a type of energy which comes from a **light source**. It is the fastest moving thing in the universe.

Light sources can be man-made or natural.

Darkness is the absence of light. Darkness cannot be created – light needs to be blocked and stopped from coming in.

Key Knowledge:
How Does Light Travel?

Light travels outwards from a light source in all directions.
Light appears to travel in straight lines.

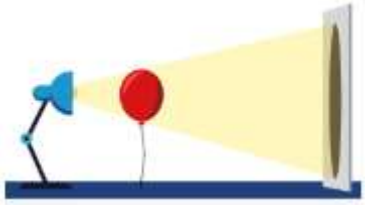
We see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be **reflected** from the object into our eyes for the object to be seen.

Key Knowledge: Shadows
How Are Shadows Formed?
Why Do Shadows Change Size?

A shadow forms when an **opaque** or **non-transparent** object blocks light from passing through and reaching a surface on the other side.

Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.

The shape and size of shadow depends on distance and angle to the light source. Multiple light sources cast multiple shadows.



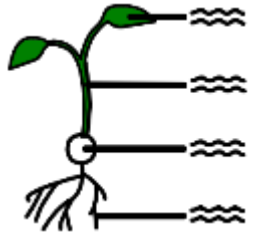
The closer to the light source an object is, the bigger the shadow will be. This is because the object blocks more of the light.

The further away from the light source an object is, the smaller the shadow will be. This is because the object blocks less of the light.

Key Knowledge: Scientific Skills
What Are Appropriate Questions?
What Do Scientific Sketches and Diagrams Need?
What is a Line Graph?

All scientific enquiries start with a question. They often end with one, too.

Scientific questions:
✓ Can be answered through enquiry
✓ Are not opinion-based
✓ Use appropriate language



Sometimes, to demonstrate understanding and findings, scientists will draw diagrams. Scientific diagrams must be labelled and drawn accurately - they are based on observation.

Line graphs tell a story of changes over time.
Axis must be labelled and scales must be used accurately.

Physics

TAPS

<u>What Do I Know About Light? What Do I Want to Know About Light?</u>

To consider and demonstrate my existing knowledge of light.

To ask appropriate questions about light, considering how I, as a scientist, could answer them.

Baseline: Light

<u>How Does Light Travel?</u>

To understand that light travels in straight lines, either from sources or reflected from other objects into our eyes.

To accurately record my findings about light in a labelled scientific sketch.

<u>How Are Shadows Formed?</u>

To understand how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape.

To accurately record my understanding through labelled diagrams.

TAPS

<u>Why Do Shadows Change Size?</u>

To understand that shadows change size when the light source moves.

To effectively present my findings in a line graph.

<u>What Do I Know Now About Light?</u>

To display my knowledge of light, considering vocabulary choices.

To correct my initial thoughts about light, acknowledging the learning that has taken place.

Revisit: Light