What should I already know?

• Recognise that they need light in order to see things and that dark is the absence of light. (Y3 - Light)

• Notice that light is reflected from surfaces. (Y3 - Light)

• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)

• Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light)

• Find patterns in the way that the size of shadows change. (Y3 - Light)

• Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials)

Key Vocabulary and Definitions:

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| --- | --- |
| Absorb | When light is taken in by an object and not reflected |
| Filter | Allows different wavelengths (colours) of light to pass through but not others |
| Isaac Newton | A famous scientist who discovered light could be split into different colours |
| Mirror | A shiny object that is able to perfectly reflect light |
| Reflection | When light bounces of a shiny object |
| Refraction | When light bends as it passes from one surface into another |
| Shadow | Formed when an object blocks light rays |
| Spectrum | Bands of colour formed by different wavelengths |
| Wavelength | The length of a wave of light from one crescent to another |

Scientific Knowledge

• 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.

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

Teaching Sequence

1. To understand how light travels.
2. To know how we see thing.
3. To explain how we see colour.
4. To know how shadows are formed (assessed).
5. To understand how light is reflected.
6. To understand how light is refracted.

Blooms Taxonomy – Specific Verbs to Use in Lesson Aims

Knowledge: Describe, find, identify, list, locate, name, recognise, retrieve Comprehension: Classify, compare, explain, infer, interpret, paraphrase, summarise Application: Carry out, implement, use Analysis: Deconstruct, Organise, outline, structure Synthesis: Construct, design, devise, invent, make, plan, produce, Evaluation: Appraise, assess, choose,



Key Knowledge

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| Term 2 | Let’s Talk (Explorify) | Scientific Knowledge | Scientific skill |
| Lesson 1 | <https://explorify.uk/en/activities/odd-one-out/shine-a-light>Sources of light | Understand how light travels. Sort reflective and non-reflective materials. | Interpret and report |
| Lesson 2 | <https://explorify.uk/en/activities/whats-going-on/find-your-focus>Find your focus | Know how light travels and how this enables us to see as it reflects off of objects and into our eyes. Know the structure of our eyes and how this enables us to see our environment | Interpret and report |
| Lesson 3 | <https://explorify.uk/en/activities/what-if/we-couldn-t-see-colours>What if we couldn’t see colours? | Understand and investigate how we see colour.Split white light to make a rainbow using a prism and light box | To Observe and MeasureTo Record |
| Lesson 4 | <https://explorify.uk/en/activities/have-you-ever/had-to-move-position-because-of-a-shadow>Have you ever had to change position because of a shadow? |  Understand how shadows are formed. Investigate what factors affect the length of a shadow (distance from light source and how this affects the size of a shadow) | TAPS assessment, to take accurate measurements and plot these as a line graphRecord |
| Lesson 5 | <https://explorify.uk/en/activities/problem-solvers/see-round-the-bend>Seeing around corners | Investigate hoe light is reflected and the reflection between the angle of incidence and the angle of reflection. To use the laws of reflection to make a working periscope | To Observe and MeasureTo RecordAsk Q’s and Plan Enquiry |
| Lesson 6 | <https://explorify.uk/en/activities/whats-going-on/back-to-front>Back to front | Understand how light is refracted.Investigate refraction in water and glass  | ObserveTo record |