Year 3 – Light

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| Prior Learning | Year 3 | Future Learning | Vocabulary |
| * Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 – Animals, including humans)
* Describe the simple physical properties of a variety of everyday materials. (Y1 – Everyday materials)
 | * 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 our 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)
 | * Recognise that light appears to travel in straight lines. (Y6 – Light)
* Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into our the eye. (Y6 – Light)
* 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. (Y6 – Light)
* Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. (Y6 – Light)
 | angle, dark, emits, light, opaque, reflects, shadows, source, translucent, transparent, reflection |

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| Key Learning | Possible Activities… |
|  We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. The light from the sun can damage our eyes and therefore we should not look directly at the Sun and can protect our eyes by wearing sunglasses or sunhats in bright light. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface. | * Explore how different objects are more or less visible in different levels of lighting
* Explore how objects with different surfaces e.g. shiny vs matt are more or less visible
* Explore how shadows vary as the distance between a light source, an object or surface is changed
* Explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground
* Choose suitable materials to make shadow puppets
* Create artwork using shadows
* Do **NOT** teach periscopes (this will be covered in Year 6)
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| Working Scientifically |
| Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. |
| Key Scientists | Common Misconceptions… |
| * **Christiaan Huygens (1629-1695)** – made ground-breaking contributions in optics and mechanics – known for wave theory of light
* **Isaac Newton (1642-1726)** – first to explain refraction of white light with a prism to reveal spectrum
* **Justus Von Liebig (1803**-**1873)** - mirrors
 | Some children may think: • we can still see even when there is an absence of any light• our eyes ‘get used to’ the dark• the moon and reflective surfaces are light sources• a transparent object is a light source• shadows contain details of the object, such as facial features on their own shadow• shadows result from objects giving off darkness |