

## MTP – Science - Year 3

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| <b>Topic</b>                   | How Far Can You Throw Your Shadow?<br>(Science: Orian and the Dark)                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                    |                                                                                                                       |                                                                                                                                                       |                                                                                                                                                            |
| <b>N.C Learning Objectives</b> | <ul style="list-style-type: none"> <li>• recognise that they need light in order to see things and that dark is the absence of light</li> <li>• notice that light is reflected from surfaces</li> <li>• recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>• recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>• find patterns in the way that the size of shadows change</li> </ul> |                                                                                                    |                                                                                                                       |                                                                                                                                                       |                                                                                                                                                            |
| <b>Ways of being Co-Op</b>     | Do what matters most<br>Succeed together<br>Be yourself, always<br>Show you care                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                    |                                                                                                                       |                                                                                                                                                       |                                                                                                                                                            |
| <b>British Values</b>          | Democracy<br>Rule of Law<br>Individual Liberty<br>Mutual Respect<br>Tolerance                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                    |                                                                                                                       |                                                                                                                                                       |                                                                                                                                                            |
| <b>CRL</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                    |                                                                                                                       |                                                                                                                                                       |                                                                                                                                                            |
| <b>Vocabulary</b>              | <u><b>Nocturnal</b></u><br>Something that is active or occurs during the night, as opposed to the day                                                                                                                                                                                                                                                                                                                                                                                                | <u><b>Shadow</b></u><br>A dark shape made when light is stopped or blocked by an object or person. | <u><b>Reflection</b></u><br>A source of light and a surface. The light travels towards the surface and bounces off it | <u><b>Specular</b></u><br>Means like a mirror, where light bounces off a smooth surface in a neat, predictable way, like seeing your face in a mirror | <u><b>Ultraviolet light</b></u><br>A type of energy, given off by the sun. Ultraviolet light can affect our skin and give us sunburn if we're not careful! |
| <b>Recap and Recall</b>        | Seasonal changes <ul style="list-style-type: none"> <li>- What is day and night</li> </ul> Animals including humans <ul style="list-style-type: none"> <li>- What are the parts of the human body</li> </ul> Materials <ul style="list-style-type: none"> <li>- Why is it made from that?</li> </ul>                                                                                                                                                                                                 |                                                                                                    |                                                                                                                       |                                                                                                                                                       |                                                                                                                                                            |

## MTP – Science - Year 3

| - Describing materials |                                                                 |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                        | LEARNING OBJECTIVE                                              | STICKY KNOWLEDGE FACT                                                                                                                           | LESSON ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Lesson 1</b>        | We are learning to understand how a shadow is created           | Objects that let no light through are opaque. Shadows are the absence of light                                                                  | <p><b>Core learning:</b></p> <ul style="list-style-type: none"> <li>● Children can understand the word nocturnal and recap nocturnal animals (year 2 learning)</li> <li>● Children are aware that light travels in straight lines.</li> <li>● Children understand that if an object is transparent (can see through it) the light will pass through and no shadow will be created. If an object is opaque (can't see through it) then the light will bounce off it and a shadow is created.</li> <li>● Children can create a shadow photographs to be taken</li> </ul> |
| <b>Lesson 2</b>        | We are learning to find patterns in the way that shadows change | Large objects produce large shadows because they block more light. If the light source is close to the object this also creates a large shadow. | <p><b>Core learning:</b></p> <ul style="list-style-type: none"> <li>● Children know how to create longer and shorter shadows (practical experiment)</li> <li>● Children to predict what will happen when they change the light source and when they use different transparent and opaque objects</li> <li>● children can experiment with different light sources</li> <li>● children can experiment with different transparency of different objects</li> <li>● Children can verbally reflect on their findings</li> </ul>                                             |
| <b>Lesson 3</b>        | We are learning to understand how a reflection is made          | A reflection occurs when light bounces off a surface and changes direction.                                                                     | <p><b>Core learning:</b></p> <ul style="list-style-type: none"> <li>● Children understand that a reflection needs a source of light and a surface.</li> <li>● Children understand that the light travels towards the surface and bounces off it.</li> <li>● Children know that when the light hits an object it bounces off the surface at the same angle as it hits it.</li> <li>● Children can explain that smooth shiny surfaces (specular reflection) reflect light well. Dark surfaces absorb light so do not reflect it well</li> </ul>                          |

## MTP – Science - Year 3

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|                 |                                                                                    |                                                                                                                                   | <ul style="list-style-type: none"> <li>● Children can explain the difference between concave and convex</li> <li>● Children can create a reflection photographs to be taken</li> <li>● Children can distinguish between a shadow and a reflection</li> </ul>                                                                                                                                                                                                                                                                                     |
| <b>Lesson 4</b> | We are learning to understand the relationship between the Earth, Sun and the Moon | The sun is the Earth's natural light source                                                                                       | <p><b>Core learning:</b></p> <ul style="list-style-type: none"> <li>● Children know that the Earth travels around the sun once every year</li> <li>● Children know that the Earth spins on its own axis</li> <li>● Children know that the Earth spins around once every 24 hours, this creates day and night</li> <li>● Children know that the moon travels around the Earth once every 28 days</li> <li>● The children know that the moon does not make its own light. The moon is bright because it reflects the light from the sun</li> </ul> |
| <b>Lesson 5</b> | We are learning to identify objects that reflect in the dark                       | Specular reflection is the mirror-like reflection from a smooth surface where light rays reflect at the same angle as they hit it | <p><b>Core learning:</b></p> <ul style="list-style-type: none"> <li>● Children understand that certain objects reflect when a light sources is shined on them in the dark (practical experiment)</li> <li>● Children experiment with marbles and playdough to create their own 'cats eyes'</li> <li>● Children experiment with shiny and non shiny objects to find out what does and does not reflect in the dark</li> <li>● Children find out wearing reflective items when walking and cycling at night</li> </ul>                             |
| <b>Lesson 6</b> | We are learning to identify how the sun can be dangerous                           | Wearing sunglasses that are opaque and block out the ultraviolet light from the sun can help to protect our eyes                  | <p><b>Core learning:</b></p> <ul style="list-style-type: none"> <li>● Children identify that light from the sun can be dangerous and the reasons why</li> <li>● Children can discuss how ultraviolet light from the sun can affect their skin and eyes</li> </ul>                                                                                                                                                                                                                                                                                |

### MTP – Science - Year 3

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|  |  |  | <ul style="list-style-type: none"><li>• Children can state ways in which they can protect their eyes from the sun (sun glasses, opaque lenses, sun hat to block out the light etc)</li></ul> |
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