

Term 4
Unit Overview: LKS2 Science
Forces and Magnets

<p><u>National Curriculum Objectives</u></p> <ul style="list-style-type: none"> ❖ Recognise that they need light in order to see things, and that dark is the absence of light. ❖ Notice that light is reflected from surfaces. ❖ Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. ❖ Recognise that shadows are formed when the light from a light source is blocked by an opaque object. ❖ Find patterns in the way that the size of shadows change. ❖ 	<p><u>Substantive knowledge</u></p> <ul style="list-style-type: none"> ❖ Know that some objects produce light energy and that these are light sources. ❖ Know that some surfaces reflect light ❖ Distinguish between light sources and objects that reflect light. ❖ Know that the Sun is a light source but the Moon is not. ❖ Know that some surfaces reflect light ❖ know which surfaces have the best reflective properties. ❖ Know that the eyes are the organs of sight. ❖ Know how to protect their eyesight, including protection from sun damage. ❖ Know that some substances allow light to pass through completely or partially and use the terms transparent, translucent and opaque. ❖ Know how shadows are formed and what determines the length of shadows. 	<p><u>Vocabulary</u></p> <p>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous.</p> <p><u>Phonics / polysyllabic words</u></p> <p>Dangerous Transparent Translucent Opaque</p>
<p><u>Working Scientifically Skills</u></p> <ul style="list-style-type: none"> ❖ Setting up simple practical enquiries, comparative and fair tests. ❖ Making systematic and careful observations, taking accurate measurements using standard units, using a range of equipment. ❖ Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. ❖ Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. ❖ Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. ❖ Using straightforward scientific evidence to answer questions or to support findings. 	<p><u>Disciplinary knowledge</u></p> <ul style="list-style-type: none"> ❖ Describe patterns in visibility of different objects in different lighting conditions and predict which will be more or less visible as conditions change. ❖ Explain, giving examples, that objects are not visible in complete darkness. ❖ Describe and demonstrate how shadows are formed by blocking light. ❖ Describe, demonstrate and make predictions about patterns in how shadows vary. 	<p><u>Reading support</u></p> <ul style="list-style-type: none"> ❖ Word mats ❖ Scaffolded recording / choice of recording ❖ Pre teaching of vocab <p><u>Key People</u></p> <p>Leonardo da Vinci René Descartes Christiaan Huygens Johannes Kepler</p>
<p><u>Possible misconceptions</u></p> <p>Some children may think:</p> <ul style="list-style-type: none"> ❖ We can still see even where 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. 		

Term 4
Unit Overview: LKS2 Science
Forces and Magnets

<p><u>Assessment Evidence</u></p> <ul style="list-style-type: none"> ❖ Can describe how we see objects in light and can describe dark as the absence of light. ❖ Can state that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses. ❖ Can define transparent, translucent and opaque. ❖ Can describe how shadows are formed. <p><u>TAPS assessment focus:</u></p> <ul style="list-style-type: none"> ❖ Making shadows – Can everything make a shadow? <ul style="list-style-type: none"> ○ Can children make a series of careful observations? ○ Can children record their observations in a systematic way that related to the question? 		
<p><u>Prior learning</u></p> <ul style="list-style-type: none"> ❖ Explore how things work. (Nurse – Forces) ❖ Talk about the difference in materials and changes they notice. (Nurse – Light) ❖ Describe what they see, hear and feel whilst outside. (Reception – Light) ❖ Identify, name, draw and label the basic parts of the human body and say which parts of the body is associated with each sense. (Y1- Animals, including humans) ❖ Describe the simple physical properties of a variety of everyday materials. (Y1- Materials) <p><u>Future learning</u></p> <ul style="list-style-type: none"> ❖ Explore how things work. (Nursery – Light) ❖ Talk about the differences in materials and changes they notice. (Nursery – Light) ❖ Describe what they see, hear and feel whilst outside. (Reception – Light) ❖ 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 - Materials) ❖ 	<p><u>British Values</u></p> <ul style="list-style-type: none"> ❖ <u>Democracy</u> Take the views and opinions of others into account. Take turns and instructions from others. ❖ <u>The rule of law</u> Understand the importance of safety rules when working scientifically make choices when planning an investigation as others may have different points of view as to where to start. ❖ <u>Tolerance</u> Scientific discoveries have come from other cultures and religious beliefs often compete with scientific understanding. ❖ <u>Mutual respect</u> Work as a team, discuss findings and offer support and advice to others. 	<p><u>Christian Values</u></p> <ul style="list-style-type: none"> ❖ <u>Courage</u> Asking our own questions and investigating new ideas. ❖ <u>Respect</u> Supporting other’s ideas, even if they differ to our own. ❖ <u>Trust</u> Celebrating everyone’s unique ideas and working together collaboratively.