

## KNOWLEDGE PROGRESSION YEAR GROUP OVERVIEW – Science (Physics)

Strand	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<b>Forces</b>	<ul style="list-style-type: none"> <li>• SPN.1 know the words; push, pull, stretch, twist</li> </ul>	<ul style="list-style-type: none"> <li>• SPR.1 know a force can have an effect on an object, (e.g. make it move)</li> </ul>			<ul style="list-style-type: none"> <li>• SP3.1 know about, and describe, how objects move on different surfaces</li> <li>• SP3.2 know that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>• SP3.3 know that magnets attract and repel each other and attract some materials and not others</li> <li>• SP3.4 know how to compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</li> <li>• SP3.5 know that magnets have two poles</li> <li>• SP3.6 know how to predict whether two magnets will attract or repel each other, depending on which poles are facing</li> </ul>		<ul style="list-style-type: none"> <li>• SP5.1 know that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object</li> <li>• SP5.2 know the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• SP5.3 know that some mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect</li> </ul>		<ul style="list-style-type: none"> <li>• SP7.1 know the difference between balanced and unbalanced forces and how they influence the movement of an object</li> </ul>

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<b>Light</b>	<ul style="list-style-type: none"> <li>• SPN.2 know the difference between day and night</li> </ul>	<ul style="list-style-type: none"> <li>• SPR.2 know the sun gives us natural light</li> </ul>			<ul style="list-style-type: none"> <li>• SP3.7 know that light is needed in order to see and that dark is the absence of light</li> <li>• SP3.8 know that light is reflected from surfaces</li> <li>• SP3.9 know about the danger of direct sunlight and describe how to keep protected</li> <li>• SP3.10 know that shadows are formed when light from a light source is blocked by an opaque object</li> <li>• SP3.11 know that the size of shadows change and find patterns</li> </ul>			<ul style="list-style-type: none"> <li>• SP6.1 know that light appears to travel in straight lines and use this to explain:                             <ul style="list-style-type: none"> <li>• that objects are seen because they give out or reflect light into the eye</li> <li>• why shadows have the same shape as the object that casts them</li> </ul> </li> <li>• SP6.2 know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</li> </ul>	<ul style="list-style-type: none"> <li>• SP7.2 know how refraction of light can occur when light travels through different objects</li> </ul>

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<b>Electricity</b>	<ul style="list-style-type: none"> <li>• SPN.3 know some objects need electricity to work</li> <li>• SPN.4 know how to keep safe around electricity</li> </ul>	<ul style="list-style-type: none"> <li>• SPR.3 know different electricity sources, (e.g. plug, battery)</li> </ul>				<ul style="list-style-type: none"> <li>• SP4.1 know common appliances that require electricity to function</li> <li>• SP4.2 know how to construct a simple series electrical circuit, identifying and naming its basic parts including cells, wires, bulbs, switch and buzzers</li> <li>• SP4.3 know how to predict and test whether a lamp will light within a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>• SP4.4 know that a switch opens or closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>• SP4.5 know some common conductors and insulators and associate metals with being good conductors</li> </ul>		<ul style="list-style-type: none"> <li>• SP6.3 know that the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit</li> <li>• SP6.4 know how to compare and give reasons for variations in how components function including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</li> <li>• SP6.5 know which recognised symbols to use when representing a simple circuit in a diagram</li> </ul>	<ul style="list-style-type: none"> <li>• SP7.3 know how to construct series and parallel circuits</li> <li>• SP7.4 know how to measure current and potential difference within a circuit</li> </ul>

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Sound	<ul style="list-style-type: none"> <li>• SPN.5 know we use our ears for listening</li> <li>• SPN.6 know that sounds come from different objects</li> </ul>	<ul style="list-style-type: none"> <li>• SPR.4 know that sounds can have different volumes</li> </ul>				<ul style="list-style-type: none"> <li>• SP4.6 know how sound is made, associating some of them with something vibrating</li> <li>• SP4.7 know that vibrations from sounds travel through a medium to the ear</li> <li>• SP4.8 know the patterns between the pitch of a sound and features of the object which produced it</li> <li>• SP4.9 know the patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>• SP4.10 know that sounds get fainter as the distance from the sound source increases</li> </ul>			<ul style="list-style-type: none"> <li>• SP7.5 know how to read the pattern of soundwaves</li> <li>• SP7.6 know different pitches and amplitudes from the soundwaves</li> </ul>

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<b>Seasonal Change/ Earth and Space</b>	<ul style="list-style-type: none"> <li>• SPN.7 know the different types of weather, (e.g. sunny, raining, cloudy)</li> </ul>	<ul style="list-style-type: none"> <li>• SPR.5 know the names of the four seasons</li> </ul>	<ul style="list-style-type: none"> <li>• SP1.1 know how to observe changes across the four seasons</li> <li>• SP1.2 know how to observe and describe weather associated with the seasons</li> <li>• SP1.3 know how to observe and describe how day length varies</li> </ul>				<ul style="list-style-type: none"> <li>• SP5.4 know the movement of the Earth and other planets relative to the Sun in the solar system</li> <li>• SP5.5 know the movement of the Moon relative to the Earth</li> <li>• SP5.6 know the Sun, Earth and Moon as approximately spherical bodies</li> <li>• SP5.7 know about the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>		<ul style="list-style-type: none"> <li>• SP7.7 know how gravitational forces cause the orbits of the planets and their moons</li> <li>• SP7.8 know how the tilt of the of the Earth causes the seasons</li> </ul>

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