

KNOWLEDGE PROGRESSION YEAR GROUP OVERVIEW – Science (Physics)

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

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

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Electricity	<ul style="list-style-type: none"> • SPN.3 know some objects need electricity to work • SPN.4 know how to keep safe around electricity 	<ul style="list-style-type: none"> • SPR.3 know different electricity sources, (e.g. plug, battery) 				<ul style="list-style-type: none"> • SP4.1 know common appliances that require electricity to function • SP4.2 know how to construct a simple series electrical circuit, identifying and naming its basic parts including cells, wires, bulbs, switch and buzzers • 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 • 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 • SP4.5 know some common conductors and insulators and associate metals with being good conductors 		<ul style="list-style-type: none"> • 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 • 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 • SP6.5 know which recognised symbols to use when representing a simple circuit in a diagram 	<ul style="list-style-type: none"> • SP7.3 know how to construct series and parallel circuits • SP7.4 know how to measure current and potential difference within a circuit

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

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

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