



St. Joseph's Catholic Primary School  
Science Progression: Physics



Year	Progression of knowledge.				
	Light	Sound	Electricity	Earth and Space	Forces
Nursery	<ul style="list-style-type: none"><li>• Explore light sources</li><li>• Shine light on or through different materials</li></ul>	<ul style="list-style-type: none"><li>• Listen to sounds</li><li>• Make sounds</li><li>•</li></ul>	<ul style="list-style-type: none"><li>• Identify electrical devices</li><li>• Use battery-powered devices</li></ul>	<ul style="list-style-type: none"><li>• Learn about the solar system and stars</li><li>• Learn about space travel</li><li>• Explore the natural world around them</li><li>• Play and explore outside in all seasons and in different weather</li><li>• Observe living things throughout the year</li><li>• Understand the effect of change in seasons on the natural world around them</li><li>• Name the 4 seasons</li></ul>	<ul style="list-style-type: none"><li>• Feel forces</li><li>• Explore how things work</li><li>• Explore how objects/materials are affected by forces</li></ul>
Reception	<ul style="list-style-type: none"><li>• Explore shadows</li><li>• Explore rainbows</li></ul>	<ul style="list-style-type: none"><li>• Listen to sounds outside and identify the source</li><li>• Make sounds</li></ul>			<ul style="list-style-type: none"><li>• Explore how things work</li><li>• Explore and talk about different forces they can feel</li><li>• Explore how to change how things work</li></ul>



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					<ul style="list-style-type: none"><li>• Explore how the wind can move objects</li><li>• Explore how objects move in water</li></ul>
1				<ul style="list-style-type: none"><li>• Name the 4 seasons and say when in the year they occur</li><li>• Observe and describe weather associated with the seasons</li><li>• Observe changes across the 4 seasons</li><li>• Can describe other features that change throughout the year that are caused by the change in weather e.g. numbers of mini beasts found outside, seed and plant growth, leaves on trees, clothes worn by people, hibernation and migration</li></ul>	<ul style="list-style-type: none"><li>• Observe and describe different ways of moving</li><li>• Identify similarities and differences between movement of different objects</li><li>• Make suggestions about how objects can be made to move</li><li>• Explore contact forces (push and pull)</li><li>• Explore how objects sink or float</li><li>• Know that it is not only ourselves that make things move and ask questions</li></ul>



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				<ul style="list-style-type: none"><li>• Explain how day light (from the sun rising to sun setting)length varies across the year (longer in summer, shorter in winter)</li></ul>	about what is causing movement
2	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>• Electricity is a form of energy, used for lighting, heating, making sound and making machines and appliances work.</li><li>• Pylons and cables carry electricity through the countryside, some electricity cables in busy cities are buried underground</li><li>• Appliances are devices that run on electricity and they should be used safely (includes, no frayed wires, avoid spillages and keep away</li></ul>		



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			<p>from water, not putting objects into sockets</p> <ul style="list-style-type: none"><li>• Compare life in a village that has no electricity</li><li>• A circuit is a complete path around which electricity can flow</li><li>• Circuits contain components like wires, switches and bulbs.</li></ul>		
3	<ul style="list-style-type: none"><li>• recognise that they need light in order to see things and that the 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></ul>			<ul style="list-style-type: none"><li>• Name some types of rock and describe the physical features of each</li><li>• Compare and group together kinds of rocks based on their appearance</li><li>• Compare and group together kinds of rocks based on their simple physical properties</li><li>• Name the 3 types of rocks (igneous, sedimentary and</li></ul>	<ul style="list-style-type: none"><li>• Compare how things move on different surfaces</li><li>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li><li>• Describe magnets as having two poles</li><li>• Observe how magnets attract or repel each other and attract some materials and not others</li></ul>



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	<ul style="list-style-type: none"><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 changes</li></ul>			<p>metamorphic) and classify based on their appearance and physical properties (e.g. marble is metamorphic because it is hard and smooth)</p> <ul style="list-style-type: none"><li>• Describe how the 3 rock types are formed (the rock cycle)</li><li>• Recognise that soils are made from rocks and organic matter</li><li>• Describe in simple terms how fossils are formed when things that have lived are trapped in rock</li></ul>	<ul style="list-style-type: none"><li>• Predict whether two magnets will attract and repel each other, depending on which poles are facing</li><li>• 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></ul>
4		<ul style="list-style-type: none"><li>• identify how sounds are made, associating some of them with something vibrating</li><li>• recognise that vibrations from</li></ul>	<ul style="list-style-type: none"><li>• identify common appliances that run on electricity</li><li>• construct a simple series electrical circuit, identifying and naming</li></ul>		



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		<p>sounds travel through a medium to the ear</p> <ul style="list-style-type: none"><li>• find patterns between the pitch of a sound and features of the object that produced it</li><li>• find patterns between the volume of a sound and the strength of the vibrations that produced it</li><li>• recognise that sounds get fainter as the distance from the sound source increases</li></ul>	<p>its basic parts, including cells, wires, bulbs, switches and buzzers</p> <ul style="list-style-type: none"><li>• identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li><li>• recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li><li>• recognise some common conductors and insulators, and associate metals with being good conductors</li></ul>		
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5	<ul style="list-style-type: none"><li>• recognise that light appears to travel in straight lines</li><li>• use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye</li><li>• 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</li><li>• use the idea that light travels in straight lines to explain why shadows have the same shape</li></ul>			<ul style="list-style-type: none"><li>• Name the planets of Our Solar System and understand Our place in Our universe, describe the Sun, Earth, Moon and other planets as approximately spherical bodies</li><li>• Describe the movement of the Earth around the sun in the solar system (a full orbit is 365 days, the Earth spins on its axis every 24 hours)</li><li>• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the day</li><li>• Describe the movement of the moon relative to the Earth (lunar cycles take 28</li></ul>	<ul style="list-style-type: none"><li>• Know the work of Isaac Newton and know that force is measured in Newtons by a Newton Meter</li><li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li><li>• Identify the effects of air resistance</li><li>• Identify the effects of water resistance</li><li>• Identify the effects of friction acting between moving surfaces</li><li>• Recognise that some mechanisms, including levers, pulleys and gears,</li></ul>
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	as the objects that cast them			<p>days, the lunar cycle and eclipses)</p> <ul style="list-style-type: none"><li>• Describe the movement of the other planets relative to the sun in the solar system (fixed orbits)</li><li>• Describe what meteors are, and name other objects in space</li><li>• Explain how 'The Space Race' has expanded our scientific knowledge and discuss space travel</li></ul>	allow a smaller force to have a greater affect
6			<ul style="list-style-type: none"><li>• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li><li>• compare and give reasons for variations in how components function, including the</li></ul>		





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			<p>brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <ul style="list-style-type: none"><li>• use recognised symbols when representing a simple circuit in a diagram</li></ul>		
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