



Science Overview – Key Learning for Physics



	Light	Sound	Forces & Magnets	Seasonal Change	Earth & Space	Electricity
Reception	<ul style="list-style-type: none">- Know objects can form shadows.	<ul style="list-style-type: none">- Understand loud and quiet sound.	<ul style="list-style-type: none">- Floating is when the object stays on top of a liquid. Sinking is when the object falls to the bottom	<ul style="list-style-type: none">- The weather is cold and rainy in autumn.- There are no leaves on the trees or on the ground in winter.- In spring the weather gets warmer and other new life begins to grow.- The weather is hot in summer with lots of sunshine.	<ul style="list-style-type: none">- The solar system has eight planets, Name the planet Earth and the Sun.	
Year 1	<ul style="list-style-type: none">- The Sun is a natural source of light.- The Moon is not a natural source of light, it reflects light from the Sun.- Artificial light sources give us different types of light – bright/dull- Darkness means there is no light source.		<ul style="list-style-type: none">- A push will make something move away from me.- A pull will move something towards me.- Forces make an object speed up or slow down.- You can make something start or stop moving when you push or pull it.- Forces can change the shape of something.	<ul style="list-style-type: none">- There are 4 seasons Spring, Summer, Autumn, Winter- The weather changes with the seasons.- In the UK, the day length is longest at mid-summer (about 16 hours) and- gets shorter each day until mid-winter (about 8 hours) before getting longer again.- In the UK, it is usually colder and rainier in winter, and hotter and drier in the summer.		

	<ul style="list-style-type: none"> - When an object blocks light you get a shadow. 			<ul style="list-style-type: none"> - Changes across the seasons have an effect on trees, plants, animals and the way we live. 		
Year 2						<ul style="list-style-type: none"> - Many everyday appliances rely on electricity for them to work. - Some appliances need to be plugged into a socket (mains electricity). - Some appliances have a battery to make them work. - Electricity can be dangerous and appliances must be used safely. - A simple circuit contains using batteries, bulbs and wires to make it work.
Year 3	<ul style="list-style-type: none"> - Darkness is the absence of light - More light reflects off 		<ul style="list-style-type: none"> - Friction is caused by two objects rubbing together 			

	<p>smooth shiny surfaces</p> <ul style="list-style-type: none"> - Materials have different properties (transparent, translucent, opaque) that let different amounts of light through them - A shadow is created by an object blocking light - The size of a shadow created by the Sun will change throughout the day 		<ul style="list-style-type: none"> - Friction can cause a moving object to slow down - Magnets have two poles – North and South - Magnets either attract or repel each other - Some materials are magnetic, some aren't 			
Year 4		<ul style="list-style-type: none"> - Know that sound is produced by vibrations - Vibrations travel as a wave through solids, liquids and gases. - Know the parts of the ear and their functions. 				<ul style="list-style-type: none"> - Many household devices and appliances run on electricity - Electricity flows through a circuit - A circuit requires a battery, wires and a

		<ul style="list-style-type: none"> - Know that sounds change over distance - Know that different objects produce different pitches and volumes 				<p>component to function</p> <ul style="list-style-type: none"> - Metals are good conductors - Non-metallic solids are insulators except for graphite (pencil lead).
Year 5	<ul style="list-style-type: none"> - The sun is a natural form of light that enables us to see. - Light travels in straight lines often called rays or beams. - Light rays are reflected of objects to our eyes, enabling us to see them. - Light bends when it moves from air to water – this is called refraction. - A shadow is always the same shape of the object that casts 		<ul style="list-style-type: none"> - Gravity is a force that makes things fall to the ground on Earth and other planets. - Air resistance is a force that acts between air and an object. - Water resistance is a force that acts between a fluid and an object and up thrust pushes an object up in fluids (and in air). - Friction is a force that acts between two surfaces that are sliding, or trying to slide, across each other. - Levers consist of two parts – a beam and 		<ul style="list-style-type: none"> - The Sun, Earth and Moon are spherical bodies. - There are eight planets in the Solar System (e.g. Jupiter and Saturn). - The planets orbit around the Sun (the orbits are heliocentric). - The Earth rotates on its own axis, causing night and day. - The moon orbits around the Earth. Gravity keeps the moon in orbit with the Earth. 	

	<p>it. However, depending on the angle of the light source it can be shortened or elongated.</p>		<p>pivot. A load is added to the beam, supported by the pivot, and a heavy load can be lifted.</p>			
Year 6	<ul style="list-style-type: none"> - Light can only travel in straight lines, often called rays or beams, and shadows prove this. - Light from the sun travels to an object, then is reflected and travels in a straight line to a person's eye, enabling them to see the object. - Einstein discovered that nothing can travel faster than the speed of light. - Refraction is caused because light waves travel at a 	<ul style="list-style-type: none"> - Sound can travel through solids, liquids and gases. - Sound travels as a wave, vibrating the particles in the medium it is travelling in. - Sound travels much slower than light, whether in air or in water. You often hear things after you see them, for example, you see the lightning before you hear the thunder - Sound can vary, a decibel is a measure of how loud a sound is, pitch is how high or low a sound is. - Alexander Graham Bell— 				<ul style="list-style-type: none"> - The electric symbols in a circuit are: a lamp/bulb (indicator or lightning), wire, motor, buzzer, switch (open and closed), cell, battery. - A lamp will light in a simple series circuit, if it is part of a complete loop with a battery and an open switch. - Buzzers will get louder and bulbs brighter if more cells are added to a circuit. - A series circuit has only one route for the

	<p>different speed when they go through other transparent materials, such as water or glass.</p> <ul style="list-style-type: none">- Shadows are formed when an opaque object blocks a ray of light and can change size depending on the distance and angle of the light source.	<p>Scottish born scientist (1847) invented the telephone in 1876 at the age of 29.</p>				<p>current to take, if more bulbs/buzzers are added the power has to be shared so they will be dimmer/quieter.</p> <ul style="list-style-type: none">- Learn that local scientist Joseph Swan invented the electric lightbulb.
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