



Progression in Science

Progress Maps for Science



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Overview of Progression in Topics across Key Stage 1 and 2

Topic	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	Plants <ul style="list-style-type: none"> • Naming common organisms • Naming Parts of a plant 	Plants <ul style="list-style-type: none"> • Growth • Basic needs 	Plants <ul style="list-style-type: none"> • Function of organs • Varying requirements • Water transport • Flowers and seed formation 			
Animals inc Humans	Animals inc humans <ul style="list-style-type: none"> • Identify and name common animals • Carnivores, herbivores, omnivores • Parts of animals • Senses and body parts 	Animals inc human <ul style="list-style-type: none"> • Growth • Basic needs 	Animals inc human <ul style="list-style-type: none"> • Nutrition • Skeleton and muscles 	Animals inc human <ul style="list-style-type: none"> • Digestive system • Teeth • Food chains 	Animals inc human <ul style="list-style-type: none"> • Birth to old age 	Animals inc human <ul style="list-style-type: none"> • Circulatory system • Keeping healthy • Transport of water and nutrients
Living things & their habitats		Living things & habitats <ul style="list-style-type: none"> • Differences in living things • Habitats and basic needs • Who lives here? • Simple food chains 		Living things & habitats <ul style="list-style-type: none"> • Classification • Changing environments 	Living things & habitats <ul style="list-style-type: none"> • Life cycles • Reproduction in plants and animals 	Living things & habitats <ul style="list-style-type: none"> • Classification Evolution and inheritance <ul style="list-style-type: none"> • Change over time & fossils • Variation & adaptation → evolution
Materials	Everyday materials <ul style="list-style-type: none"> • Object v. material • Naming materials • Simple physical properties • Grouping on physical properties 	Uses of everyday materials <ul style="list-style-type: none"> • Suitability for uses • Shaping materials 		States of matter <ul style="list-style-type: none"> • Grouping SLG • Changes in state • Water cycle 	Properties & changes of materials <ul style="list-style-type: none"> • Physical properties • Solubility • Separating mixtures • Testing materials • Reversible & chemical change 	

Seasonal Change	Seasonal change <ul style="list-style-type: none"> • Observing seasonal change • Changes in weather & day length 					
Rocks			Rocks <ul style="list-style-type: none"> • Types • Fossil formation • Soil 			
Earth & Space					Earth and space <ul style="list-style-type: none"> • Model solar system • Movement in the solar system • Day and night 	
Light			Light <ul style="list-style-type: none"> • seeing / dark • Reflection • Sun danger • Shadows 			Light <ul style="list-style-type: none"> • Light travels in straight lines • Light journeys • Explaining shadows
Sound				Sound <ul style="list-style-type: none"> • Making sounds • Transmission of sound • Changing pitch & loudness • Dissipation of sound 		
Forces			Forces and magnets <ul style="list-style-type: none"> • Friction • Contact & non-contact • 'magnetic' materials 		Forces <ul style="list-style-type: none"> • Falling • Drag & friction • Simple machines – force changers 	

			<ul style="list-style-type: none">• Magnetic attraction & repulsion + poles			
Electricity				Electricity <ul style="list-style-type: none">• Uses• Simple circuits & switches• Conductors and insulators		Electricity <ul style="list-style-type: none">• Effect of changing Voltage• Symbols

Progression across all year groups - Scientific Enquiry Skills

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Asking Questions	-Ask questions about the world around them.	-Ask simple questions. -With help, I can use: how, why, what and when.	-Ask simple questions. -I can use practical activities to ask simple questions about how things are similar or different. -I can ask simple questions about how things change or how they happen.	-Ask relevant questions and use different types of scientific enquires to answer them. -I ask questions in different ways. -I ask questions related to the activity we are carrying out.	-Ask relevant questions and use different types of scientific enquires to answer them. -I can use practical science activities to give me ideas for a question.	-I recognise which questions can't be investigated.	-I can use my science experiences to explore ideas and raise different kinds of questions. -I can write/identify a question to be investigate that others could use. -I recognize that other people may interpret evidence in different ways. -I can explain how experimental evidence & creative thinking combine to make an explanation.
Variables				-Set up simple practical enquiries, comparative and fair tests. -I compare tests saying if it is fair or not, with help. -With help, I identify at least 1 variable to control.	-Set up simple practical enquiries, comparative and fair tests. -I know when a fair test is necessary. -I help to decide how to set up a fair test. -I recognise & begin to explain how it is fair with help.	-Plan different types of enquiries, including recognising and controlling variable where necessary. -I can plan a fair test and explain with key vocabulary why it is fair. -I can decide which variables to measure, change & keep the same.	-Plan different types of enquiries, including recognise and controlling variables where necessary. -I recognise when and how to set up fair tests. -I can explain which variables are needed to be controlled.

							-I use 'variables'	-I identify some variables I cannot control and explain it.
Research		-Gather and record data to help in answering questions. -With help, I can use simple books & other sources to find out about scientific ideas.	-Gather and record data to help in answering questions and recognise that they can be answered in different ways. -I can use simple secondary sources to help find answers. -I ask people questions to find out answers.	-Gather, record, classify and present data in a variety of ways to help answer questions. -I can use ICT to find information relevant to my investigations as well as other sources provided.	-Gather, record, classify and present data in a variety of ways to help answer questions. -I know when and how secondary sources might help answer questions.			-I recognise which secondary sources will be most useful. -I am beginning to separate opinion from fact.
Observe and Measure	Planning	-Say when they do or do not need help.	-Perform simple tests. -I state what I am doing now. -I am beginning to say what to do next.	-Perform simple tests. -I have experienced different ways of answering questions. -I have started to work on different types of enquiry. -I am beginning to recognise ways to answer questions. -I can carry out simple tests.	-Set up simple practical enquiries, comparative and fair tests. -I can carry out a fair test with some help.	-Set up simple practical enquiries, comparative and fair tests. -I am starting to make decisions about the best type of enquiry to use. -I am beginning to decide where I can find a pattern and what data I need to collect. -I help to decide what observations to make and how long to make them for.	-Plan different types of enquiries, including recognising and controlling variables where necessary. -I can decide how to find answers. -I decide on the best approach.	-Plan different types of enquiries, including recognising and controlling variables where necessary, -I can select and plan the most appropriate type of enquiry to use to answer questions. -I decide about what observations to make. -I recognise that we need larger sample sizes to get more reliable results. -I can explain how my approach or method is the best.
	Resources	-Choose the resources they need for their chosen activities.	-Observe closely with simple equipment.	-Observe closely with simple equipment.	-Make systematic and careful observations where appropriate,	-Make systematic and careful observations where appropriate,	-Take measurements, using a range of scientific equipment in	-Take measurements, using a range of scientific equipment in

		<ul style="list-style-type: none"> -Explore a variety of materials. Tools and techniques, experimenting with colour, design, texture, form and function. -Select and use technology for particular purposes. 	<ul style="list-style-type: none"> -With help, I can use simple equipment to collect data. -I recognise some simple equipment we use. 	<ul style="list-style-type: none"> -I can make simple measurements -I can use simple equipment e.g. hand lenses and egg timers to gather data. 	<ul style="list-style-type: none"> taking accurate measurements using standard units using a range of equipment including thermometers and dataloggers. -To the nearest whole number I measure from a range of equipment. 	<ul style="list-style-type: none"> taking accurate measurements using standard units using a range of equipment including thermometers and dataloggers. -I help to decide what simple equipment we might use. -I am learning to use equipment appropriately e.g. data loggers -I talk about how I have grouped, sorted and/or classified objects. -I can use a simple key. -I help to decide what observations to make and how long to make them for. -I can collect data from my observations and measurements. -I use standard measurements. 	<ul style="list-style-type: none"> increasing accuracy and precision. -I can select suitable equipment and information from sources provided. -I recognise that a series of measurements or observations should be made in an investigation. 	<ul style="list-style-type: none"> increasing accuracy and precision, taking repeat readings when appropriate. -I decide what measurements to use and how long to make them for. -I decide on the most appropriate equipment to use. -I can explain how to use the equipment accurately. -I explain how repeating observations and measurements helps reduce errors to obtain more reliable evidence. -I can make my own keys. -I can use keys to classify and identify a range of things. -I decide about what observations to make. -I risk assess, controlling obvious risk to myself and others.
	Observation	<ul style="list-style-type: none"> -Know about similarities and differences in relation to places, objects, materials and living things. -Make observations of animals and plants. 						
Present information (Recording & Graphs)		<ul style="list-style-type: none"> -Represent their own ideas, thoughts and feelings through design and technology, art, 	<ul style="list-style-type: none"> -Gather and record data to help in answering questions. 	<ul style="list-style-type: none"> -Gather and record data to help in answering questions. -I can record simple data. 	<ul style="list-style-type: none"> -Gather, record, classify and present data in a variety of ways to help answer questions. 	<ul style="list-style-type: none"> -Gather, record, classify and present data in a variety of ways to help answer questions. 	<ul style="list-style-type: none"> -Record data and results of increasing complexity using scientific diagrams and labels, 	<ul style="list-style-type: none"> -Record data and results of increasing complexity using scientific diagrams and labels,

		music, dance, role play and stories.	<ul style="list-style-type: none"> -I communicate and draw simple pictures of my findings with help. -I can add blocks to towers, showing early measurement. -I can stick pictures onto a chart drawn for me. 	<ul style="list-style-type: none"> -I can record what I found out in a variety of ways. -I fill in a tally chart if the teacher makes it for me or with help. -I can use simple chart templates provided to communicate with help. 	<ul style="list-style-type: none"> -Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. -I can finish charts & tables started for me. -I begin to record what I found out in a scientific way, trying to put headings in tables drawn for me. -With help I can draw a bar chart or diagram to show what happened. 	<ul style="list-style-type: none"> -Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. -I help decide how to record my data in notes and simple tables. -I describe why we need to collect data. 	<ul style="list-style-type: none"> classification keys, tables, bar charts and line graphs. -Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations. -I can decide a method of recording data to suit the results e.g. a two column table. -I am beginning to plot line graphs. 	<ul style="list-style-type: none"> classification keys, tables, bar charts and line graphs. -Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations. -I decide how to record my data from a variety of choices. -I recognise the difference between continuous and discontinuous data. -I know that only continuous data can be presented as a line graph.
		Analysis	Patterns	<ul style="list-style-type: none"> -Use observations and ideas to suggest answers to questions. -I begin to tell others some differences and similarities. -I use annotated drawings and simple sentences to communicate. 	<ul style="list-style-type: none"> -Use observations and ideas to suggest answers to questions. -I am beginning to notice patterns with help. -I can talk about what has happened and how I found it out. 	<ul style="list-style-type: none"> -Report on findings including oral and written explanations, displays or presentations of results and conclusions. 	<ul style="list-style-type: none"> -Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. -With help I look for differences similarities, changes and for naturally occurring 	<ul style="list-style-type: none"> -Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations.

			-I can state what happened or what we did.	-I am beginning to use some simple scientific language to share what I found out. -I describe observations simply with a range of vocabulary.		patterns and relationships in data.	-I reorder results to show a pattern. -I can use graphs to identify and interpret patterns in my data.	-I look for causal relationships in my data. -I can talk about how ideas have changed over time. -I can use data to identify patterns. -I can extract data from line graphs.
	Conclusion	-Talk about the features of their own immediate environment and how environments might vary from one another. -Explain why some things occur and talk about changes.			-Use results to draw simple conclusions, make predictions for new values and suggest improvements, and raise further questions. -Use straight forward evidence to answer questions or to support their findings. -I can write what I found out and try to explain it simply.	-Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. -Use straight forward evidence to answer questions or to support findings. -I draw a simple conclusion & answer my question. -I can use relevant scientific language to discuss my ideas and findings.		-I use relevant scientific language and illustrations to discuss, communicate and justify my ideas.
Evaluate					-I can recognise unexpected results.	-With help I can find some new questions to ask. -With help I can suggest ways of doing what I did better.	-Identify scientific evidence to support or refute ideas or arguments. -Use test results to make predictions to set up further	-Identify scientific evidence to support or refute ideas or arguments. -Use test results to make predictions to set up further

						<p>comparative and fair tests.</p> <ul style="list-style-type: none">-I begin to consider whether to ignore any inaccurate or unsuitable results.-I describe how to improve the method I used.	<p>comparative and fair tests.</p> <ul style="list-style-type: none">-I identify evidence that supports or refutes my ideas.-I can use my results to identify further questions, observations and comparative tests to carry out.-Suggest how/why my method should change.-I suggest larger sample sizes and collaboration that are needed to improve.-I explain difference of repeated observations.-I explain reject results.
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Progression across all year groups – Plants

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	<p>-Make observations of animals and plants and explain why some things occur, and talk about changes.</p>	<p>-Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>-Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>-Observe the growth of bulbs and/or seeds.</p>	<p>-Observe and describe how seeds and bulbs grow into mature plants.</p> <p>-Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>-Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers</p> <p>-Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>-Investigate the way in which water is transported within plants</p> <p>-Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>			

Progression across all year groups – Animals including Humans

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans	<p>-Know about similarities and differences in relation to places, objects, materials and living things.</p> <p>-Make observations of animals and plants and explain why some things occur, and talk about changes.</p>	<p>-Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>-Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p>	<p>-Notice that animals, including humans, have off spring which grow into adults.</p> <p>-Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p>	<p>-Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</p> <p>-Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>-Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>		<p>-Describe the ways in which nutrients and water are transported within animals, including humans.</p>
Humans	<p>-Know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.</p> <p>-Know about similarities and differences in relation to places, objects, materials and living things.</p> <p>-Manage their own basic hygiene and</p>		<p>-Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>		<p>-Describe the simple functions of the basic parts of the digestive system in humans</p> <p>-Identify the different types of teeth in humans and their simple functions</p>	<p>-Describe the changes as humans develop to old age.</p>	<p>-Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>-Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p>

	<p>personal needs successfully, including dressing and going to the toilet independently.</p> <p>-Know about, and can make healthy choices in relation to, healthy eating and exercise.</p>						
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Progression across all year groups – Living Things and Their Habitats

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living things and their habitats	<p>-Know about similarities and differences in relation to places, objects, materials and living things.</p> <p>-Talk about the features of their own immediate environment and how environments might vary from one another.</p> <p>-Make observations of animals and plants and explain why some things occur, and talk about changes.</p>		<p>-Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>-Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</p> <p>-Identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>-Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>		<p>-Recognise that living things can be grouped in a variety of ways.</p> <p>-Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>-Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>-Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>-Describe the life process of reproduction in some plants and animals.</p>	<p>-Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.</p> <p>-Give reasons for classifying plants and animals based on specific characteristics.</p>
Evolution and Inheritance							-Recognise that living things have changed

							<p>over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>-Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>-Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
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Progression across all year groups – Materials

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Everyday Materials	<p>-Safely use and explore a variety of materials.</p> <p>-Through their explorations, find out and make decisions about how materials can be combined and changed.</p> <p>-Know about similarities and differences in relation to places, objects, materials and living things.</p> <p>-Know about properties of some materials and can suggest some of the purposes they are used for.</p>	<p>-Distinguish between an object and the material from which it is made.</p> <p>-Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>-Describe the simple physical properties of a variety of everyday materials.</p> <p>-Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>-Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>-Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>				
States of Matter	<p>-Are familiar with basic scientific concepts, such as floating, sinking and experimentation.</p>				<p>-Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>-observe that some materials change state</p>		

					<p>when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).</p> <p>-Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>		
<p>Properties & changes of materials</p>	<p>-Know about similarities and differences in relation to places, objects, materials and living things.</p>					<p>-Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>-Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>-Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p>	

						<p>-Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>-Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>-Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	
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Progression across all year groups – Seasonal Changes

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Change	-Talk about the features of their own immediate environment and how environments might vary from one another.	-Observe changes across the four seasons. -Observe and describe weather associated with the seasons and how day length varies.					

Progression across all year groups – Rocks

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Rocks				<ul style="list-style-type: none">-Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.-Describe in simple terms how fossils are formed when things that have lived are trapped within rock.-Recognise that soils are made from rocks and organic matter.			

Progression across all year groups – Earth and Space

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth and Space						<ul style="list-style-type: none">-Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.-Describe the movement of the Moon relative to the Earth.-Describe the Sun, Earth and Moon as approximately spherical bodies.-Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	

Progression across all year groups – Light

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light				<p>-Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>-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.</p> <p>-Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>-Find patterns in the way that the size of shadows change.</p>			<p>-Recognise that light appears to travel in straight lines.</p> <p>-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.</p> <p>-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.</p> <p>-Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>

Progression across all year groups – Sound

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound					<ul style="list-style-type: none">-Identify how sounds are made, associating some of them with something vibrating.-Recognise that vibrations from sounds travel through a medium to the ear.-Find patterns between the pitch of a sound and features of the object that produced it.-Find patterns between the volume of a sound and the strength of the vibrations that produced it.-Recognise that sounds get fainter as the distance from the sound source increases.		

Progression across all year groups – Forces and Magnets

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces	-Are familiar with basic scientific concepts, such as floating, sinking and experimentation.			-Compare how things move on different surfaces.		-Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. -Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. -Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
Magnets				-Notice that some forces need contact between two objects, but magnetic forces can act at a distance. -Observe how magnets attract or repel each other			

				<p>and attract some materials and not others.</p> <p>-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.</p> <p>-Describe magnets as having two poles.</p> <p>-Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>			
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Progression across all year groups – Electricity

Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity					<p>-Identify common appliances that run on electricity.</p> <p>-Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>-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.</p> <p>-Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>-Recognise some common conductors and insulators, and associate metals with being good conductors.</p>		

