



Newnham Junior School – Science Curriculum Map

Biology Knowledge	Chemistry Knowledge	Physics Knowledge	Scientific Method Knowledge and skills
Theme 1 – Knowledge and understanding of body systems	Theme 1 – Knowledge of different states of matter	Theme 1 – Light	Theme 1 – Scientific enquiry
Theme 2 – Keeping healthy	Theme 2 – How changes of state occur	Theme 2 – Sound	Theme 2 – Observing, measuring and gathering data
Theme 3 – Plants	Theme 3 – Classification of materials	Theme 3 – Astronomy	Theme 3 – Presenting data
Theme 4 – Classification of living things	Theme 4 – Rocks and soil	Theme 4 – Electricity	Theme 4 – Reporting findings
Theme 5 – Food chains		Theme 5 – Forces	Theme 5 – Using evidence
Theme 6 - Evolution			



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YEAR 3 - Food and Bodies, Magnetism, The moon, Rocks, Plants, Light			
<p>Different mammals have different diets and skeletons.</p> <p>Our skeleton is for protection, support and movement.</p>		<p>To understand the term light source and name at least 3</p> <p>To know light travels in straight lines and that you can change the direction of light through reflection.</p> <p>That shadows are formed when the light from a light source is blocked and that the size of shadows can change.</p> <p>To know and understand the vocabulary of transparent and opaque.</p>	<p>Same as for Year 4. Please see below.</p>
<p>To be healthy we require a balanced diet.</p>	<p>Understand the term dissolving</p>		<p>Same as for Year 4. Please see below.</p>
<p>The names and functions of the different parts of flowering plants – roots, stem, leaves and flowers.</p> <p>That water is transported within plants.</p> <p>That plants require for life and growth (air, light, water, nutrients from soil, and room to grow) and this varies from plant to plant.</p> <p>Know the role of the flower in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>Compare and group rocks based on their appearance and physical properties, giving reasons.</p>	<p>The moon orbits the Earth and the Earth orbits the sun</p> <p>The moon and Earth are roughly spherical</p>	<p>Same as for Year 4. Please see below.</p>
	<p>Know how soil is made and how fossils are formed</p> <p>Know about and explain the difference between sedimentary, metamorphic and igneous rock.</p> <p>Minerals come from rocks and are in our foods</p>		<p>Same as for Year 4. Please see below.</p>
		<p>Magnets are a push and/or pull force.</p> <p>Not all metals are magnetic; IS – Iron and steel are magnetic.</p> <p>Magnets have poles which attract and repel.</p> <p>That the earth has a magnetic core</p>	<p>Same as for Year 4. Please see below.</p>



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YEAR 4 - The digestive system, Sorting living things and food chains, States of matter and sorting materials, Sound, Electricity			
Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions	Know particles/atoms are arranged in a solid, liquid or gas and these are the 3 main states of matter but others do exist. Know that changes in temperature can alter the states of matter		asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests
	Understand and define evaporation, condensation, freezing and melting. Explain the water cycle using the above terms Recognise the terms sublimation and deposition	To know that vibrations from sound sources travel through different materials to the ear. To know that the pitch of a sound alters due to the features of the object that produced it	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
	Compare and group materials		recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
To sort living things into groups identifying similarities and differences To identify invertebrates using a simple key. To understand the difference between living and non-living things. (MRS NERG)		Identify appliances that need electricity to work and how to be safe around electrical equipment Know the components that can be used to make a circuit and how electricity causes a light bulb to work. To recognise the difference between conductors and insulators	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
Construct and interpret a variety of food chains, identifying producers, predators and prey			identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.
To recognise that environments change and living things can adapt to these changes			



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YEAR 5 - Life cycles, Plants, Reversible and irreversible changes to states of matter, Forces, The solar system			
Understand stages of growth in humans Be able to compare the differences in the Life Cycles of different animals. Differences in reproduction in some animals mammals, amphibians, insect and birds.	Know that some changes of state are reversible and some are irreversible.	Revise the term of light source, the fact that light travels in a straight line which can be reflected and how shadows are formed.	Same as for Year 6. Please see below.
	Understand and define evaporation, condensation, freezing, melting, dissolving, filtration, soluble and insoluble. Recognise the terms sublimation and deposition		Same as for Year 6. Please see below.
Revise the parts of a plant Explain the processes of dispersal, pollination, fertilization and germination and how they link within the Life Cycle Seed are dispersed in different ways :- Water, Wind, Explosion and Animal (Attachment, Eating and Hoarding)	Classify materials according to their properties.	Name the planets in the solar system The moon orbits the Earth and that both the earth and moon are rotating on their axis which gives us a lunar cycle, night and day, and seasons How the position of the earth in relation to the sun and the moon creates the phases of the moon.	Same as for Year 6. Please see below.
Animals are grouped based on common factors (this influences how they reproduce)			Same as for Year 6. Please see below.
		To identify the effects of air resistance, water resistance and friction, that act between moving surface What gravity is and how it affects objects. Revise the term of magnetism and polar attraction	Same as for Year 6. Please see below.



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YEAR 6 - The circulatory and respiratory systems, Classification of living things, Evolution, Light and how we see, Electricity, Revision through the scientific method			
Know how the circulatory system works. Understand the respiration process.	Revise states of matter.	That the direction of light can be changed in various ways. The size of shadow changes dependent on its distance from a light source. Know and define the terms opaque, transparent and translucent. We only see objects because light reflects off them into our eyes.	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary using test results to make predictions to set up further comparative and fair tests
Lifestyle choices (including drugs) affect how the body functions	Revise evaporation, condensation, freezing, melting, dissolving, filtration, soluble and insoluble. Recognise the terms sublimation and deposition	Revise that sound is created through vibration.	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
			recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
To be able to put living things in groups, justifying their reasons using observable, scientific vocabulary and make a branching key from this knowledge To understand the difference between living and non-living things. (MRS NERG)		Revise safety around electrical equipment. To be able to draw circuit diagrams using symbols Understand how number and voltage of cells affects output	reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
			identifying scientific evidence that has been used to support or refute ideas or arguments
There are also differences/similarities between people and we inherit characteristics from our parents. Know and explain evolution Fossils provide information about living things that inhabited the Earth millions of years ago.			



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SCHOOL-SPECIFIC - EVENTUAL OUTCOMES FOR THE END OF KS2			
<p>Have a basic knowledge of the skeleton and the digestive, reproductive, respiratory and circulatory systems and know that these systems are very similar among mammals.</p>	<p>To know the 3 main states of matter, and understand others do exist Know that some changes of state are reversible and some are irreversible.</p>	<p>Know and define the terms of magnetism, opaque, transparent, translucent, reflection, vibration, friction, air resistance, up thrust, gravity, orbit rotate, axis, conductor and insulator.</p> <p>Know that light travels in straight lines and can be reflected</p> <p>That shadows are formed through an opaque object blocking the light and how the size of a shadow can be changed.</p>	<p>To have a good understanding of the scientific method and be able to set up their own scientific enquiry using this method</p>
<p>To know why it is important to keep all of these systems healthy and be able to give simple explanations of how this can happen.</p>	<p>To know and define evaporation, condensation, freezing, melting, dissolving, filtration, soluble and insoluble.</p> <p>Recognise the terms sublimation and deposition</p>	<p>Know that sound is created through vibration and can travel through solids.</p>	<p>To be able to gather data accurately using the correct units of measurement and equipment, and understand and explain the need for repeat testing.</p>
<p>To know the functions of different parts of a plant, leading to a basic knowledge of photosynthesis.</p> <p>To know how a plant reproduces and that not all plant produce flowers, leading to the classification of plants into 2 groups.</p> <p>Know the 7 life processes of all living things.</p> <p>To know that the 5 groups of living things are animals, plants, fungi, Protista and monera. Be able to classify between vertebrates and invertebrates, the 5 groups of vertebrates and some groups of invertebrates, specifically arthropods</p>	<p>To be able classify materials according to their properties, using the correct scientific vocabulary.</p>	<p>Know how we have night and day, a lunar cycle and seasons.</p> <p>Know the planets in the solar system</p> <p>Know how a circuit is formed and be able to draw a basic circuit diagram.</p>	<p>To present results in a scientific and mathematical manner and draw sensible conclusions from their data.</p> <p>To be able to report and present findings from enquiries, and a degree of trust in results, in oral and written forms such as displays and other presentations</p>
<p>To understand how all living thing fit into a food chain and how this is vital for life.</p>		<p>Know that gravity, friction, water resistance, air resistance and magnetism are all forces which can change the way objects move.</p>	<p>To be able to discuss scientific evidence from testing, observations and classifications.</p>
<p>To understand that all living things have developed and adapted through the process of evolution.</p>			