

Temple Learning Academy – Science Curriculum Long Term Plan



Curriculum Leader	Programme Leader	Line Manager
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<i>Topic Area</i> Key Knowledge, Scientific Enquiry Skills, Key Vocabulary		

Primary Science Overview						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rec	<ol style="list-style-type: none"> Asking simple questions and recognising they can be answered in different ways Observing closely, using simple equipment Performing simple tests. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help answer questions. 					
	Autumn		Spring		Summer	
Year 1	<u>Human Body</u> I know how to label all my body parts I know we have five senses I know which body part is used for each sense I know what my senses do Body, human, senses, nose, taste, touch, smell, sight, hearing,	<u>Everyday materials and their properties</u> I know the names of everyday materials I know how sort materials based on their properties I know that materials are chosen for a job based on their properties I know how to plan a fair test wood, plastic, glass, metal, water, rock, brick, paper, fabric, hard/soft, stretchy/stiff, shiny/dull,	<u>Animals (including humans)</u> I know that some body parts are specific to certain animals I know that animals can be sorted into different groups I know the different animal classifications (fish, bird, amphibian, reptile, mammals) I know that a carnivore eats only meat	<u>Plants</u> I know that a plant needs light, water and warmth to grow I know the different parts of a plant and can label these I know that buds form on trees and plants in spring I can name a range of wild and garden flowers Plant, leaf, root, leaves, bud, flowers, blossom, petals, root, stem, wild	<u>Seasonal Changes (Plants)</u> I know that the length of daylight is shorter in winter and longer in summer I know that there are four seasons I know that some trees lose their leaves in autumn I know that evergreen trees and plants don't lose their leaves in winter I know that deciduous trees and plants lose their leaves in winter	<u>Everyday materials and their properties</u> I know the names of everyday materials (recap) I can sort materials based on their properties (recap) I know that materials are chosen for a job based on their properties (recap) I can plan an experiment to test properties wood, plastic, glass, metal, water, rock, brick, paper, fabric, hard/soft, stretchy/stiff, shiny/dull,

		rough/smooth, bendy/not bendy.	I know a herbivore eats only plants I know that an omnivore eats meat and plants Animals, diets, same, different, group, omnivores, carnivores, herbivores, identify, classify, record, sort	plants, garden plants, bulb, seed	Deciduous, evergreen, trunk, branches, leaf, root, evergreen	rough/smooth, bendy/not bendy.
	Seasonal Changes to be taught throughout the year.					
	Season, summer, winter, autumn, spring, day, daytime, night, night-time, weather, wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold					
	<ol style="list-style-type: none"> 1. Asking simple questions and recognising they can be answered in different ways 2. Observing closely, using simple equipment 3. Performing simple tests. 4. Using their observations and ideas to suggest answers to questions. 5. Gathering and recording data to help answer questions. 					
	Autumn		Spring		Summer	
Year 2	<u>Everyday Materials (focus manipulating and waterproof materials)</u> I know that different materials have different properties I know that materials can be changed by manipulating I know that materials are suited to different jobs I know Charles Mackintosh invented waterproof bricks	<u>Animals including humans</u> I know how animals and human babies grow I know a baby animal needs air, food and water I know what a human baby needs to stay alive I know that there are healthy and unhealthy diets I know how and why you should keep myself clean Dehydrate, diet, disease, energy, exercise, germs, heart rate, hygiene,	<u>Plants</u> I know the right conditions for seeds and bulbs to grow and stay healthy I know that plants are living things I know that plants can be called crops if they are eaten by humans I know that seed dispersal is key to the life cycle of a plant Sunlight, water, temperature, seed, dispersal, germination, nutrition, sprout, shoot	<u>Living things and their habitats</u> I know that I can classify objects using alive, not alive, never been alive I know how habitats can be classified I know how animals might have special adaptations to help them live in different habitats (Y6) I know that animals in the wild are part of a food chain	<u>Everyday Materials (focus sustainability)</u> I know what sustainability means I know what recyclable material means I know how to plan to save energy in my class and at home I know how to save water I know how to plan to gather data scientifically (litter pick)	

	I know John Dunlop invented the air-filled rubber tyre Materials, suitability, properties, waterproof	nutrition, pulse, adult, develop, life cycle, young, live young		I know that a food chain starts with a producer and ends with a top predator Life processes, living, dead, never lived, food chain, food sources, habitat, microhabitat, depend, survive	Renewable, energy, environment, recyclable, non-recyclable
	<p>Working Scientifically:</p> <ol style="list-style-type: none"> 1. Begin to ask relevant questions and use different types of scientific enquiries to answer them 2. With some independence, set up simple practical enquiries, comparative and fair studies including: <i>Observing changes over time in the local environment across seasons of the year and grouping and classifying and finding things out using a secondary source of information classification keys to identify different plants and animals and noticing observing patterns.</i> 3. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment. 4. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 5. Recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables with some independence, report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 6. Begin to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions 7. Identifying some differences, similarities or changes related to simple scientific ideas and processes 8. With support, use straightforward scientific evidence to answer questions or to support their findings 				
	Autumn		Spring	Summer	
Year 3	<u>Humans</u>	<u>Magnets and Forces</u>	<u>Rocks and soils</u>	<u>Light and Dark</u>	<u>Plants</u>
	<p>I know that animals, including humans and plants need nutrients</p> <p>I know plants make their own food</p> <p>I know humans do not make their own food</p> <p>I know that humans have skeletons to support and protect them</p>	<p>I know that some forces push and some forces pull</p> <p>I know that a rough surface causes friction</p> <p>I know that opposite ends of a magnet attract</p> <p>I know that a magnet has two poles (+ and -)</p> <p>I know that only certain metals are magnetic</p>	<p>I know that different kinds of rocks can be classified based on their appearance and simple physical properties</p> <p>I know how fossils are formed</p> <p>I know that soils are made from rocks and organic matter?</p> <p>I know how to collect data of rocks in my local area</p> <p>I know what permeable means</p> <p>I know how to plan a fair test (hardness and permeability)</p>	<p>I know that I need light in order to see</p> <p>I know that dark is the absence of light</p> <p>I know that light can be reflected</p> <p>I know that I should protect my eyes from the sun</p> <p>I know that a shadow forms when an object block a light source</p>	<p>I know that roots anchor the plant to the ground and transport water and nutrients</p> <p>I know plants need sunlight to make their own food</p> <p>I know how water is transported in a plant stem</p> <p>I know the leaves are used by the plant to expel oxygen</p> <p>I know that plants have male and female parts</p>

	<p>I know that humans and animals have different types of skeletons</p> <p>I know that muscles contract and relax to help us move</p> <p>Healthy, nutrients, energy, saturated fats, unsaturated fats, tendons, joints</p>	<p>I know that some metals are attracted to magnets</p> <p>Force, push, pull, open, surface, magnet, magnetic, attract, repel,</p>	<p>I know who William Smith is</p> <p>Appearance, physical, properties, absorbent/not absorbent, fossils, sedimentary, organic matter</p>	<p>I know that ultra violet light from the sub can be dangerous</p> <p>Light, source, dark, reflect, ray, shadow, opaque</p>	<p>I know that there are 5 key stages to a plants life cycle</p> <p>I know some plants produce flowers to help with pollination by insects</p> <p>Evaporation, fertilisation, stamen, carpel, pistil, sepal, pollination, pollinator, germination, seed dispersal</p>
	<ol style="list-style-type: none"> Continue to ask relevant questions and use different types of scientific enquiries to answer them With greater independence, set up simple practical enquiries, comparative and fair tests including: observing changes over time in the local environment across seasons of the year and grouping and classifying and finding things out using a secondary source of information classification keys to identify different plants and animals and noticing/observing patterns. 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 Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables With greater independence, report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Continue to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identifying differences, similarities or changes related to simple scientific ideas and processes With growing independence, use straightforward scientific evidence to answer questions or to support their findings 				
	<u>Autumn</u>		<u>Spring</u>		<u>Summer</u>
Year 4	<p><u>States of Matter</u></p> <p>I know that water changes states at 100 and 0 degrees centigrade</p> <p>I know the three states of matter are solids, liquids and gases</p> <p>I know that a thermometer measures temperate.</p>	<p><u>Animals Including Humans</u></p> <p>I know that chewing is part of the digestion process</p> <p>I know that nutrients are stored in foods</p> <p>I know that water and nutrients are absorbed through the small and large intestines</p>	<p><u>Sound</u></p> <p>I know that sound travels in waves</p> <p>I know that sound travels through liquids, solids and gases</p> <p>I know that sounds are made by vibrations</p>	<p><u>Things and their habitats</u></p> <p>I know that plants and animals can be grouped according to characteristics</p> <p>I know that vertebrates have a spine and invertebrates do not</p>	<p><u>Electricity</u></p> <p>I know that large appliances need mains electricity</p> <p>I know that a circuit must be complete for electricity to flow</p> <p>I know electricity runs from negative to positive in a circuit</p> <p>I know that a battery is a source of stored electricity</p> <p>I know that electricity can be generated by the sun and wind and is called renewable</p>

<p>I know how to measure with a thermometer</p> <p>I know that evaporation and condensation are stages of the water cycle</p> <p>I know how particles are structured in each state of matter</p> <p>states, matter, solids, solidify, liquids, gases, water vapour, melt, freeze, evaporate/evaporation condense/condensation, precipitation</p>	<p>digest/digestion, transports, oesophagus, stomach, small intestine, large intestine, rectum</p>	<p>I know how to present information in a table accurately</p> <p>vibration, sound wave, volume, amplitude, pitch, ear, particles, distance, soundproof, absorb sound, vacuum, eardrum</p>	<p>I know that an environment can contain more than one habitat</p> <p>I know how to create a question that I can investigate</p> <p>organisms, life processes, respiration, sensitivity, reproduction, excretion, environment, endangered, species, extinct, specimen, characteristics</p>	<p>I know what a conductor and insulator mean and can test these in a circuit</p> <p>I know that the unit of measurement, volts, is named after a scientist</p> <p>Circuit, symbol, voltage, cell, battery, resistance, current</p>
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1. Plan different types of scientific enquires to answer questions including and recognising controlling variables where necessary.
2. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.
3. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
4. Use test results to make predications to set up further and comparative fair tests.
5. Report and present findings from enquires including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
6. Identify scientific evidence that has been used to support or refute ideas or arguments.
7. Scientific enquires including: Group and classify things. Carry out comparative and fair tests.
8. Observe changes over different periods of time. Draw conclusions based on data and observations. Use evidence to justify ideas. Noticing patterns. Finding things out using wider range if secondary sources.

	Autumn		Spring		Summer
Year 5	<p><u>Forces</u></p> <p>I know that weight is the measurement of gravity acting on a subject</p>	<p><u>Living things and their habitats</u></p> <p>I know that plants can reproduce sexually and asexually</p>	<p><u>Properties and changes in materials</u></p> <p>I know that some changes are irreversible</p> <p>I know that irreversible changes produce new materials</p>	<p><u>Earth and Space</u></p> <p>I know that the Earth and other planets orbit the Sun</p> <p>I know the moon orbits Earth</p>	<p><u>Animals including humans</u></p> <p>I know there are 6 stages to human development</p> <p>I know that hormones have physical, mental and</p>

	<p>I know that mass is the amount of material an item is made of</p> <p>I know that friction slows an object</p> <p>I know that having a larger surface area increases the effects of air resistance</p> <p>I know that streamlined objects are affected less by water resistance and air resistance</p> <p>forces, gravity, gravitational pull, weight, mass, friction, surface, air resistance, water resistance, buoyancy, streamlined, mechanism</p>	<p>I know how plants use flowers to attract pollinating insects</p> <p>I know that Jane Goodall carried out research about chimpanzees</p> <p>I know that birds, mammals, insects and amphibians share some similarities in their life cycles</p> <p>asexual reproduction, fertilise, gestation, life cycle, metamorphosis, pollination, sexual reproduction,</p>	<p>I know how independent variables need to be controlled to ensure a fair test</p> <p>I know that some substances dissolve to make a solution</p> <p>I know that water is known as the universal solvent</p> <p>solids, liquids, gases, melting, freezing, evaporating, condensing, conductor, insulator, transparency, hardness, properties, solubility, transparency,</p>	<p>I know that night and day happen due to the Earth's rotation on its axis</p> <p>I know it takes 365.25 days for the Earth to orbit the Sun</p> <p>I know there are eight planets in our solar system</p> <p>I know the order of the phases of the moon</p> <p>Earth, Moon(s), sun, star, moon, planet, sphere, spherical bodies, satellite, orbit, rotate, axis, geocentric, heliocentric, astronomer</p>	<p>emotional influences during puberty</p> <p>I know that boys produce semen</p> <p>I know that girls produce an egg</p> <p>I know that humans have a gestation period of nine months</p> <p>fertilisation, prenatal, gestation, reproduce, adolescence, puberty, menstruation, adulthood, life expectancy</p>	
	<ol style="list-style-type: none"> 1. Plan different types of scientific enquires to answer questions including and recognising controlling variables where necessary. 2. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. 3. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. 4. Use test results to make predications to set up further and comparative fair tests. 5. Report and present findings from enquires including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. 6. Identify scientific evidence that has been used to support or refute ideas or arguments. 7. Scientific enquires including: Group and classify things. Carry out comparative and fair tests. 8. Observe changes over different periods of time. Draw conclusions based on data and observations. Use evidence to justify ideas. Noticing patterns. Finding things out using wider range if secondary sources. 					
Year 6	<u>Autumn</u>		<u>Spring 1</u>	<u>Spring 2 and Summer 1</u>		<u>Summer 2</u>
	<u>Electricity</u>	<u>Habitats – Classification</u>	<u>Light</u>	<u>Evolution and inheritance</u>		<u>Humans</u>

	<p>I know that a circuit must be complete for electricity to flow</p> <p>I know that electricity runs from negative to positive in a circuit</p> <p>I know that a battery is a source of stored electricity</p> <p>I know that the unit of measurement, volts, is named after the scientist Volta</p> <p>circuit, symbol, voltage, cell/battery, resistance, electrons, amps, current,</p>	<p>I know that Carl Linnaeus compiled a scientific classification system</p> <p>I know that all plants and animals can be classified into groups based on observable characteristics</p> <p>I know that some micro-organisms can be harmful or helpful to humans</p> <p>species, micro-organisms, characteristics, taxonomist, classify/classification, bacteria, microscope,</p>	<p>I know that light travels in straight lines</p> <p>I know that light travels from a source to an object to the eye</p> <p>I know how visible light is made up of a spectrum of colours</p> <p>shadows, source, reflection, refraction, spectrum, prism, transparent, pupil</p>	<p>I know that Charles Darwin was the first scientist to explain the ideas of evolution</p> <p>I know that evolution occurs over thousands of years</p> <p>I know that humans evolved from apes</p> <p>I know that adaptations are random mutations</p> <p>I know that physical traits are passed from one generation to the next through genes</p> <p>offspring, inheritance, variations, characteristics, adaptation, habitat, environment, evolution, natural selection, adaptive traits, inherited traits, genes,</p>	<p>I know humans have an internal skeleton</p> <p>I know that muscles and attached to bone with tendons</p> <p>I know the body needs nutrients to survive</p> <p>I know that exercise and diet directly impact on health</p> <p>I know that the heart is a muscle that pumps blood around the body</p> <p>I know that arteries carry oxygenated blood</p> <p>I know that veins carry deoxygenated blood</p> <p>blood vessels, heart, circulatory system, oxygenated, deoxygenated, drug, alcohol, nutrients</p>
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