Science Learning Map

Year	Autumn	Spring	Summer
Nursery	Learn about how to take care of themselves as a human – links to oral hygiene. Halloween experiments: making green slime. Magical mud using cornflour. Santas magnetic parcels.	Explore a range of simple materials suitable for making a roof – The Three little pigs. Happy land people in ice experiment – What happens when the ice melts. Observing caterpillars. Planting beans and observing growth. Outdoor bug hunt - What are they? Learn about farm animals and name them.	Sorting animals into hot an cold places of where they live Take part in science experiments: trains move slower on the carpet, faster on wood. What items in nursery float and sink.
Reception	Linking to Peace at Last, explore light/dark, night/day. Name some animals that are awake in the day/night. Be aware that we float in space but not on the earth.	Explore differences between land and water animals – Here We Are. Plant a sunflower. Why are sunflowers called sunflowers what do you think they need? Making observations of the world around them. Comparing different plants, how they grow, including the different shapes, colours of leaves.	To understand that animals have babies like humans. Does a frog always look like a frog? – Oi frog Exploring floating and sinking linked to The Night Pirates – What floats your boat?
Year1	 **Everyday Materials** • Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties.  **Seasonal changes** • Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies.	 **Animals including humans** • Identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals  **Seasonal changes** • Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies.	 **Animals including humans** • Identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.  **Plants** • Identify and describe the basic structure of a variety of common flowering plants, including trees • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees  **Seasonal changes** • Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies.
Year2	 **Everyday Materials** • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses	 **Plants** • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	 **Living things and their habitats** • 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

	• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching  **Animals including humans** • Notice that animals, including humans, have offspring which grow into adults • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	 **Living things and their habitats** • Explore and compare the differences between things that are living, dead, and things that have never been alive 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.	• Identify and name a variety of plants and animals in their habitats, including microhabitats
Year 3	 **Rocks** • 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.  **Animals including Humans** • 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 • Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	 **Light** • Recognise that they need light in order to see things and that dark is the absence of light. • 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. • Recognise that shadows are formed when the light from a light source is blocked by a solid object. • Find patterns in the way that the size of shadows change.  **Plants** • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • 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. • Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	 **Forces and Magnets** • Compare how things move on different surfaces. • Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. • Observe how magnets attract or repel each other and attract some materials and not others. • 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. • Describe magnets as having 2 poles. Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.
Year 4	 **Sound** • 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.  **Electricity** • Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • 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.	 **All Living things** • Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. • Recognise that environments can change and that this can sometimes pose dangers to living things.  **States of Matter** • Compare and group materials together, according to whether they are solids, liquids or gases. • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	 **Animals including humans** • 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. • Construct and interpret a variety of food chains, identifying producers, predators and prey.

	• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors and insulators, and associate metals with being good conductors.		
Year 5	  **Properties and Changes of Materials** • 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. • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution . • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • Demonstrate that dissolving, mixing and changes of state are reversible changes. 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.	  **Earth and Space** • 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.   **Living things and their habitats** • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • Describe the life process of reproduction in some plants and animals.  **Animals including humans** Describe the changes as humans develop to old age.	  **Forces** • 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.
Year 6	  **Electricity** • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • Use recognised symbols when representing a simple circuit in a diagram.    **Living things and their habitats** • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics	   **Evolution** • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	  **Animals including humans** • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. • Describe the ways in which nutrients and water are transported within animals, including humans.  **Light** • Recognise that light appears to travel in straight lines. • 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. • 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. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Year 7	Safety Baseline Assessment The Particulate Nature of Matter Cells and Organisation MAP 1 & Acceleration The Skeletal and Muscular System	Gas Exchange Systems Health MAP 3 & Acceleration Pure and Impure Substances Observed Waves P2S2 Revision and Assessment & Feedback	Cellular Respiration Photosynthesis) MAP 5 & Acceleration Chemical Reactions P2S3 Revision and Assessment & Feedback Calculation of Fuel Uses and Costs in the Domestic Context

	Atoms, Elements and Compounds (Including introduction to The Periodic Table and Symbols) P2S1 Revision and Assessment & Feedback Forces MAP 2 & Acceleration Balanced Forces Working Scientifically (investigation Skills)	Sound Waves Energy and Waves MAP 4 & Acceleration Reproduction Working Scientifically (investigation Skills)	MAP 6 & Acceleration Magnetism Space Physics Working Scientifically (investigation Skills)
Year 8	Fundamental Physics Current Electricity MAP 1 & Acceleration Nutrition and Digestion The Periodic Table P2S1 Revision and Assessment & feedback Particle Model Physical Changes MAP 2 & Acceleration Pressure in Fluids Working Scientifically (investigation Skills)	Fundamental Chemistry Light Waves MAP 3 & Acceleration Chemical Reactions P2S2 Revision and Assessment & Feedback Energy Changes and Transfers Relationships in an Ecosystem MAP 4 & Acceleration Static Electricity Working Scientifically (investigation Skills)	Fundamental Biology Forces and Motion MAP 5 & Acceleration Describing Motion P2S3 Revision and Assessment & Feedback Earth and Atmosphere MAP 6 & Acceleration Inheritance, Chromosomes, DNA and Genes Working Scientifically (investigation Skills)
Year 9	Fundamental Chemistry Gas Exchange Systems MAP 1 & Acceleration Energy in Matter Cellular Respiration P2S1 Revision and Assessment & Feedback Chemical Reactions Atoms, Elements and Compounds Pure and Impure Substances Cells and Organisation MAP 2 & Acceleration Working Scientifically (investigation Skills)	Fundamental Physics Photosynthesis MAP 3 & Acceleration Materials P2S2 Revision and Assessment & Feedback Magnetism Inheritance, Chromosomes, DNA and Genes Calculation of Fuel Uses and Costs in the Domestic Context Energetics MAP 4 & Acceleration Working Scientifically (investigation Skills)	Fundamental Biology Changes in Systems MAP 5 & Acceleration Energetics Current Electricity P2S3 Revision and Assessment & Feedback The Periodic Table Calculation of fuel uses and costs in the domestic context Nutrition and Digestion MAP 6 & Acceleration Working Scientifically (investigation Skills)
Year 10 ***(Trilogy)***	B1: Cell Biology C1: Atomic Structure and the Periodic Table MAP 1 & Acceleration P1: Energy B2: Organisation P2S1 Revision and Assessment & Feedback C2: Structure, Bonding and the Properties of Matter MAP 2 & Acceleration P2: Electricity	B3: Infection and Response MAP 3 & Acceleration C3: Quantitative Chemistry P2S2 Revision and Assessment & Feedback P3: The Particle Model of Matter B4: Bioenergetics C4: Chemical Changes MAP 4 & Acceleration P4: Atomic Structure (pt.1)	P4: Atomic Structure (pt.2) C5: Energy Changes MAP 5 & Acceleration B5: Homeostasis and Response C6: The Rate and Extent of Chemical Change P2S3 Revision and Assessment & Feedback P7: Magnetism and Electromagnetism MAP 6 & Acceleration C8: Chemical Analysis WORK EXPERIENCE
Year 10 ***(Separate Science)***	B1: Cell Biology C1: Atomic Structure and the Periodic Table P1: Energy MAP 1 & Acceleration – Biology / Chemistry / Physics P2S1 Revision and Assessments B2: Organisation C2: Structure, Bonding, and the Properties of Matter P2: Electricity C3: Quantitative Chemistry MAP 2 & Acceleration – Biology / Chemistry / Physics	B3: Infection and Response C4: Chemical Changes P3: Particle Model of Matter MAP 3 & Acceleration – Biology / Chemistry / Physics P2S2 Revision and Assessment & Feedback B4: Bioenergetics C5: Energy Changes P4: Atomic Structure MAP 4 & Acceleration – Biology / Chemistry / Physics	B6: Inheritance, Variation and Evolution MAP 5 & Acceleration – Biology / Chemistry / Physics C6: The Rate and Extent of Chemical Change C7: Organic Chemistry MAP 6 & Acceleration – Biology / Chemistry / Physics P6: Waves P2S3 Revision and Assessment & Feedback WORK EXPERIENCE
Year 11 will continue to follow the previous order of study to make sure they have covered all topics and are fully prepared for their GCSE exams			
Year 11 ***(Trilogy)***	C10: Using Resources MAP 1 & Acceleration Inheritance, Variation and Evolution (pt.1) P2S1 Revision, Assessment & Feedback (Paper 1) Inheritance, Variation and Evolution (pt.2)	Revision B1: Cell Biology Revision C1: Atomic Structure and the Periodic Table Revision P1: Energy MAP 3 & Acceleration Revision B2: Organisation & B3: Infection & Response	Revision B6: Inheritance, Variation and Evolution Revision C7: Organic Chemistry & C8: Chemical Analysis Revision P6: Waves MAP 5 & Acceleration Revision B7: Ecology

	C3: Review - Quantitative Chemistry MAP 2 & Acceleration C8: Chemical Analysis P2S2 Revision, Assessment & Feedback (Paper 2)	Revision C2: Structure and Bonding & C3: Quantitative Chemistry Revision P2: Electricity Revision C4: Chemical Changes & C5: Energy Changes Revision P3: Particle Model of Matter & P4: Atomic Structure P2S2 Revision and Assessment & Feedback (Paper 1) Revision B4: Bioenergetics & B5: Homeostasis and Response Revision C6: The Rate and Extent of Chemical Change Revision P5: Forces MAP 4 & Acceleration	Revision C9: Chemistry of the Atmosphere & C10: Using Resources Revision P7: Magnetism and Electromagnetism MAP 6 & Acceleration P2S3 Revision and Assessment & Feedback Revision for External GCSE Exams (Paper 1) Revision for External GCSE Exams (paper 2)
Year 11 ***(Separate Science)***	C5: Homeostasis and Response C7: Organic Chemistry P6: Waves C8: Chemical Analysis MAP 1 & Acceleration – Biology / Chemistry / Physics P2S1 Revision, Assessment & Feedback P6: Inheritance, Variation and Evolution C9: Chemistry of the Atmosphere P5: Forces P7: Ecology C10: Using Resources MAP 2 & Acceleration – Biology / Chemistry / Physics P2S2 Revision, Assessment & Feedback (Paper 2)	Revision B1: Cell Biology Revision C1: Atomic Structure and the Periodic Table Revision P1: Energy MAP 3 & Acceleration Revision B2: Organisation & B3: Infection & Response Revision C2: Structure and Bonding & C3: Quantitative Chemistry Revision P2: Electricity Revision C4: Chemical Changes & C5: Energy Changes Revision P3: Particle Model of Matter & P4: Atomic Structure P2S2 Revision and Assessment & Feedback (Paper 1) Revision B4: Bioenergetics & B5: Homeostasis and Response Revision C6: The Rate and Extent of Chemical Change Revision P5: Forces MAP 4 & Acceleration	Revision B6: Inheritance, Variation and Evolution Revision C7: Organic Chemistry & C8: Chemical Analysis Revision P6: Waves MAP 5 & Acceleration Revision B7: Ecology Revision C9: Chemistry of the Atmosphere & C10: Using Resources Revision P7: Magnetism and Electromagnetism MAP 6 & Acceleration P2S3 Revision and Assessment & Feedback Revision for External GCSE Exams (Paper 1) Revision for External GCSE Exams (paper 2)