Working Scientifically Investigation Timetable

Year 1

Class	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
KS1	**Topic:** Everyday Materials (year 1) **Scientist:** William Cullen (invented the fridge) **Investigation:** What makes an ice cube melt faster?	**Topic:** Animals Including Humans (Year 2) **Scientist:** Marie Maynard Daly (Heart scientist) **Investigation:** How does exercise change my heart beat? (Differentiate for year 1 and 2 as repeated each year)	**Topic:** Uses of Everyday Materials (year 2) **Scientist:** Leo Hendrick Baekland (Plastic) **Investigation:** To investigate the properties of different materials.	**Topic:** Plants (year 1) **Scientist:** Agnes Arber (Botanist) **Investigation:** OBSERVATIONAL AND RESEARCH HEAVY Tree and plant hunt in school grounds.	**Topic:** Seasonal Changes (Year 1) **Scientist:** John Dalton (Studied the weather 1700's) **Investigation:** Using thermometers in different areas to measure temperature differences.	**Topic:** Animals Including Humans (Year 1) **Scientist:** Roger Arliner Young **Investigation:** Reaction Rate investigation – how quickly can you catch the ruler? Are your reaction times quicker before or after lunch?
Bramley	**Topic:** Electricity (Year 4) **Scientist:** Thomas Edison (Light bulb) **Investigation:** What are the best materials to make a pressure switch? (Conductors and Insulators)	**Topic:** States of Matter (Year 4) **Scientist:** Santorio Santorio (Thermometer) **Investigation:** Curious chocolate – Melting Times Investigation.	**Topic:** Sound (year4) **Scientist:** Alexander Graham Bell (telephone) **Investigation:** What would be the best materials for ear defenders?	**Topic:** Living Things and their habitats (year 4) **Scientist:** Eddy Carmack (Climate researcher) **Investigation:** How does surface area impact the rate of melting ice? – The link being global warming and the melting ice caps impact on polar bears hunting grounds.	**Topic:** Animals Including Humans (Year 4) **Scientist:** William Beaumont (digestion expert) **Investigation:** OBSERVATION HEAVY Modelling the digestive system: https://www.stem.org.uk/resources/elibrary/resource/35396/digestive-system-experiment	**Topic:** Animals Including Humans (Year 4) **Scientist:** Aristotle (Classification) **Investigation:** Investigating impact of different liquids on teeth using egg shell to model this.
Discovery	**Topic:** Properties and Changes of Materials (Year5) **Scientist:** Roy J. Plunkett (Teflon) **Investigation:** Is sugar more soluble in warm or cold water?	**Topic:** Light (year 6) **Scientist:** Michael Faraday **Investigation:** Investigating the relationship between the line of incidence and the line of reflection.	**Topic:** Earth and Space (year 5) **Scientist:** Edwin Hubble **Investigation:** What impacts the size of Moon Craters?	**Topic:** Earth and Space (year 5) **Scientist:** Stephen Hawking **Investigation:** How and why does my shadow change over the day?	**Topic:** Animals Including Humans (Year 5) **Scientist:** Rosalind Franklin (Discovered structure of DNA) **Investigation:** Hypothetical analysis of data showing growth of babies.	**Topic:** Animals Including Humans (Year 6) **Scientist:** William Harvey **Investigation:** The effect of exercise on pulse rate. (Will have been covered in Pippins so really needs to show that progression.

Year 2

Class	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
KS1	**Topic:** Animals Including Humans (year 2) **Scientist:** Robert Marsham (Studied the impact of seasons on plants and animals) **Investigation:** How does exercise change my heartbeat? (Differentiate for year 1 and 2 as repeated each year)	**Topic:** Seasonal Changes (year 1) **Scientist:** James Marshall Shepherd (weather and climate expert) **Investigation:** Measuring rainfall using rain gauges.	**Topic:** Uses of Everyday Materials (year 2) **Scientist:** George De Mestrel (Velcro) **Investigation:** Investigate how the ratio of sand to water compares to make the best sandcastle.	**Topic:** Plants (year 2) **Scientist:** Beatrix Potter **Investigation:** Investigate growing different plants looking at different conditions and comparing.	**Topic:** Living Things and their Habitats (year 2) **Scientist:** Al-Jahiz (He first introduced the idea of food chains) **Investigation:** Compare 3 different habitats in school grounds. Predict what you may find living there. What questions you have and what questions this answered.	**Topic:** Animals including humans (year 1) **Scientist:** Rachel Carson (marine biologist) **Investigation:** Investigating how important all our senses are to how much we enjoy our food.
Bramley	**Topic:** Rocks (Year 3) **Scientist:** Mary Anning (Fossils) **Investigation:** How does the size of sediment change down a model drainpipe river? (Deposition)	**Topic:** Animals Including Humans (year 3) **Scientist:** Alexander Fleming **Investigation:** Do people who do an extra-curricular sport club have better balance?	**Topic:** Light (year 3) **Scientist:** David Misell **Investigation:** What impacts a shadow? Material, distance etc. Open ended question for children to choose their investigation focus.	**Topic:** Forces and Magnets (year 3) **Scientist:** William Gilbert **Investigation:** Does the size of the magnet determine how many paperclips it can attract?	**Topic:** Plants (year 3) **Scientist:** George Washington Carver **Investigation:** Do plants need soil to grow?	**Topic:** Plants (year 3) **Scientist:** Carl Linnaeus **Investigation:** What else impacts the growth of cress?
Discovery	**Topic:** Evolution and Inheritance (Year6) **Scientist:** Charles Darwin (Evolution) **Investigation:** Caterpillar Camouflage	**Topic:** Living Things and their Habitats **Scientist:** Maria Sibylla Merian **Investigation:** RESEARCH HEAVY TOPIC and OBSERVATION OF PLANT REPRODUCTION	**Topic:** Electricity (year 6) **Scientist:** Nikola Tesla **Investigation:** How do I make the bulb brighter?	**Topic:** Living Things and their Habitats (year 6) **Scientist:** Louis Pasteur **Investigation:** Yeast investigation (Respiring measured by balloon)	**Topic:** Forces (year 5) **Scientist:** Isaac Newton **Investigation:** Toy car on ramp investigation	**Topic:** Forces (year 5) **Scientist:** Orville and Wilbur Wright **Investigation:** Egg parachutes

	KS1 (Hamilton Scheme of Work)	LKS2	UKS2
Working Scientifically – To be embedded throughout the two year cycle.	-asking simple questions and recognising that they can be answered in different ways -observing closely, using simple equipment -performing simple tests -identifying and classifying -using their observations and ideas to suggest answers to questions -gathering and recording data to help in answering questions.	-asking relevant questions and using different types of scientific enquiries to answer them -setting up simple practical enquiries, comparative and fair tests -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 -reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions -using 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 -sing straightforward scientific evidence to answer questions or to support their findings.	-planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary -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 -using test results to make predictions to set up further comparative and fair tests -reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and 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.
Term 1 2022-23	**Everyday Materials (year 1)** -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.	**Electricity (year 4)** -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 -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.	**Properties and Changes of Materials (year 5)** -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
Term 2 2022-23	**<u>Animals Including Humans (year 2)</u>** -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.	**<u>States of Matter (year 4)</u>** -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.	**<u>Light (year 6)</u>** -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.
Term 3 2022-23	**<u>Uses of Everyday Materials (year 2)</u>** -identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses -find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**<u>Sound (year 4)</u>** -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.	**<u>Earth and Space (year 5)</u>** -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.
Term 4 2022-23	**<u>Plants (year 1)</u>** -identify and name a variety of common wild and garden plants, including deciduous and evergreen trees -identify and describe the basic structure of a variety of common flowering plants, including trees.	**<u>Living Things and Their Habitats (year 4)</u>** -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.	

Term 5 2022-23	**Seasonal Changes (year 1)** -observe changes across the four seasons -observe and describe weather associated with the seasons and how day length varies.	**Animals Including Humans (year 4)** -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	**Animals Including Humans (year 5)** -describe the changes as humans develop to old age.
Term 6 2022-23	**Animals Including Humans (year 1)** -identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals -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.		**Animals Including Humans (year 6)** -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.
Term 1 2021-22	**Animals Including Humans (year 2)** -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.	**Rocks (year 3)** -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.	**Evolution and Inheritance (year 6)** -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.
Term 2 2021-22	**Seasonal Changes (year 1)** -observe changes across the four seasons	**Animals Including Humans (year 3)**	**Living Things and Their Habitats (year 5)** -describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

	-observe and describe weather associated with the seasons and how day length varies.	-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.	-describe the life process of reproduction in some plants and animals.
Term 3 2021-22	**<u>Uses of Everyday Materials (year 2)</u>** -identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses -find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**<u>Light (year 3)</u>** -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 an opaque object -find patterns in the way that the size of shadows change.	**<u>Electricity (year 6)</u>** -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.
Term 4 2021-22	**<u>Plants (year 2)</u>** -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.	**<u>Forces and Magnets (year 3)</u>** -compare how things move on different surfaces -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 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 two poles -predict whether two magnets will attract or repel each other, depending on which poles are facing.	**<u>Living Things and Their Habitats (year 6)</u>** -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 -give reasons for classifying plants and animals based on specific characteristics.
Term 5 2021-22	**<u>Living Things and Their Habitats (Year 2)</u>** -explore and compare the differences between things that are living, dead, and things that have never been alive -identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of	**<u>Plants (year 3)</u>** -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	**<u>Forces (year 5)</u>** -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

	different kinds of animals and plants, and how they depend on each other -identify and name a variety of plants and animals in their habitats, including microhabitats -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.	-explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	-recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
Term 6 2021-22	**<u>Animals Including Humans (year 1)</u>** -identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals -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.		