TAVISTOCK PRIMARY AND NURSERY SCHOOL SCIENCE CURRICULUM 2023-24				
Working Scientifically - Foundation				
Foundation Stage	**Plan**	**Do**	**Record**	**Review**
	-Explore during their play and repeat an action/test making it obvious they are trying to find something out and see if the result is always the same. -Recognise when a simple comparison is unfair.	-Observe closely using all of their senses as appropriate. -During their play repeat and action/test making it obvious they are trying to find something out and see if the result is always the same. -Compare 2 (3) things by direct observation.	-Draw pictures	- Make comparisons. -Say what happened. -Order results (first, second. Third) -Spot similarities and differences.
	Biology	**Biology**	**Chemistry**	**Physics**
	Plants	**Animals, including humans**	**Everyday Materials**	**Forces, Magnets and Electricity**
	Identify plants that are in our local environment by using our senses. Recognise seasonal differences with plants and trees. Plant seeds and talk about what they need to grow. Label the parts of a plant – leaf, flower, stem and roots.	Name main body parts – head, neck, shoulders, body, legs, arms, fingers, toes, knees. (Extend to simple joints, ribs and backbone) Look at seasonal animals and develop vocabulary surrounding them. Autumn; Hedgehogs – omnivore, carnivore, herbivore, hibernate, camouflage Spring; Frogs and chickens – look at basic life-cycles Minibeasts – identify habitats and use senses to make simple observations and explanations of why minibeasts live where they do.(Using our local environment) Summer; Sea animals – Identify and name creatures that live in the sea.	Be able to sort different materials – plastic, metal, paper , wood, material etc. Use cooking to explore changes of state of materials.	**Opportunities for these activities within CP using STEM activities.(Some activities could include the following ideas)** Use magnets to sort a range of materials. Introduce the vocabulary of repel and attract. Pushes and pulls Electricity Floating and sinking

		Talks about the way to keep healthy and stay safe. (School dinner choices, snack time and Jump start Jonny and Jasmine PE)		

KS1 End Points (NC)

- Has experienced and observed phenomena, having looked more closely at the natural and humanly-constructed world around them.
- Shows curiosity, asking questions about what they have noticed.
- Has developed understanding of scientific ideas through the use of different types of scientific enquiry to answer own questions, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information.
- Is beginning to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.

Key Stage 1 Year 1	**Working Scientifically KS1 Years 1 and 2**			
	Plan	**Do**	**Record**	**Review**
	Asking simple questions and recognising that they can be answered in different ways and using different types of scientific enquiries to answer them. -With help, begin to choose ways to try and answer a question -Take a few guided planning decisions -Recognise when simple tests are unfair -Make own suggestions on how to collect data once the data needed has been outlined -Make simple predictions if appropriate (based on something they have observed before but	**Observe closely, using simple equipment.** **Perform simple tests.** -Make observations related to the task or test -Use simple equipment provided -Measure using uniform non-standard units (e.g. straws) or simple standard units and measuring equipment- metre stick, cm, kg masses, l, jugs and second timer -Compare 3 or more things -Read scales to the nearest labelled division.	**Gather and record data to help in answering questions (year 2 only).** -Draw pictures of results/ take photos -Help teacher make a class table or chart -Complete a simple chart or two column table -Make practical block graphs/ pictograms -Make/ draw a block graph with a 1:1 scale	**Use their observations and ideas to suggest answers to questions.** -Describe observations -Say what they have found out -Say whether what happened was what they expected

	without an explanation)					
	Autumn Term		**Spring Term**		**Summer Term**	
	Biology - Plants, Animals including humans		Chemistry - Everyday materials		Physics - Seasonal Changes	
	Knows and can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Knows and can identify and describe the basic structure of a variety of common flowering plants, including trees. Knows and can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals e.g. cat, robin, adder, frog, salmon. Knows and can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Knows and can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense		Can distinguish between an object and the material from which it is made. Knows and can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Can describe the simple physical properties of a variety of everyday materials Knows and can compare and group together a variety of everyday materials on the basis of their simple physical properties		Knows when each of the four seasons occurs Knows what the features of autumn are and what happens to trees in this season. Knows that days are longer in summer (sunshine hours) than in winter Observe changes across the four seasons. Knows about and can describe weather in different seasons over a year. Knows and can describe the features of different seasons and how they change through the year.	
Key Stage 1 **Year 2**	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Animals including humans	Uses of everyday materials	Uses of everyday materials	Living things and their habitats	Living things and their habitats	Plants

	Know and have noticed that animals, including humans, have offspring which grow into adults Has found out about and described the basic needs of animals, including humans, for survival (water, food and air) Can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses	Can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Has explore and compare the differences between things that are living, dead, and things that have never been alive Knows and can 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	Knows and can identify and name a variety of plants and animals in their habitats, including microhabitats Know and can 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	Has observed and describe how seeds and bulbs grow into mature plants Has found out and can describe how plants need water, light and a suitable temperature to grow and stay healthy

ADDITIONAL SCIENTIFIC EXPERIENCES;

Working Scientifically Lower KS2 Year 3 and 4

Lower KS2 End Points (NC):

- Has broadened their scientific view of the world around them through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living and non-living things and familiar environments and by beginning to develop ideas about functions, relationships and interactions.
- Asks their own questions about what they observe and is able to make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.
- Draws simple conclusions and uses some scientific language, to both and write about what they have found out.

- Reads and spells scientific vocabulary correctly and with confidence, using their growing word and spelling knowledge.

Key Stage 2 Year 3	Plan	Do	Record	Review
	Ask relevant questions. **Set up simple practical enquiries, comparative and fair tests.** -Begin to choose ways to try and answer a question -Put forward own ideas and make some planning decisions -Suggest ways of making the test fair or if it cannot be fair, how they will answer it by looking for a pattern -From a selection, say what equipment is needed -Suggest the type of data needed to be collected -Make simple predictions based on everyday experience and knowledge	**Making systematic and careful observations and where appropriate taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.** -Carry out a fair test of pattern seeking enquiry with help -Compare 3 or more things -Use simple standard measures; m, cm, mm, kg, g, cm3, minutes, seconds, Newtons -Measure to the nearest whole or half unit or mixed units -Read scales to the nearest division labelled and unlabelled	**Gather, record, classify and present data in a variety of ways to help in answering questions.** **Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.** -Construct a simple 2 column table -Draw bar charts 1:1, 1:2, 1:5 and 1:10 scale and begin to plot line graphs.	**Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions, making predictions for new values.** **Use results to draw simple conclusions and suggest improvements and raise further questions/ new questions.** **Identify differences, similarities or changes related to simple scientific ideas and processes.** -Say what they have found out and give an explanation for observations and simple patterns based on everyday experiences

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Biology - Plants	Biology – Animals including humans	Chemistry - Rocks	Physics - Light	Physics – forces and magnets	

	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.	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.	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.	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.	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.

ADDITIONAL SCIENTIFIC EXPERIENCES;

Working Scientifically Upper KS2

Key Stage 2 Year 4 and 5 (Previous academic year a mixed 3 / 4 class were taught the year 4	Plan	Do	Record	Review
	Plan different types of scientific enquiries, including recognising and controlling variables where necessary to answer questions.	Take measurements using a range of scientific equipment with increasing accuracy and precision, taking repeat readings when appropriate.	Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs and models.	Report and present findings from enquiries, including conclusions, casual relationships and explanations of results, explanations of the degree of trust in results, in

endpoints)	-Ask a variety of types of scientific questions -Choose the most appropriate scientific enquiry method to answer a question and outline the method -List all the equipment needed -Decide what data to collect and how much of it is needed -Make predictions based on scientific knowledge		-Make a series of measurements adequate for the task Select appropriate measuring equipment -Use standard measure as in including fractions and mixed units and decimals to one place -Read scales with increased accuracy -Compare 5 or more things -Select apparatus and use with care -Read scales with precision and accuracy appropriate to the task -Repeat readings and fine averages	-Present information clearly in tables including for repeat readings -Record observations and measurements systematically -Draw bar graphs using more complex scales, possibly involving fractions or decimals) -Draw line graphs, possibly involving fractions and decimals		**oral and written forms such as displays and other presentations.** **Use test results to make predictions to set up further comparative and fair tests.** **Identify scientific evidence that has been used to support or refute ideas or arguments.** -Use graphs to spot and interpret patterns/ trends in results -Draw conclusions using these patterns and begin to relate conclusions to scientific knowledge and understanding consistent with the evidence -Offer simple explanation for differences in repeated measurements/ observations
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Physics – Earth and Space	Biology – Living things and their habitats.	Physics - Forces	Chemistry – Properties and changes in materials	Chemistry – Properties and changes in materials	Biology – Animals including humans

	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	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.	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.	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	Describe the changes as humans develop to old age.
Key Stage 2 Year 6	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Biology – Animals including humans	Biology - Evolution and inheritance	Physics - Light	Physics – Electricity	Biology – Living things and their habitats	**RSE**

	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Describe 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.	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.	Recognise that light appears to travel in straight lines. Know 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 form light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadow have the same shape as the objects that cast them.	Explain that 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.	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	
ADDITIONAL SCIENTIFIC EXPERIENCES;						