

Tipton St John C of E Primary School

Progression in Science Skills

	EYFS	KS1	LKS2	UKS2
	Focus on Reception children	For more detail see the science curriculum mapping document	For more detail see the science curriculum mapping document	For more detail see the science curriculum mapping document
Breadth of Study & Enquiry Questions	<p>For the children in the FSU, topics are decided with the children each half term. We do not have a rolling Year A and B programme as they are only in Reception for one year and we do not want to be that specific. We often plan 'science based activities' outside linked to the children's interests and our British weather!</p> <p>We follow the prime and specific areas in the EYFS in the new framework,</p> <p>There is no specific science subject in EYFS but it tends to link to many areas but specifically with <i>Understanding the World – The Natural World</i></p> <p><i>Explore the natural world around them, making observations and drawing pictures of animals and plants.</i></p> <p><i>Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class,</i></p> <p><i>Understand some important processes and changes in the natural world around them,</i></p>	<p><u>Year A:</u> Autumn Identifying Plants PLANBEE year 1 Pupils should be taught to: Describe how seeds and bulbs grow into mature plants Describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>They will be given opportunities to: Gather and record data to help in answering questions 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.</p> <p>Identifying Animals PLANBEE year 1 (for year 2 objectives look at year B) Pupils should be taught to: 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.) Leads very nicely into My Body next term.</p> <p>Spring Everyday Materials PLANBEE year 1 (for year 2 objectives look at year B) Uses of everyday materials Pupils should be taught to: 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. identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard Describe the simple physical properties of a variety of everyday materials.</p>	<p><u>Year A:</u> Autumn Animals including humans HEALTH AND MOVEMENT PLANBEE year 3 Pupils should be taught to: Explain 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 Describe the ways in which nutrients, water and oxygen are transported within animals, including humans Identify that humans and some animals have skeletons and muscles for support and movement.</p> <p>Pupils should be taught to: (this is done more thoroughly in cycle B)</p> <ul style="list-style-type: none"> Identify and name the basic parts of the digestive system in humans Identify the simple functions of the teeth and different types of teeth in humans. <p>Evolution and inheritance Describe how plants and animals, including humans, resemble their parents in many features Explain how the human skeleton has changed over time, since we separated from other primates, and discuss the advantages and disadvantages of being on two feet rather than four.</p> <p>Spring ROCKS and SOILS Plan B year 3 Pupils should be taught to: Compare and group together different kinds of rocks on the basis of their simple physical properties Relate the simple physical properties of some rocks to their formation (igneous or sedimentary) Recognise that soils are made from rocks and organic matter. Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.</p> <p>. Forces and magnets PLANBEE year 3 Pupils should be taught to:</p>	<p><u>Year A</u> Autumn Properties and change of materials PLANBEE year 5 Compare and group together everyday materials based on evidence from comparative tests and fair tests, including hardness, solubility, conductivity and insulation (electricity and heat), behaviour with 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. Give reasons, where appropriate, for the uses of everyday materials based on evidence from comparative tests and fair tests, including metals, wood and plastic 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 of bicarbonate of soda</p> <p>Spring SEEING LIGHT PLANBEE YEAR 6 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 light or reflect light into the eye. Explain that objects are seen because they give out or reflect light into the eye, using results of any comparative tests. Explain the scientific idea that light travels in straight lines from a light source or is reflected from a surface 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. The ray model of light. Explain that light can be broken into colours and that different colours of light can be combined to appear as a new colour explain how the ray model of light explains the size of shadows use simple optical instruments.</p> <p>Earth and Space PLANBEE YEAR 5 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.</p>

<p><i>including the seasons and changing states of matter,</i></p> <p>It is hoped that the children will have achieved UtW by the end of the Summer Term.</p> <p>The children are familiar with days of the week, months and types of weather as we do this at the start of every day.</p> <p>We usually have a nature table. The table changes with the seasons and what the children bring in from the school grounds and home.</p> <p>We tend to have a specific science based afternoon once a week, usually Forest Friday, which involves lots of practical messy activities outside in the school grounds. What we do depends on the theme for that week and the weather. Observations are recorded on Tapestry.</p> <p>Learning and understanding different vocabulary is a big focus in the FSU and this includes learning new scientific vocabulary.</p> <p>We like to be crazy scientists by exploring new materials, performing messy activities and discovering new things about ourselves and what is hidden in our local environment!</p>	<p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>My Body PLANBEE year 1 Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</p> <p>Summer Seasonal Changes PLANBEE year 1 Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.</p> <p>Habitats (either farm or zoo or aquarium visit.) Pupils should be taught to: Identify that living things live in habitats to which they are particularly 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 Identify and name a variety of plants and animals they study in a variety of habitats, including microhabitats</p> <p>Year B: Autumn All living things Explore and compare: Explain the differences between things that are living and things that have never been alive.</p> <p>Growing plants (PLANBEE yr 2) (most to be done in the summer term) But use this time to look at bulbs....planting hyacinths for Christmas, and collecting seeds.</p> <p>Growth and survival units 6 and 7 could be done in a wet games lesson rather than the summer term.</p>	<p>Explore and discuss how a push or a pull is exerted by something and acts on something else Describe how some forces are made by contact (pushing, pulling) while others act at a distance (e.g. gravity and magnets) Explain how gravity pulls things down, and that on the Earth's surface, we are supported by a contact force with the ground Describe the use of magnets in familiar objects Explain that magnets attract magnetic materials; that magnets work through, e.g. cardboard Make a magnet. Based on testing, explore differences between materials, including attraction to a magnet, and floating or sinking Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet or will sink/float.</p> <p>Summer PLANTS How plants grow PLANBEE year 3</p> <p>Identify and describe the functions of different parts of plants: roots, stem, leaves and flowers Identify the requirements of plants for life and growth (air, light, water, nutrients from soil and space) and how they vary from plant to plant Describe the ways in which nutrients, water and oxygen are transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>Habitats: Pupils should be taught to: Identify and name a variety of living things that can be grouped as producers, consumers, predator, prey, herbivores, carnivores and omnivores (including examples of plants and animals) Explain, using food chains and simple food webs, how feeding relationships occur in the local environment, including a variety of habitats and micro -habitats.</p> <p>Light and Shadow PLANBEE year 3 Pupils should be taught to: Explain how shadows are made when a light source is blocked by something that is not transparent 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. Investigate the size of shadows, and search for patterns</p> <p>Year B: Autumn Quick revision of living things (Introduction to environmental challenge for the year.)</p> <p>States of matter PLANBEE year 4 Pupils should be taught to:</p>	<p>Know some facts about planets in our solar system relative to Earth.</p> <p>Summer LIFE CYCLES PLANBEE YEAR 5 Life cycles, including reproduction and growth Describe the life cycles common to a variety of animals including humans (birth, growth, development, reproduction, death), and to a variety of plants (growth, reproduction and death) 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</p> <p>CHANGES AND REPRODUCTION PLANBEE YEAR 5 Describe the changes as humans develop to old age.</p> <p>All living things fits with activities on residential(could do some environmental work based upon:) Explain the classification of living things into broad groups according to common observable characteristics and based on similarities and differences, including plants, animals and micro-organism</p> <p>Year B: Autumn HEALTHY BODIES PLANBEE 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.</p> <p>Classifying Organisms PLANBEE year 6 Probably covered by environmental trip day The diversity of organisms, including classification 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</p> <p>Spring FORCES IN ACTION PLANBEE year 5 Types of force and measurement of forces (Explain that unsupported objects fall towards the Earth because of gravity acting between the Earth and the falling object.) Compare and give reasons, based on testing, for how forces, including gravity, friction, air and water resistance, affect the movement of a variety of objects (Identify the effect of air resistance, water resistance and friction, that act between moving surfaces.)</p>
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PLANBEE YEAR 2 Living Things and Their Habitats taught through OCEAN ANIMALS and a study of dinosaurs.

Pupils should be taught to:

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.

Spring

PlanBee (year 2) Exploring Everyday materials

Alternative unit: What are toys made from?

Identify a variety of materials according to set criteria. (link of use of adjectives in literacy. Also, use of connectives and modal verbs.)

Make a collection of toys made from different materials

Revisit natural and manmade materials from year one. Know that some materials can change shape by squashing, bending, stretching and twisting, and others can't.

Why are metal and plastic suitable for a variety of purposes.

Why are some things made from wood?

Why are some products made from different materials? Are some inventions from years ago still used today or have they changed?

Summer

Growing plants (PLANBEE yr 2)

Pupils should be taught to:
Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen

[Describe the basic structure of a variety of common plants including roots, stem, leaves and flowers. [2]

Growth and Survival (PLANBEE yr 2)

Pupils should be taught to:
Explain that animals including humans have offspring which grow into adults

- Compare and group together materials according to whether they are solids, liquids or gases
- Explain that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C)
- Compare and give reasons, based on measurements, for changes to the state of water, using correct scientific vocabulary

Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Spring

Eating and Digestion PLANBEE year 4

Pupils should be taught to:

- Describe and name the basic parts of the digestive system in humans
- Identify the simple functions of the teeth and different types of teeth in humans.
- Construct and interpret a variety of food chains, identifying producers, predators and prey.

SOUND PLANBEE year 4

Pupils should be taught to:

Identify and name a variety of sources of sound that we can hear with our ears, and how the sounds are made

Compare the variety of sources of sound, using simple comparisons, comparative vocabulary and superlative vocabulary
Find patterns between the pitch of a sound & features of the object that produced it.

Find patterns between the volume of a sound and the strength of the vibrations that produced it.
Explain that sound travels away from sources and get fainter as it does so

Explain how sounds are heard using results of any comparative tests, and the scientific idea that sounds are made by vibrations that travel from a source and through materials (solids, liquids and gases) to the ear.

Electricity (Circuits and conductors PLANBEE year 4)

Pupils should be taught to:

- Identify common appliances that run on electricity.
- Construct a simple series electric circuit, demonstrating that the circuit must be correctly constructed and complete in order for components to function . Identify cells wires switches bulbs and buzzers
- Explain that some materials conduct electricity while others do not, using results of any comparative tests (insulators and fuses) Recognise some common conductors and insulators, and associate metals with being good conductors. 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.

Explain, through observation, that forces push and pull objects, making them change shape, and that there is always something doing the pushing or pulling either by contact or at a distance (Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.)
Explain that drag forces tend to slow things down, including air resistance and, to a greater extent, resistance in liquids
Measure the size of a force.
Determine the distance travelled based on the speed and time of travel.

Changing Circuits PLANBEE year 6

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.

Explain that short circuits may cause wires to heat up and that fuses are electrical safety devices that are triggered by short circuits [273]
Explain the effect of changing the voltage of a battery. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit.
Use recognised symbols when representing a simple circuit in a diagram

Summer

EVOLUTION AND INHERITANCE PLANBEE year 6

Pupils should be taught to:

Give reasons why living things produce offspring of the same kind, but in many cases offspring are not identical with each other or with their parents

Recognise that living things have changed over time and the fossils provide information about living things that inhabited the Earth millions of years ago

Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Explain that evolution happens over time, fossils provide information about living things that inhabited the Earth many years ago; how animals and plants are suited to and adapt to their environment in different ways; and how this leads to evolution.

RESIDENTIAL provides an ideal platform for enquiry and investigation.

Diversity year 6is also a good unit to back up much of this work. Classification (PLANBEE year 6)

Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • 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 • 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

		<p>Explain the basic needs of animals, including humans, for survival (which are water, food and air) Describe the importance for humans of exercise and eating the right amounts of different types of food.</p> <p>Habitats (Farm visit or zoo visit) Continuing from Autumn Term 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.</p> <p>Forces and motion (Own investigations) Is it faster or slower? Forces and motion Describe how things move at different speeds, speed up and slow down, using simple comparisons, comparative vocabulary and superlative vocabulary.</p>	<p>Explain about closed and open circuits, and that a switch placed anywhere in a circuit switches everything on/off.</p> <p>Summer Living in environments PLANBEE year 4 Classification of 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. <i>Give reasons for classifying plants and animals based on specific characteristics and how they are suited to their environment.</i> Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	
Scientific Enquiry	Exhibiting awe and wonder about the world around them.	Asking simple questions and recognising that they can be answered in different ways	Asking relevant questions and using different types of scientific enquiries to answer them	Generating questions an planning, carrying out and evaluating scientific enquires to answer them.
	Talk about scientific enquiries that are set up for them.	Performing simple tests	Setting up simple practical enquiries, comparative and fair tests	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
	Make observations. Use a magnifying glass.	Observing closely, using simple equipment	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Use data loggers to create and print out graphs. Interrogate those graphs.</p>
	Sort and match in order to create data.	Gathering and recording data to help in answering questions	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	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
	<p>Notice differences when sorting.</p> <p>Notice similarities when grouping.</p>	Identifying and classifying	Identifying differences, similarities or changes related to simple scientific ideas and processes	Identifying scientific evidence that has been used to support or refute ideas or arguments
			Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Recording data and results of increasing complexity using scientific diagrams and

			Using straightforward scientific evidence to answer questions or to support their findings.	labels, classification keys, tables, scatter graphs, bar and line graphs
	Using their observations and ideas to suggest answers to questions orally	Using their observations and ideas to suggest answers to questions both orally and through drawing and writing.	Using results to draw simple conclusions, make predictions for new values and suggest improvements and raise further questions Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Using test results to make predictions to set up further comparative and fair tests
BIOLOGY (Plants)	Notice differences in plants in different seasons.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	
	Name some parts of a tree and flower. How to look after a plant.	.Identify and describe the basic structure of a variety of common flowering plants, including trees. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	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	
	Basic life cycle of a flower.	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal		
	Collect and name seeds and leaves, particularly linked to the four classes – Hazel, Maple, Willow and Oak.	Observe and describe how seeds and bulbs grow into mature plants		Describe the life process of reproduction in some plants (and Animals, including humans)
Biology (Living things and their habitats)	Know the names of some plants and animals that are familiar in their own environment.	Explore and compare the differences between things that are living, dead, and things that have never been alive.	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	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

	Recognise and name some animals that live in other environments: aquatic, rain forest etc.	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	Recognise that environments can change and that this can sometimes pose dangers to living things.	Give reasons for classifying plants and animals based on special characteristics
	Name some plants, trees and animals in their local environment.	Identify and name a variety of plants and animals in their habitats, including microhabitats.		Describe the life process of reproduction in some plants and animals
	Discuss how animals get obtain their food – link to the seasons.	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.	Construct and interpret a variety of food chains, identifying producers, predators and prey.	
BIOLOGY (Animals including humans)	Know some features of different animals...i.e. a bird has feathers, a frog lays frogspawn, birds lay eggs etc. Pond dipping in the school grounds –frog life cycle.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals		
	Look at similarities and differences between different creatures.	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)		
	Name some of the main parts of the human body.	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Identify that humans and some other animals have skeletons and muscles for support, protection and movement	
	Find out what animals, including humans need to live.	Find out about and describe the basic needs of animals, including humans, including humans, for survival (water, food and air		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, including humans
	Know that animals have babies, i.e. chicks, froglets, puppies. Learn the correct names for some baby animals.	Notice that animals, including humans, including humans, have offspring which grow into adults		Describe the life processes of reproduction in some (plants) and Animals, including humans Describe the changes as humans develop from birth to old age Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

	Learn basic hygiene habits, such as washing hands.	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		
	Name some different type of animal groups.	Identify and name a variety of common animals that are carnivores, herbivores and omnivores		
	Discuss what happens to our food when we eat. What is the basic function of our heart and why we need to look after it.		Describe the simple functions of the basic parts of the digestive system in humans	Identify and name the main parts of the circulatory system, and explain the functions of the heart, blood vessels and blood.
	Discuss about why we need to eat food		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	
	Learn about our teeth and why we need to look after them.		Identify the different types of teeth in humans and their simple functions	
Biology Evolution and genetics	Look at similarities and differences between themselves, animals and what is found in their environment.			Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how Animals, including humans and plants are adapted to suit their environment in different ways and that adaptation may lead to 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.
Chemistry Materials	Know that objects are made from different materials. Group different materials and explain their choices.	Distinguish between an object and the material from which it is made Describe the simple physical properties of a variety of everyday materials	Compare and group materials together, according to whether they are solids, liquids or gases	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 Give reasons, based on evidence from comparative and fair tests, for the particular

		Compare and group together a variety of everyday materials on the basis of their simple physical properties	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),	uses of everyday materials, including metals, wood and plastic
	Perform water based activities		Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Demonstrate that dissolving, mixing and changes of state are reversible changes.
	Know that different things are bendy, stretchy and squashable or not.	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)		Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
				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
CHEMISTRY (Earth, rocks and atmosphere)	Look at different rocks and fossils		Recognise that soils are made from rocks and organic matter.	
	Explain what a fossil is		Describe in simple terms how fossils are formed when things that have lived are trapped within rock.	
	Group different types of rocks		Compare and group together different kinds of rocks on the basis of their simple physical properties.	
PHYSICS Motion and forces	Explore squashing and twisting when using modelling materials.	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Compare how things move on different surfaces	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

			Notice that some forces need contact between two objects, but magnetic forces can act at a distance	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
				Recognise that some mechanisms, including gears, pulleys, levers and springs, allow a smaller force to have a greater effect
Physics Waves: Light	Use torches to see light travelling in straight lines. Use torches to make shadows.	Use torches and other sources of light to explore shadow puppets.	Notice that light is reflected from surfaces	Recognise that light appears to travel in straight lines
	Discuss how to be safe in the sun		Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	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
	Look at light and dark Use the dark tent and torches		Recognise that they need light in order to see things and that dark is the absence of light	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.
	Make shadows, linked to shadow puppets.		Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns that determine the size of shadows.	Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Physics Waves Sound	Know that some sounds are loud and some are soft	Talk about how different sounds are made in music lessons.	Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear.	
	Make sounds of different levels using a variety of equipment.		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	

PHYSICS Magnetism	Play with magnetic toys and equipment	Explain how magnetic toys work.	Notice that some forces need contact between two objects and some forces act at a distance	
	Find out what is magnetic and what is not.		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.	
			Observe how magnets attract or repel each other and attract some materials and not others Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending upon which poles are facing.	
PHYSICS Electricity	Use equipment which needs electricity to work. Talk about batteries Use battery operated toys and equipment.		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	Use recognised symbols when representing a simple circuit. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit in a diagram
			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	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.
	Discuss about safety with electricity.		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.	
PHYSICS Earth and Space	Recognise features of different seasons Ongoing nature table linked to the seasons	Seasonal changes: Observe changes across the four seasons		Describe the movement of the Earth and other planets relative to the Sun in the solar system
	Perform the daily weather chart when doing the date	Observe and describe weather associated with the seasons and how day length varies		Describe the movement of the Moon relative to the Earth

	Look at our globe Explain what the sun and moon does			Describe the Sun, Earth and Moon as approximately spherical bodies
	Look at night and day			Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
PHYSICS Energy	Use different toys and ramps which link to forces Take torches apart			Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs
Scientific vocabulary	Seasons: Summer Autumn Winter Spring Days and months of the year types of weather Main body parts and internal organs Animal names and their names when young Naming of parts of a flower, tree and a snail Names of some seeds, leaves, trees and flowers in their environment Vocabulary to describe materials -squashing twisting bendy stretchy smooth sharp Vocabulary linked to our planet, night and day and what is found in their local environment and beyond. Vocabulary linked to our nature table and scientific	Grow germinate seed seedling produce reproduce force direction movement distance materials natural man-made manufactured property group heat cool freeze boil melt plant plants weed living soil flower stem root leaf branch health grow growth healthy unhealthy variety germs light dark black bright night day reflect push pull movement twist Spin swing slide swerve hope jump turn Material fabric wood plastic metal Sound hear high low ears music noisy silence variation feathers fur coat variation varies features ourselves eye nose sense mouth chin teeth touch smell taste hear see	Strong weak flexible transparent translucent opaque electricity electrical circuit battery friction, air resistance, water resistance, forcemeter Habitat nutrition environment keys producer consumer predator prey food chain habitat omnivore herbivore carnivore incisors canine molars premolars tongue life cycle organism sort classify identify web plants light water growth stem warmth temperature cold body temperature boiling point freezing point Celsius insulate room temperature ovenproof thermal insulator thermal conductor thermometer light dark shadow transparent translucent opaque reflect angle of incidence angle of reflection image Electricity bulb buzzer bulb holder battery cell magnet spring metal iron steel copper nickel aluminium skeleton bones skull ribs pelvis spine vertebrae calcium connective tissue ligament tendon protection support movement teeth contract relax muscles joints hip shoulder knee ribcage ball and socket hinge glide saddle pivot	Circuit, complete circuit, conductor, insulator switch buzzer cell battery wire Evaporate evaporation condense condensation Earth moon sun universe sphere orbit planets (names of planets) black hole mass weight light years day night seasons rotation star gas gases air atmosphere oxygen carbon di oxide nitrogen hydrogen light beam reflection refraction fertiliser nutrients vitamins carbohydrates protein fats sugars starches diet balanced diet deficiencies disease life cycles reproduce reproduction stigma style anthers stamen ovum carpel seed Microorganism microbe virus germ dissolve dissolving condense condensing undissolved filter sieve saturated distil Reversible irreversible mixture reaction change

	continuous provision activities.		<p>marble slate sedimentary chalk sandstone granite rock soil igneous metamorphic</p> <p>solid liquid gas condensation evaporation precipitation underground water reservoir freezing melting wood plastic glass metal wax jelly</p> <p>sounds vibrate pitch dynamics loudness decibels high low softness</p>	
ICT	<p>Watch short clips on Espresso.</p> <p>Use the iPads and computers to find out information.</p> <p>Use a variety of equipment linked to record what they have found.</p> <p>Look at their Tapestry observations from home and in school.</p> <p>Discuss how different types of technology in school and at home can help them to find out information and learn.</p>	<p>Show simple diagrams and pictures on COMPUTER OR I-PAD</p> <p>Read graphs showing results of an enquiry.</p> <p>Write a report.</p> <p>Record ideas using I pad video</p>	<p>Know how to collect data using excel or similar</p> <p>Use given websites to research given questions</p> <p>Be able to read and interpret given data</p> <p>Be able to present data using excel or similar graphics program</p> <p>Write reports and combine with imported pictures.</p> <p>Make video using I pad to show to others.</p>	<p>Know how to collect and interpret data using excel or similar</p> <p>Analyse data using charts and graphs</p> <p>Use CD –Rom or Google search engine to find information about phenomena to answer their own questions</p> <p>Be able to present own data using excel or similar calculation and graphing tools program</p> <p>Write reports inserting pictures and graphics.</p> <p>Make short video reports for the school website.</p>