



Understanding of the World

Nursery	Develop Matters PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
Who am I?					
Autumn Term 2					
Who is in my community?					
Spring Term 1					
How do we get to the South Pole?	The Natural World: Talk about the differences between materials and changes they notice.	Temperature causes water to freeze and melt.	Observing, verbalising what we observe.	Temperature, texture, weight, size, change, colour	hot, cold, rough, smooth, ice, freeze, melt, water, hard, soft
	The Natural World: Use all their senses in hands-on exploration of natural materials.	We can find things out by using our senses.	Experiencing, verbalising what we experience.		
	The Natural World: Explore collections of materials with similar and/or different properties	We can collect, observe and compare natural things.	Collecting, observing, comparing, talking about what we find out.		
	The Natural World: Talk about what they see, using a wide vocabulary.	We can use words to describe what we see in the natural world.	Observing, verbalising what we observe.		
Spring Term 2					
What can we grow?	The Natural World: Understand the key features of the life cycle of a plant....	The stages of the life cycle of a plant.	observing, verbalising what we see, learning new vocabulary	life cycle, change	stem, leaf, water, flower, seed, plant, earth, rain, germinate, planet, look after
	The Natural World: Plant seeds and care for growing plants.	What seeds and plants need to germinate and grow.	fine motor skills, being gentle and careful, paying attention to detail, taking responsibility	plant, grow, care	
	The Natural World: Explore how things work.	How the objects we choose to explore work.	Trying out, dissecting, observing details, mentally processing what we see.	functionality	
Summer Term 1					
	The Natural World: Understand the key features of the life cycle of.....an animal.	The stages of the life cycle of an animal.	observing, verbalising what we see, learning new vocabulary	life cycle, change	coral, weed, plants, animals, creatures, fins, tails, animal body

What is under the sea?	The Natural World: Begin to understand the need to respect and care for the natural environment and all living things.	What the environment and living things need in order to thrive.	Being gentle and careful, paying attention to detail, taking responsibility	respect, environment, living things	parts, starfish, seal, animal names, food, care, home, planet
	The Natural World: Explore how things work.	How the objects we choose to explore work.	Trying out, dissecting, observing details, mentally processing what we see.	functionality	
Summer Term 2					
Where will adventure take us?	The Natural World: Explore and talk about different forces they can feel.	We can experience various natural forces.	Observing our experiences, verbalising them, reasoning about them.	magnetism, gravity, weight, strength, force	heavy, light, carry, build, wheel, transport, heavy, light, strong, weak, magnet



Understanding of the World

Reception	Development Matters PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
What makes me happy and healthy?	Describe what they see, hear and feel whilst outside	Understand that change happens	Using my sense to explore the world	place and location	nature, body, healthy, food
		Know I have senses to explore		cause and effect	
				growth and decay	
Autumn Term 2					
Where in the world do animals live?	The Natural World	knowing about seasons across the world at the same time	compare our environment to Handa's	Similarity and difference	seasons, change, environment, compare, describe
		knowing seasons are different	describe and compare different seasons and features of different seasons	Environment	
				Process	
				Chronological	
Spring Term 1					
What makes a good toy?	Explore the natural world around them.	Know how different materials are more suitable for different jobs.	Be able to select the most appropriate materials for toy making.	Similarity and difference	materials, toys, evaluate, design
				knowledge and understanding	
				innovate	
				evaluate	
Spring Term 2					
What happens on the farm?	Explore the natural world around them.	Knowledge of their local environment and other environments across the world.	Use relevant vocabulary.	similarity and differences	farm, animals
		Have the vocabulary to talk about and discuss.	Navigate their natural environment.		

Summer Term 1					
How can I be a superhero?	Looks closely at similarities, differences, patterns and change.	Know that we have different weather and seasons which enables the world to change.	Understand that the world around us changes and I can comment on this	similarity and differences	seasons, observation, chronology
	They make observations of animals and plants and explain why some things occur, and talk about changes.	Know what an observation is	Understand the chronology of development for humans and animals	observation	
	They talk about the features of their own immediate environment and how environments might vary from one another.	Know that baby animals and humans grow up and develop	Understand how to observe something, verbalise my thoughts and discuss change		
Summer Term 2					
What goes up, up and away?	Describe what they see, hear and feel whilst outside.	Know what an adjective is to describe.	Describe what they can see, hear and feel using adjectives and senses.	similarity and difference	senses, touch, sight, taste, smell, hear
	Explore the natural world around them.	Know that senses are to help them describe.	Understand and describe the things that they can see, hear, touch that are natural.	observation	
		Know what is meant by 'natural world.'	Be able to explain what they experience.		
		Know that some things are 'man made' and others are natural.			



Science

Year 1	National Curriculum PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
What do I know about the UK and where I live in Didsbury?	Observe and describe weather associated with the seasons and how day length varies.	Name the four seasons	Observation over time - observing seasonal changes, changes in weather, temperature and rainfall.	Observing, pattern seeking, working scientifically	Autumn, Winter, Spring, Summer, temperature, weather systems
	Using their observations and ideas to suggest answers to questions.	Know the type of weather associated with the seasons	Pattern seeking - length of daylight throughout the year, leaf colour and fall.	Four seasons	
	Gathering and recording data to help in answering questions.	Know summer has longer periods of light		Seasonal weather	
		Winter has shortest periods of light			
		Different parts of the world have different seasons at different times to us			
		Know that temperature varies during different seasons			
Autumn Term 2					
How different was my grandparents' childhood to mine?	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	Know the name of the materials an object is made from	Comparative and Fair tests	Similarity and difference	plastic - A 'man-made' material that can be shaped or moulded to any shape stretch - A material that is like elastic stiff - A material that is firm and hard and not flexible metal - Are usually tough and strong material and can be heated and shaped into anything liquid - Can flow and take on the shape of their container gas - We can't see it, but it is all around us
	Compare and group together a variety of everyday materials on the basis of their simple physical properties	Know about the properties of everyday materials	Compare the suitability of everyday materials for a specific job, e.g., building a bridge	Classification of objects	
	Using their observations and ideas to suggest answers to questions	Know the names of many types of materials	Grouping and Classifying	Fair testing	
	Performing simple tests	Know what we use glass, wood and bricks for houses.	Identify different materials based on their properties	Observations	
	Observing closely, using simple equipment	Know that plastics are easy to bend		Every day materials	
	Know that some materials are not useful for certain things		properties of materials		

		Know that there are many different types of materials		grouping materials	

Spring Term 1

Why are humans not like tigers? Animals including humans	Identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals.	Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds	Research using secondary sources	Research, classifying, identifying and grouping	<p>Amphibians - All begin their life in water with gills and tails. Examples are frogs and newts</p> <p>Reptiles - Are animals that are cold-blooded. Most lay eggs and their skin is covered with hard, dry scales.</p> <p>Mammals - Are also warm blooded animals. They breath air and have a backbone.</p> <p>Herbivore - A herbivore eats only plants.</p> <p>Carnivore - Is a meat-eating animal that gets its food from killing other animals.</p> <p>Omnivore - Eats plants and meat.</p>
	Identify and name a variety of common animals that are carnivores, herbivores and omnivores.	Know and classify animals by what they eat (carnivore, herbivore and omnivore)	Research animals that live in a particular habitat	Animals including humans	
	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)	Know how to sort by living and non living things	Grouping and Classifying	Name common animals	
	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Know the difference between a mammal, reptile and amphibian	Group/ classify animals according to what they eat	Carnivore, herbivore, omnivore	
		Know how to classify by living, non living and never alive			
		Know the names of some common birds			
		Begin to know why certain animals live in certain areas			
		Know the difference between carnivore, omnivore and herbivore			

Spring Term 2

How can I make a fashionable logo about where I am from?	Common plants	Know the name of the main parts of plants, including roots, stem, leaf and petal	Plant a seed or bulb and watch it grow	Observing over time	Deciduous - Is the name given to trees that lose their leaves in autumn and are bare in the winter
	Plant structure				
	Naming different parts of plants, flowers and trees and naming common plants in the locality	Know the part that each part of a plant plays in keeping a plant healthy	Observations over time	Grouping and classifying	Evergreen - Is the name of trees that have leaves all year round
		Name a number of wild and garden flowers	Grouping and Classifying	Identifying	Environment - The area where a plant or tree lives and thrives
		Name the main parts of a tree	Changes to plants/ trees as they grow or in different seasons	Common plants	Blossom - Is the flower that comes before the fruit. For example, apple blossom comes before the apple starts to grow
		Know the difference between deciduous and evergreen trees	Identify local trees and plants	Plant structure	
		Know the names of some of the plants that grow in the local environment			Petals - Is a part of the flower and is usually coloured. The colour attracts insects.

Summer Term 1

Why are some places in the world always hot and others are always cold?	Observe and describe weather associated with the seasons and how day length varies.	Know the name of the seasons	Observation over time	Observing over time, pattern seeking	Autumn, Winter, Spring, Summer, temperature, weather systems, short, long, day, night, shadow, solstice, moon, sun, season, seasonal change, length, time, month, year
	Using their observations and ideas to suggest answers to questions.	Know about the weather associated with each season	Changes in temperature throughout the year	Four seasons	
	Gathering and recording data to help in answering questions.	Know the months within each season	Changes in rainfall throughout the year	seasonal weather	
			Length of daylight throughout the year		
			Leaf colour and fall and different stages		

Summer Term 2

Who were and are the famous Manchester people?	Know the name of seen parts of the human body and know about the five senses	Know the names of the seen parts of the human body	Pattern seeking	Pattern seeking	Toes - The digits at the end of our feet
	RSE know the scientific name vagina, vulva, penis	Know the names of the five senses	Height and weight changes as we get older	Animals including humans	Fingers - The digits at the end of our fingers
		Know what each of our senses does		Human body	Touch - The sensation you get when you brush against something
		Know the names of all seen body parts above the shoulders		Senses	Hearing - The sound made by anything around
		Know the names of the seen body parts below the shoulders and above the legs			Taste - The sensation you get when you eat
		Know the names of all seen body parts below the hips			Chest - The part of the body below the neck and shoulders and between the arms



Science

Year 2	National Curriculum PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
Would a Dinosaur make a good pet?	Living things and their habitats	To know the differences between things that are living, dead, and things that have never been alive.	Sort and classify things according to whether they are living, dead or were never alive	Living things and their habitats	habitat, rainforest, desert, species, pond, indigenous
	Describe the basic needs of animals for survival	To know 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.	Record their findings using charts	alive or dead	
	Describe the basic needs of plants for survival	To know the names of a variety of plants and animals in their habitats, including microhabitats.	Talk about ways of answering their questions	habitats	
		To know how to 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. Describe how they decided where to place things Explore questions like: 'Is a flame alive? Is a deciduous tree dead in winter?'	Construct a simple food chain that includes humans (e.g., grass, cow, human)	adaptations	
	Identify whether things are alive, dead or have never lived	To know and understand that all living things have certain characteristics that are essential for keeping them alive and healthy	Describe the conditions in different habitats and microhabitats (under log, on stony path, under bushes) Find out how the conditions affect the number and type(s) of plants and animals that live there.	food chains	
	Group animals according to what they eat	To know the term 'habitat' (a natural environment or home of a variety of plants and animals) and 'microhabitat' (a very small habitat e.g. for woodlice under stones, logs or leaf litter).	Raise and answer questions about the local environment.	classifying	

	Describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships		Identify and study a variety of plants and animals within their habitat and observe how living things depend on each other e.g. plants serving as a source of food and shelter for animals.	grouping and identifying
	Name different plants and animals and describe how they are suited to different habitats		Raise and answer questions that help them to become familiar with the life processes that are common to all living things.	

Autumn Term 2

What lessons have we learnt from the Great Fire of London?	Animals, including humans	To have an understanding of animals, including humans, have offspring that grow into adults.	Ask questions about what they notice	Animal reproduction	Offspring, basic needs, survival, humans, water, food, air, hygiene, foods, classify, grow, exercise, predict, observe, reproduction, healthy.
	Notice that animals, including humans, have offspring which grow into adults	To know and find out about and describe the basic needs of animals, including humans, for survival (water, food, air).	Explore	Healthy living	
	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	To know the importance, for humans, of exercise, hygiene and eating the right amounts of different types of food.	Question	Basic needs	
	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		Predict		
	Asking simple questions and recognising that they can be answered in different ways		Test and observe		
	Observing closely, using simple equipment		Results		
	Using their observations and identifying and classifying		Explain		

Spring Term 1

What are the main	Plants	To know what a plant needs in order to grow	Key Skills: Explore, question, predict, test and observe, explain	Plants	Plants, bulbs, seeds, temperature, reproduction, observation, growth, survival.
	Pupils should be taught to:	To know how to carry out an investigation/ fair test	Pupils should use the local environment to observe how plants grow.	plant and seed growth	
	- observe and describe how seeds and bulbs grow into mature plants	To know how to grow cress in school and how to observe over a period of a couple of weeks keeping a diary/timeline. .	Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants.	plant reproduction	

What are the main differences between my life and a small village in Africa?	- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	To know and understand the need for a control in an experiment and the importance and purpose of observing results over a period of time.	Pupils can work scientifically by observing and recording the growth of a variety of plants as they change over time from a seed or bulb, and by setting up a comparative test to show that plants need light and water to stay healthy.	keeping plants healthy
				observations over time
				fair testing
				identifying (parts of a plant)

Spring Term 2

Which internationally famous person did something incredible in the past?	Living things and their habitats				Plants, bulbs, seeds, temperature, reproduction, observation, growth, survival.
	- explore and compare the differences between things that are living, dead, and things that have never been alive	The lifecycle of a plant/apple tree	Key Skills: Explore, question, predict, test and observe, explain	plant and seed growth	
	- 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	Know what a plant needs in order to grow	Pupils should use the local environment to observe how plants grow.	plant reproduction	
	- 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	To know how to carry out an investigation/ fair test about how plants grow.		keeping plants healthy	
	Plants	To know Name the parts of a flower	Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants.	observations over time	
	- observe and describe how seeds and bulbs grow into mature plants	To know and understand how plants spread their seeds		fair testing	
	- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy		Pupils can work scientifically by observing and recording the growth of a variety of plants as they change over time from a seed or bulb, and by setting up a comparative test to show that plants need light and water to stay healthy.	identifying (parts of a plant)	

Summer Term 1

How different are the environments close to our school?	*Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses	To know the names of different materials and describe using scientific vocabulary	Identify and comparing materials	Material uses	Material names e.g. glass, rock, paper, cardboard, brick, everyday materials, properties, solid, suitable/ unsuitable, compare, identify, classify, change, squash, bend, twist, stretch	
	*Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	To know how to compare and classify materials according to their uses and properties	Investigating different types of materials.	Properties grouping and classification		
	Opportunities given to identify and discuss everyday materials and their used.	To know how the shape of some materials can be changed	Discuss how the shape of materials can be changed.			
Summer Term 2						
How can I make a moving Victorian vehicle?	Investigate how properties of a material make them suitable/ unsuitable for a particular purpose – opportunities to set up investigations and test materials using fair testing and hypothesising what could happen.	To know how to investigate the suitability of a material for a particular job	Observing how suitable materials are for a particular job.	Definitions of scientific vocabulary	Material names e.g. glass, rock, paper, cardboard, brick, everyday materials, properties, solid, suitable/ unsuitable, compare, identify, classify, change, squash, bend, twist, stretch	
	Know how people have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam.	To know how to plan and carry out a simple investigation with everyday materials, identifying how to make it a fair test	To research and carry out a simple investigation of everyday materials.	Famous inventors of everyday materials		
	Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.	To know who people such as John Dunlop, Charles Macintosh and John McAdams are and what they are famous for	Exploring the work of inventors of different types of materials.	Scientific investigations of materials – fair testing and predictions, drawing conclusions.		
			Test and observe			
			Question and predict			



Science

Year 3	National Curriculum PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
What causes earthquakes, volcanoes and mountains?	compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	There are 3 types of naturally occurring rock; igneous, sedimentary and metamorphic.	name the three	Rocks	Sedimentary, metamorphic, igneous, crystals, fossil, soil
	describe in simple terms how fossils are formed when things that have lived are trapped within rock	Understand that when animals die it gets covered in sediment which eventually become rock.	different types of rocks.	fossil formation	
	recognise that soils are made from rocks and organic matter	Soil is the uppermost layer of the earth.	handle and examine rocks to	comparing and grouping rocks	
		It is a mixture of minerals, air, water and organic matter.	identify their properties, with support.	soil	
			state the four different	research	
			types of matter that soil is composed of.	grouping and classifying	
			make careful observations.		
Autumn Term 2					
How can I create a large structure to represent Manchester?	Compare how things move on different surfaces	Earth is magnetic	Predict whether two magnets will attract or repel	Forces make things move at different speeds	Attract, repel, North, South, Contact, Force, Poles, Fair test, predict, results
	notice that some forces need contact between two objects, but magnetic forces can act at a distance	Magnet has North and South poles	Describe how magnets work	different forces	
	observe how magnets attract or repel each other and attract some materials and not others	Cutting a magnet in half creates two magnets	Observe how magnets attract and repel each other and different materials	magnets	
	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	Magnets only attract certain metals	Explain how some forces require contact and some do not	comparative testing	
	predict whether two magnets will attract or repel each other, depending on which poles are facing.	A magnet is a noncontact force	I can plan a fair test and record results	grouping and classifying	

			I can carry out an experiment to find out how objects move on different surfaces	
			Interpret results	

Spring Term 1

How did Britain change between the Stone age and Iron age?	asking relevant questions and using different types of scientific enquiries to answer them	The children will have a good understanding of the role of a scientist and the three different lines of enquiry: research, test and observe.	The children will think of some enquiry questions before using their observation skills to compare and analyse fingerprints.	Understand what a scientist is and what a scientist does.	Research, testing, zoologist, microbiologist, investigate, medicine, diets, observation, species, fingerprint, hypothesis.
	setting up simple practical enquiries, comparative and fair tests	Children will have a good understanding of the job of a forensic scientist by looking into the different things they analyse and research. The children will look closely at fingerprints and how they are unique to every individual.	They will investigate the process of testing a new medicine using a fair test and discuss the importance of fair testing. The children will learn the terms dependent, independent and control variables and use these to plan fair tests.	Biology	
	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Children will have a good understanding of the careers of microbiologists and pharmacologists who develop new medicines.	Using the context of a zoologist's study the children will practise their scientific observation skills based around birds. The children are challenged to identify expected behaviours, diets and possible habitats by making observations of the birds' beaks, wings and feet.	forensic scientist	
	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Children will have a good understanding of zoologists and their role within science. They will learn the importance of observation to this scientific role and understand how this can be used to carry out fair testing.	Children will investigate the role of botanists. The children will generate hypotheses, fair test procedures and results tables to record an investigation.	microbiologists/pharmasists	
	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Children will have a good understanding of botanists and how they have helped people from farmers to astronauts with their study and research. The children will think about what plants need in order to grow healthily	planning an investigation based around the studies of sports scientists and physiologists.	zoologist	
	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Children will consolidate their understanding of sports scientists and physiologists by exploring how muscles help us move and test how quick their reactions are.		botanist	
	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions			sports scientist/ physiologist	

	identifying differences, similarities or changes related to simple scientific ideas and processes			biology
	using straightforward scientific evidence to answer questions or to support their findings			chemistry
	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			
	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			

Spring Term 2

Why do we love holidays in the Mediterranean?	How can observations be recorded in different ways? (labelled diagrams, charts etc.)	To know the definition of roots, stem, leaves, nutrients and flowers.	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	To understand the life cycle of a flowering plant and the factors that contribute towards it.	Pollination, seed dispersal, seed formation, nutrients, stigma, anther.
	Can they describe what they have found using scientific words?	To understand what the needs and functions of a plant are.	Know that roots grow downwards and anchor the plant	plant life	
	To identify and describe the functions of different parts of plants? (roots, stem, leaves and flowers)	To understand the life cycle of a plant.	Understand that water, taken in by the roots, goes up the stem to the leaves, flowers and fruit	basic structure and functions	
	To identify what a plants needs for life and growth?	To understand the process of pollination.	Know also that nutrients (not food) are taken in through the roots	life cycle	
	How are nutrients, water and oxygen are transported within plants?	To understand how water is transported through plants.	Understand that stems provide support and enable the plant to grow towards the light	water transportation	
	How do the needs and functions of plant parts vary from plant to plant e.g. insect and wind pollinated plants?		Know that plants make their own food in the leaves using energy from the sun	observations over time	
	Can they investigate the way in which water is transported within plants?		Recognise that flowers attract insects to aid pollination	research	
			Know that pollination is when pollen is transferred between plants by insects, birds, other animals and the wind		
			Know that fertilisation occurs in the ovary of the flowers		
			Know that seeds are formed as a result of fertilisation		
			Recognise that many flowers produce fruits which protect the seed and/or aid seed dispersal		
			Understand that seed dispersal, by a variety of methods, helps ensure that new plants survive		
			Know that plants need nutrients to grow healthily (either naturally from the soil or from fertiliser added to soil)		

Summer Term 1

Why was Ancient Egypt's civilization ahead of its time?	To explain the importance of a nutritious and balanced diet.	To know that a skeleton is made of bones and that it supports, protects and allows movement of an animal's body.	To ask questions that will enable them to find answers.	Observation over time	Skeleton, muscles, joint, cartilage, tendon, spine
	Describe how nutrients water and oxygen are transported around animals and humans.	To know the names of some bones.	To set up and carry out a scientific enquiry that answers a question.	Research and grouping and classifying	
	To describe and explain the skeletal system of a human	Understand that humans can not make their own food and that eating foods that contain the correct nutrients is important.	To make simple scientific observations and to record their findings using tables, labelled diagrams and tables.	Understand that humans can not make their own food and that eating foods that contain the correct nutrients is important.	
	To describe and explain the muscular system of a human.	To know the difference	To use scientific equipment	skeleton and muscles	
	Use scientific language to explain what they have found out.	between an invertebrate and vertebrate.	To take accurate measurements in standard units of measure.	nutrition	
		To know that animals get their nutrients from the food they eat.		exercise	
		To know what a muscle is and how they enable movement.			
		To know the difference between a herbivore, omnivore and carnivore			

Summer Term 2

How did the blossom become an apple?	To recognise that we need light in order to see things and that dark is the absence of light	To know that we need light to be able to see things.	To ask relevant questions and using different types of scientific enquiries to answer them	To recognise that we need light in order to see and that shadows are formed when light is blocked by an opaque object.	Reflection, shadows, opaque, refraction, convex, concave
	To notice that light is reflected from surfaces	To know light travels in a straight line.	To set up simple practical enquiries, comparative and fair tests	reflections	
	To recognise that light from the sun can be dangerous and that there are ways to protect their eyes	To know when light hits an object, it is reflected. If the reflected light hits our eyes, we can see the object.	To make systematic and careful observations and, where appropriate, taking accurate measurements using standard units.	shadows	
	To recognise that shadows are formed when the light from a light source is blocked by an opaque object	Some surfaces and materials reflect light well. Other materials do not.	To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	comparative and fair testing	
	To find patterns in the way that the size of shadows change	To know that a shadow is larger when an object is closer to a light source because it blocks more of the light.	To report on findings from enquiries.	observations over time	
		When the light source is directly above the object the shadow will be directly underneath.	To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	grouping and classifying	

		When a light source is to one side of an object the shadow will appear on the opposite side and the shadow will also be longer.	To identify differences, similarities or changes related to simple scientific ideas and processes	pattern seeking	



Science

Year 4	National Curriculum PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
Sound	Science Y4: Sound	•Know how sound is made.	Finding patterns in the data (for example, blowing across the top of bottles, changing the length and thickness of elastic bands)	How sounds are made	sound, vibrating, pitch, volume, insulation, ears, outer, inner, middle ear, cochlea, auditory, frequency, hammer, source
	•identify how sounds are made, associating some of them with something vibrating	•Know how sound travels from the source to the ears.	Identifying differences, similarities or changes related to simple scientific ideas and processes.	sound vibrations	
	•find patterns between the pitch of a sound and features of the object that produced it	•Know to associate sound with vibration.	Setting up simple practical enquiries, comparative and fair tests: Children will make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They will make and play their own instruments by using what they have found out about pitch and volume.	pitch	
	•find patterns between the volume of a sound and the strength of the vibrations that produced it	•Know the correlation between pitch and the object producing a sound.	Asking relevant questions and using different types of scientific enquiries to answer them	volume	
		•Know the correlation between the volume of a sound and the strength of the vibrations that produced it.	Using straightforward scientific evidence to answer questions or to support their findings	pattern seeking	
		•Know what happens to a sound as it travels away from its source.	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	fair testing	
Autumn Term 2					
	Science Y4: Animals, including Humans	Know and name the parts of the digestive system.	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	digestive system	Organs, Digestive system, Human, body, mouth, teeth, oesophagus, liver, stomach, small intestine

Living things and their habitats (ANIMALS, INCLUDING HUMANS)	•describe the simple functions of the basic parts of the digestive system in humans	•Know the function of each organ of the digestive system.	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	teeth	
	•identify the different types of teeth in humans and their simple functions	•Know and identify the different types of teeth in humans.	identifying differences, similarities or changes related to simple scientific ideas and processes	food chains	
	•construct and interpret a variety of food chains, identifying producers, predators and prey.	•Know the function of different human teeth	using straightforward scientific evidence to answer questions or to support their findings.	Research	
		•Use food chains to identify producers, predators and prey.		grouping and classifying	
		•Construct food chains to identify producers, predators and prey.			

Spring Term 1

What happens to the food we eat?	Identify and name a variety of living things (plants and animals) in the local and wider environment, using classification keys to assign them to groups.	Know that classification keys can be used to group, identify and name living things.	Using and creating classification keys for living things in the local environment.	grouping living things	Habitat, Predator, Prey, Local, Classification Key, Primary, Secondary, Consumer, Sketches, Plants
	Recognise that environments can change and that this can sometimes pose dangers to living things.	Know what a food chain is including the terms; producers, predator and prey.	Comparing living things in the local environment to living things in other places.	classification keys	
	Working Scientifically: Explore local small invertebrates and using guides or keys to identify them; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.	Know that different environments support different types and numbers of animals.	Using diagrams, keys, bar charts and tables: using scientific language.	adaptation of living things	
			Using findings to report in different ways.	research	
			Creating a food chain based on feeding patterns.	grouping and classifying	

Spring Term 2

	identify common appliances that run on electricity	Know and understand which common appliances run on electricity	Identifying and recognising common appliances that run on electricity i.e. what would happen in a house without electricity? Which activities would no longer be possible?	Uses of Electricity	Fair Test, Comparison, Electricity, Circuit, Buzzer, Switch, Component, Motors, Conductors, Insulators, Simple Circuits, Parallel Circuits, Diagrams, Conclusion, Batteries, Tools, Equipment, Wires, Clips
	construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	Know how to create a simple series electrical circuit and know how to identify and name its basic parts	Constructing a simple series electrical circuit	simple circuits and switches	

Electricity	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	Know and understand meaning of relevant scientific vocabulary: cells, wires, bulbs, switches and buzzers	Identifying and naming basic parts of a simple series circuit: cells, wires, bulbs, switches and buzzers	conductors and insulators	
	recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit	Know how to identify whether or not a lamp will light in a simple series circuit	Recognising, identifying and explaining whether or not a lamp will light in a simple circuit	comparative testing	
	recognise some common conductors and insulators, and associate metals with being good conductors.	Understand how being a part of a complete loop with a battery will impact on a lamp coming to light	Recognising that a switch opens and closes a circuit and being able to explain why this is	grouping and classifying	
		Know that a switch opens and closes a circuit and know how this will be associated with a lamp in a simple circuit	Recognising common conductors and insulators and associating metals with being good conductors		
	Working Scientifically: observing patterns, for example that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.	Know of some common conductors and insulators and know which metals are good conductors			
Summer Term 1					
States of matter	• compare and group materials together, according to whether they are solids, liquids or gases	Know and understand the different states of matter, understanding the terminology of solids, liquids and gases	Explaining and showing changes in state between solids, liquids and gases	compare and group materials	Solids, Liquids, Gases, States, Matter, Evaporation, Condensation, Heating, Cooling, Freezing
	• 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)	Know how particles are situated differently in solids, liquids and gases	Identifying and classifying materials into solids, liquids and gases	Solid, liquids and gases	
	• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Know to classify items into solids, liquids and gases, comparing and grouping materials	Changing state of materials by cooling and freezing	Changing state	
	Working Scientifically: Opportunities for children to work scientifically by setting up experiments and investigations associated with changing state.	Know how to change materials from one state to the other, understanding that items can be heated or cooled	Exploring changes in temperature to change states of matter	Water cycle	
	Exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party).	Know and understand the change in temperature for materials to change in state	Carrying out simple experiments to change between states of matter	Grouping and classifying	
		Know the difference between condensation and evaporation in the water cycle and understand the rate of evaporation	Observing over time	observations over time	

		Know how to carry out a simple observation to check the effect of temperature on different substances	Identifying and noting changes in states of everyday items such as butter, ice-cream	research	
			Working scientifically to carry out a simple experiment		
			Melting, cooling and freezing materials to change state		
Summer Term 2					
Science investigations	• compare and group materials together, according to whether they are solids, liquids or gases	Know and understand the different states of matter, understanding the terminology of solids, liquids and gases	Explaining and showing changes in state between solids, liquids and gases	compare and group materials	Fair testing, Research / Classification and identification:, Pattern Seeking / Identification, Working Scientifically , Comparative and fair tests
	• 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)	Know how particles are situated differently in solids, liquids and gases	Identifying and classifying materials into solids, liquids and gases	Solid, liquids and gases	
	• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Know to classify items into solids, liquids and gases, comparing and grouping materials	Changing state of materials by cooling and freezing	Changing state	
		Know how to change materials from one state to the other, understanding that items can be heated or cooled	Exploring changes in temperature to change states of matter	Water cycle	
		Know and understand the change in temperature for materials to change instate	Carrying out simple experiments to change between states of matter	Grouping and classifying	
			Observing over time	observations over time	
			Identifying and noting changes in states of everyday items such as butter, ice-cream	research	
			Working scientifically to carry out a simple experiment		



Science

Year 5	National Curriculum PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
How is a river formed?	Animals including humans				development, puberty, foetus, gestation
	Describe the changes as humans develop to old age.	Know the stages of stages in the growth and development of humans.	Compare timelines of human and animal growth and development.	stages of growth	
		Can explain the changes experienced in puberty.	Researching, measuring and recording length and mass of animals as they grow.	life cycle	
		Know that different animals experience different gestation periods	Comparing length and mass of animal fetus and babies.	development of fetus	
			Drawing conclusions based on evidence found.	puberty	
			recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	pattern seeking research	
			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		
Autumn Term 2					
	Properties and changes of materials				Conduct, Thermal, Magnet, Materials, Electrical, solution, soluble, solute, evaporate, conductivity, transparency, response, properties
	5c2: know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.	Know the meaning of terms:	Compare materials on solubility.	compare properties of every day materials	
	5c1: 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.	reversible, evaporation, solute, solution, dissolve.	Carry out tests to test solubility of salt and the factors that affect it.	soluble/dissolving	

How did Britain change between the end of the Roman occupation and 1066?	5c1: 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.		Draw conclusions and report data.	reversible/irreversible substances	
	5c1: 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.		recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	fair testing	
	5c4: give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic		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	observations over time	
			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	grouping and classifying	

Spring Term 1

How can I create a watermill system?	Forces				resistance, force, gravity, friction, surface, newtonmeter
	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	Understand how forces make things move, get faster or slow down.	Questioning the effects of air resistance.	What is gravity?	
	identify the effects of air resistance, water resistance and friction, that act between moving surfaces	Know what friction is and the effect it has on movement. Know how and why it stops moving objects.	Explore how different objects, such as parachutes and sycamore seeds fall.	Friction	
	Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	Understand and discuss the effects of air resistance. Know how objects slow down or stop moving.	Research and explore famous scientists such as Galileo, Galilei and Isaac Newton.	forces and motion of mechanical devices	
		Understand the theory of gravity.	Observe the effects of a brake, for example on a bicycle wheel.	comparative testing and pattern seeking.	
		Explain what makes a test fair.	Explore the effects of levers, pulleys and simple machines on movement.		
		Understand resistance in water.	Experience forces that make things move.		
			Design and make a variety of parachutes.		
			Explore the effects of products that use levers, pulleys, gears and springs.		

			recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs		
Spring Term 2					
Will we ever send another human to the moon?	Earth and Space				orbit, solar system, spherical, rotate, planet names
	Describe the movement of the Earth and other planets relative to the sun in the solar system	Know the names and order of all planets.	Explain how the Earth and other planets move.	Movement of earth and planets	
	Describe the movement of the moon relative to the Earth.	Know how and when the Earth and the other planets move in relation to the sun.	Put the planets in order.	movement of the moon	
	Describe the sun, Earth and moon as approximately spherical bodies.	Know the relationship between the sun and moon.	Describe the movement of the moon relative to the Earth.	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.	Know that the Earth rotates and understand how this links to night and day.	Describe the sun, Earth and moon as approximately spherical bodies.	research and pattern seeking	
			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		
Summer Term 1					
Why should the rainforests be important to us all?	Living things and their habitats				Life cycle; amphibian; animals; reproduce; reproduction; fertilise; organism; petal; anther; sepal; carpel; pollen;
	Sc5/2.1 Living Things and their habitats	Understand/know about the similarities and differences between a range of life cycles.	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	life cycles	
	Sc5/2.1a describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	Know how animals and plants reproduce.	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	plants and animals	
	Sc5/2.1b describe the life process of reproduction in some plants and animals.	Know what amphibians, mammals, insects and birds are (be able to name them and describe them)		famous naturalists (e.g.Darwin)	
				Research	
				pattern seeking	

Summer Term 2

Why were the Mayans the envy of the world?	Mad Science/ RSE				Roles, identity, puberty, body changes, privacy, boundaries, relationships, friendships
	Pupils in years 5 should use their science experiences to: explore ideas and raise different kinds of questions;	Know about puberty and body changes we experience.	Discuss gender roles within society.	See RSE unit	
	select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;	Understand that there are lots of different relationships and friendships in our society.	Listen to and respect the opinions, views and beliefs of peers.		
	recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.	Know what is meant by 'boundaries', 'unwanted touch' and 'privacy'	Design and evaluate own Science investigation using prior knowledge.		
			Plan and carry out an investigation showing awareness of variables, fair tests and explain conclusions.		



Science

Year 6	National Curriculum PoS	Knowledge	Skills	Concepts	Vocabulary
Autumn Term 1					
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	How the blood circulates.	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	circulatory system	Blood, plasma, arteries, capillaries, heart beat, lungs, organ, rate, speed, per minute, variable, reliable, validity, circulation, drugs, alcohol, nicotine, healthy, calories, diet, vitamins, minerals.
	recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	The importance of the blood for circulating nutrients, oxygen etc. Other processes in the blood.	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	water transportation	
	describe the ways in which nutrients and water are transported within animals, including humans.	How the body is damaged by substances, e.g. drugs and alcohol	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	impact of exercise on the body	
		A healthy lifestyle	using test results to make predictions to set up further comparative and fair tests	fair testing	
		Consumption of food and calories	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	research	
			identifying scientific evidence that has been used to support or refute ideas or arguments.	pattern seeking	
Autumn Term 2					
	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	How animals are classified (two main methods).	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	classification of living things and the reason for it.	Adaptation, habitat, ecosystem, classification, taxonomy, Latin, kingdom, order, animale, plante, vertebrate, mammal, reptile, bird, vertebrate, invertebrate, amphibian

Living Things and their habitats	give reasons for classifying plants and animals based on specific characteristics.	How species are related or extremely different.	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Observations over time	
		The importance of classifying species.		research	
		The Latin and scientific terms for species and the importance of this language.		grouping and classifying	
Spring Term 1					
Evolution and Inheritance	recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	How species have evolved and adapted.	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Identical and non identical offspring	Darwin, evolution, adaptation, genes, dominant, recessive, similar, identical, limbs, species, survival.
	recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	Why animals are extinct at times.	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	fossil evidence and evolution	
	identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	The process of evolution and genetic mutations.	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	adaptation and evolution	
		Dominant and recessive genes.	identifying scientific evidence that has been used to support or refute ideas or arguments.	research	
				pattern seeking	
Spring Term 2					
Light	recognise that light appears to travel in straight lines	How controlled scientific experiments can provide evidence for particular concepts and ideas.	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	how light travels	Reflection, incidence, angle, travel, speed, variable, evidence, proof,
	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	How mirrors reflect light and can work together.	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	reflection	
	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	Parts of the eye and their function.	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	ray models of light	
	use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.		using test results to make predictions to set up further comparative and fair tests	pattern seeking	

