BADSWORTH
CofE School

CARE – Prepare – Believe
'I can do all things through Him who strengthens me'
Philippians 4:13

Badsworth Church of England Junior & Infant School

At Badsworth CE J&I Primary school, we recognise the importance of science in every aspect of daily life and encourage children to be inquisitive throughout their time at school and beyond. Through our carefully planned Science curriculum, we foster a healthy curiosity in children about our universe and promote respect for the living and non-living things. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes and these themes underpin all of our curriculum and teaching.

Foundation Stage Long Term Plan. Knowledge and skills that prepare children for Science in KS1

EYFS Statutory Educational Programme-Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Key vocab: Observe, texture, repel, attract, light, dark change, spring, summer, autumn, winter, weather, melt, liquid investigate, predict, same, different					
Autumn 1 **Ourselves**	**Autumn 2** **Toys**	**Spring 1** **Once Upon A Time**	**Spring 2** **People Who Help Us**	**Summer 1** **Growing**	**Summer 2** **Going places**
PZAZ Animals inc. humans: My Body To identify some parts of the body.	**PZAZ Materials:** **To be able to identify the materials from which objects are made.**	Seasonal changes - Winter Understand some important processes and changes in the natural world around them,	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	**PZAZ Plants:** **To recognise a plant and describe some of the common features of plants.**	**PZAZ Living Things and Their Habitats: Bugs** To recognise that living things need food and water to remain healthy.

To write the names of some parts of the body. Seasonal changes – Autumn Reflections/shadows Senses- comparing textures, smells, etc adding sensory materials to provision	To describe some of the characteristics of materials. Investigating how toys move- how they wok cause and effect Magnets Forces – ramps- distance- investigations	including the seasons and changing states of matter. Porridge- 3 bears, ice Materials – 3 little pigs	Discuss the differences (signs) from Winter to Spring Provide opportunities for children to note and record the weather.	Observational drawings Similarities and differences between the natural world around them and contrasting environments Explore the natural world around them.	To describe some ways animals catch their food. To identify some habitats and the living things that exist in them. Sun safety
Child-initiated activities in the continuous provision areas indoors and outdoors allow children time to follow their interests, explore through their senses and embed skills, concepts and knowledge. The children will be encouraged to make observations and explore the world around them in a natural and curious way.					

Year 1 – 6

Biology Humans including animals					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
Sc1/2.2a identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals	Sc2/2.3a notice that animals, including humans, have offspring which grow into adults	Sc3/2.2a 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	Sc4/2.2a describe the simple functions of the basic parts of the digestive system in humans	Sc5/2.2a describe the changes as humans develop to old age.	Sc6/2.2a identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
Sc1/2.2b identify and name a variety of common animals that are carnivores, herbivores and omnivores	Sc2/2.3b find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	Sc3/2.2b identify that humans and some other animals have skeletons and muscles for support, protection and movement	Sc4/2.2b identify the different types of teeth in humans and their simple functions		Sc6/2.2b recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Sc6/2.2c describe the ways in which nutrients and water are transported within

					animals, including humans.
Sc1/2.2c describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)	Sc2/2.3c describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		Sc4/2.2c construct and interpret a variety of food chains, identifying producers, predators and prey.		
Sc1/2.2d identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.					
Enquiry Questions					
Can they point out some of the differences between different animals? Can they sort photographs of living things and non-living things? Can they identify and name a variety of common animals? (birds, fish, amphibians, reptiles, mammals, invertebrates) Can they describe how an animal is suited to its environment? Can they identify and name a variety of common animals that are carnivores, herbivores and omnivores? Can they name the parts of the human body that they can see? Can they draw & label basic parts of the human body?	Can they describe what animals need to survive? Can they explain that animals grow and reproduce? Can they explain why animals have offspring which grow into adults? Can they describe the life cycle of some living things? (e.g. egg, chick, chicken) Can they explain the basic needs of animals, including humans for survival? (water, food, air) Can they describe why exercise, balanced diet and hygiene are important for humans?	Can they explain the importance of a nutritionally balanced diet? Can they describe how nutrients, water and oxygen are transported within animals and humans? Can they identify that animals, including humans, cannot make their own food: they get nutrition from what they eat? Can they describe and explain the skeletal system of a human? Can they describe and explain the muscular system of a human?	Can they identify and name the basic parts of the digestive system in humans? Can they describe the simple functions of the basic parts of the digestive system in humans? Can they identify the simple function of different types of teeth in humans? Can they compare the teeth of herbivores and carnivores? Can they explain what a simple food chain shows? Can they construct and interpret a variety of food chains, identifying producers, predators and prey?	Can they describe the changes as humans develop to old age? Can they create a timeline to indicate stages of growth in certain animals, such as frogs and butterflies? Can they describe the changes experienced in puberty? Can they draw a timeline to indicate stages in the growth and development of humans?	Can I name and locate the main structures of the heart? Can I describe the simple functions of the heart, veins and arteries? Can I describe the function of the blood? Can I explain the effects of overeating on the body? Can I identify food groups that should not make up a large part of my diet? Can I list some of the food groups I need to eat to maintain my health?

Can they identify the main parts of the human body and link them to their senses? Can they name the parts of an animal's body? Can they compare the bodies of different animals?					
Vocabulary					
Amphibians	Living	Nutrients	Digestive system	Foetus	Oxygenated
omnivore	dead	vertebrates	producer	embryo	deoxygenated
carnivores	never alive	invertebrates	consumer	womb	valve
herbivore	food chain	endoskeleton	canine	gestation	respiration
reptiles	habitats	exoskeleton	molar	puberty	circulatory system
mammals	micro-habitats	muscles	incisor	hormones	lung capacity
			premolar		
Expectation of Skills Progression					

Biology - Living Things and Their Habitats					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
	Sc2/2.1a explore and compare the differences between things that are living, dead, and things that have never been alive		Sc4/2.1a recognise that living things can be grouped in a variety of ways	Sc5/2.1a describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	Sc6/2.1a 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

	Sc2/2.1b 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		Sc4/2.1b explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Sc5/2.1b describe the life process of reproduction in some plants and animals.	Sc6/2.1b give reasons for classifying plants and animals based on specific characteristics.
	Sc2/2.1c identify and name a variety of plants and animals in their habitats, including microhabitats		Sc4/2.1c recognise that environments can change and that this can sometimes pose dangers to living things.		
	Sc2/2.1d 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.				
Enquiry Questions					
	Can they match certain living things to the habitats they are found in? Can they explain the differences between living and non-living things? Can they describe some of the life processes common to plants and animals, including humans? Can they decide whether something is living, dead or non-living?		Can they recognise that living things can be grouped in a variety of ways? Can they explore and use a classification key to group, identify and name a variety of living things? (plants, vertebrates, invertebrates) Can they compare the classification of common plants and animals to living things found in other places? (under the sea, prehistoric) Do they recognise that environments can change and this can sometimes	Can they describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird? Can they describe the life cycles of common plants? Can they explore the work of well know naturalists and animal behaviourists? (David Attenborough and Jane Goodall)	Can I describe the groups of organisms? Can I describe some of the characteristics of microorganisms? Can I state some differences and similarities between microorganisms? Can I say that organisms are classified into broad groups and that these groups can be broken down further?

	Can they describe how a habitat provides for the basic needs of things living there? Can they describe a range of different habitats? Can they describe how plants and animals are suited to their habitat? Can they name some characteristics of an animal that help it to live in a particular habitat? Can they describe what animals need to survive and link this to their habitats?		pose a danger to living things?		Can I name some of these groups? Can I classify organisms based on common characteristics?
Vocabulary					
	Habitats		Flowering	Reproduction	Classification
	Micro habitats		Non-flowering	Sexual	Characteristics
	Food chain		Human impact	Asexual	Organisms
	Shelter		Deforestation	Fertilisation	Microorganisms
	Damp		Vertebrate	Metamorphosis	Deforestation
	Shade		Invertebrate	Reproduction	
Expectation of Skills Progression					

Biology – Plants					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
Sc1/2.1a identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Sc2/2.2a observe and describe how seeds and bulbs grow into mature plants	Sc3/2.1a identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers			
Sc1/2.1b identify and describe the basic structure of a variety of	Sc2/2.2b find out and describe how plants need water, light and a suitable	Sc3/2.1b explore the requirements of plants for life and growth (air, light,			

common flowering plants, including trees	temperature to grow and stay healthy.	water, nutrients from soil, and room to grow) and how they vary from plant to plant			
		Sc3/2.1c investigate the way in which water is transported within plants			
		Sc3/2.1d explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			
Enquiry Questions					
Can they name the petals, stem, leaf, bulb, flower, seed, stem and root of a plant? Can they identify and name a range of common plants and trees? Can they recognise deciduous and evergreen trees? Can they name the trunk, branches and root of a tree? Can they describe the parts of a plant? (roots, stem, leaves flowers)	Can they describe what plants need to survive? Can they observe and describe how seeds and bulbs grow into mature plants? Can they find out & describe how plants need water, light and a suitable temperature to grow and stay healthy? Can they describe what plants need to survive and link it to where they are found? Can they explain that plants grow and reproduce in different ways?	Can they identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers? Can they 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? Can they investigate the way in which water is transported within plants? Can they explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal?			
Vocabulary					

Bulb	Diagram	Pollination			
Seed	Germinate	Dispersal			
Evergreen	Warmth	Reproduction			
Deciduous	Sunlight	Nutrients			
Stem	Predict	energy			
Roots					
Expectation of Skills Progression					

Biology – Evolution and Inheritance					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
					Sc6/2.3a recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
					Sc6/3.2b recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
					Sc6/2.3c identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Enquiry Questions					

					Can I explain why animals adapt to their environment? Can I give some examples of adaptions and how they benefit the species? Can I say why adaptions can lead to evolution? Can I say that species produce offspring that are the same as the parents? Can I explain why offspring are different from their parents? Can I explain why offspring are different from each other? Can I describe the mechanism that results in evolution of species? Can I identify some things that the fossil record can tell us about extinct species?
Vocabulary					
					Fossils
					Adaptation
					Evolution
					Inherited
					Variation
					Survival of the fittest
Expectation of Skills Progression					

Chemistry – Materials					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
Sc1/3.1a distinguish between an object and the material from which it is made	Sc2/3.1a identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses	Sc3/3.1a compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Sc4/3.1a compare and group materials together, according to whether they are solids, liquids or gases	Sc5/3.1a 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	
Sc1/3.1b identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock	Sc2/3.1b compare how things move on different surfaces.	Sc3/3.1b describe in simple terms how fossils are formed when things that have lived are trapped within rock	Sc4/3.1b 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)	Sc5/3.1b know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	
Sc1/3.1c describe the simple physical properties of a variety of everyday materials	Sc2/3.1c find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Sc3/3.1c recognise that soils are made from rocks and organic matter.	Sc4/3.1c identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Sc5/3.1c use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	
Sc1/3.1d compare and group together a variety of everyday materials on the basis of their simple physical properties				Sc5/3.1d give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	
				Sc5/3.1e demonstrate that dissolving, mixing and changes of state are reversible changes	
				Sc5/3.1f 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.	
Enquiry Questions					
Can they distinguish between an object and the material from which it is made? Can they describe materials using their senses? Can they describe materials using their senses, using specific scientific words? Can they explain what material objects are made from? Can they explain why a material might be useful for a specific job? Can they name some different everyday materials? e.g. wood, plastic, metal, water and rock Can they sort materials into groups by a given criteria? Can they explain how solid shapes can be changed by squashing, bending, twisting and stretching?	Can they describe the simple physical properties of a variety of everyday materials? Can they compare and group together a variety of materials based on their simple physical properties? Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching) Can they identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses? Can they explain how things move on different surfaces? Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.? Can they sort materials into groups and say why they have sorted them in that way?	Can they compare and group together different rocks on the basis of their appearance and simple physical properties? Can they describe and explain how different rocks can be useful to us? Can they describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed? Can they describe in simple terms how fossils are formed when things that have lived are trapped within rock? Can they recognise that soils are made from rocks and organic matter?	Can they compare and group materials together, according to whether they are solids, liquids or gases? Can they explain what happens to materials when they are heated or cooled? Can they measure or research the temperature at which different materials change state in degrees Celsius? Can they use measurements to explain changes to the state of water? Can they identify the part that evaporation and condensation has in the water cycle? Can they associate the rate of evaporation with temperature?	Can they compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets? Can they explain how some materials dissolve in liquid to form a solution? Can they describe how to recover a substance from a solution? Can they use their knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating? Can they give reasons, based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals wood and plastic?	

	Can they say which materials are natural and which are man-made? Can they explain how materials are changed by heating and cooling? Can they explain how materials are changed by bending, twisting and stretching? Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted?			Can they describe changes using scientific words? (evaporation, condensation) Can they demonstrate that dissolving, mixing and changes of state are reversible changes? Can they explain that some changes result in the formation of new materials, and that this kid of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda? Can they use the terms 'reversible' and 'irreversible'?	
Vocabulary					
Absorbent	Twisting	Igneous	Solid	Particles	
Opaque	Bending	Metamorphic	Liquid	Solubility	
Waterproof	Stretching	Sedimentary	Gas	Dissolve	
Not waterproof	Transparent	Fossil	States of matter	Solution	
		Extinct	Properties	Reversible changes	
		Sub soil	Water vapour		
			Evaporation		
			Condensation		
Expectation of Skills Progression					Translu

Physics – Forces					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					

		Sc3/4.2a compare how things move on different surfaces		Sc5/4.2a explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	
		Sc3/4.2b notice that some forces need contact between 2 objects, but magnetic forces can act at a distance		Sc5/4.2b identify the effects of air resistance, water resistance and friction, that act between moving surfaces	
		Sc3/4.2c observe how magnets attract or repel each other and attract some materials and not others		Sc5/4.2c recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	
		Sc3/4.2d 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			
		Sc3/4.2e describe magnets as having 2 poles			
		Sc3/4.2f predict whether 2 magnets will attract or repel each other, depending on which poles are facing.			
Enquiry Questions					

		Can they compare how things move on different surfaces? Can they observe that magnetic forces can be transmitted without direct contact? Can they observe how some magnets attract or repel each other? Can they classify which materials are attracted to magnets and which are not? Can they notice that some forces need contact between two objects, but magnetic forces can act at a distance? Can they compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet? Can they identify some magnetic materials? Can they describe magnets have two poles (N & S)? Can they predict whether two magnets will attract or repel each other		Can they explain that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object? Can they identify the effects of air resistance, water resistance and friction that act between moving surfaces? Can they recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect?	

		depending on which poles are facing?			
Vocabulary					
		Force		Air resistance	
		Friction		Water resistance	
		Magnet		Gravity	
		Attract		Newton	
		Repel		Mechanisms	
		North pole		Levers	
		South pole		Pulleys	
Expectation of Skills Progression					

Physics – Light					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
		Sc3/4.1a recognise that they need light in order to see things and that dark is the absence of light			Sc6/4.1a recognise that light appears to travel in straight lines
		Sc3/4.1b notice that light is reflected from surfaces			Sc6/4.1b 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
		Sc3/4.1c recognise that light from the sun can be dangerous and that there are ways to protect their eyes			Sc6/4.1c 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
		Sc3/4.1d recognise that shadows are formed when the light from a light source is blocked by a solid object			Sc6/4.1d use the idea that light travels in straight lines to explain why shadows have the

					same shape as the objects that cast them
		Sc3/4.1e find patterns in the way that the size of shadows change.			
Enquiry Questions					
		Can they recognise that they need light in order to see things? Can they recognise that dark is the absence of light? Can they notice that light is reflected from surfaces? Can they recognise that light from the sun can be dangerous and that there are ways to protect their eyes? Can they recognise that shadows are formed when the light from a light source is blocked by a solid object? Can they find patterns in the way that the size of shadows change?			Can I provide evidence that light travels in straight lines? Can I classify objects as luminous or non-luminous? Can I describe the path light takes so we can see? Can I explain why shadows have the same shape as the objects that cast them? Can I talk about the different parts of the eye and their functions in letting us see? Can I explain why we see different colours and rainbows?
Vocabulary					
		Light source			absorb
		Reflect			emitted
		visible			scattered
		opaque			refraction
		transparent			
Expectation of Skills Progression					

Physics – Electricity					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
			Sc4/4.2a identify common appliances that run on electricity		Sc6/4.2a associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
			Sc4/4.2b construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers		Sc6/4.2b 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
			Sc4/4.2c 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		Sc6/4.2c use recognised symbols when representing a simple circuit in a diagram.
			Sc4/4.2d recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit		
			Sc4/4.2e recognise some common conductors and insulators, and associate metals with being good conductors.		
Enquiry Questions					

			Can they identify common appliances that run on electricity? Can they construct a simple series electric circuit? Can they identify and name the basic part in a series circuit, including cells, wires, bulbs, switches and buzzers? Can they 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? Can they recognise that a switch opens and closes a circuit? Can they associate a switch opening with whether or not a lamp lights in a simple series circuit? Can they recognise some common conductors and insulators? Can they associate metals with being good conductors?		Can I link the way components work to the number of cells in the circuit? Can I draw circuit diagrams from circuits I build? Can I build circuit based on circuit diagrams? Can I explain how a switch works?
Vocabulary					
			Electric current		Neutrons
			Crocodile clip		Protons
			Bulb		Electrons
			Battery cell		Nucleus
			Motor		Atoms

			Buzzer		Electrical insulator
			Conductor		Components
			Insulator		
Expectation of Skills Progression					

Physics – Sound					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
			Sc4/4.1a identify how sounds are made, associating some of them with something vibrating		
			Sc4/4.1b recognise that vibrations from sounds travel through a medium to the ear		
			Sc4/4.1c find patterns between the pitch of a sound and features of the object that produced it		
			Sc4/4.1d find patterns between the volume of a sound and the strength of the vibrations that produced it.		
			Sc4/4.1e recognise that sounds get fainter as the distance from the sound source increases		
Enquiry Questions					
			Can they describe a range of sounds and explain how they are made? Can they associate some sounds with something vibrating?		

			Can they compare sources of sound and explain how the sounds differ? Can they explain how to change a sound (louder/softer)? Can they recognise how vibrations from sound travel through a medium to a ear? Can they find patterns between the pitch of a sound and features of the object that produce it?		
Vocabulary					
			Volume		
			Amplitude		
			Pitch		
			Particles		
			Wave		
			Dissipate		
Expectation of Skills Progression					

Physics – Earth and Space					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
Sc1/4.1a observe changes across the 4 seasons				Sc5/4.1a describe the movement of the Earth, and other planets, relative to the Sun in the solar system	
Sc1/4.1b observe and describe weather associated with the seasons and how day length varies.				Sc5/4.1b describe the movement of the Moon relative to the Earth	
				Sc5/4.1c describe the Sun, Earth and Moon as	

				approximately spherical bodies	
				Sc5/4.1d use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.	
Enquiry Questions					
Can they observe changes across the four seasons? Can they name the four seasons in order? Can they observe and describe weather associated with the seasons? Can they observe and describe how day length varies?				Can they identify and explain the movement of the Earth and other plants relative to the sun in the solar system? Can they explain how seasons and the associated weather is created? Can they describe and explain the movement of the Moon relative to the Earth? Can they describe the sun, earth and moon as approximately spherical bodies? Can they use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky?	
Vocabulary					
Seasons				Axis	
Spring				Rotation	
Summer				Constellations	
Autumn				Solar system	
Winter				Orbit	
Expectation of Skills Progression					

Working Scientifically						
Enquiry Symbols						
Asking Questions	**Making Predictions**	**Setting up Tests**	**Observing and Measuring**	**Recording Data**	**Interpreting and Communicating results**	**Evaluating**
						
Working Scientifically progression						
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	
Working scientifically statements						
Animals including humans: Sc1/1.1 asking simple questions and recognising that they can be answered in different ways Sc1/1.4 identifying and classifying Sc1/1.6 gathering and recording data to help in answering questions	Animals including humans: Sc1/1.1 asking simple questions and recognising that they can be answered in different ways Sc1/1.4 identifying and classifying Sc2/1.5 using their observations and ideas to suggest answers to questions Sc1/1.6 gathering and recording data to help in answering questions	Animals including humans: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Sc4/1.8 identifying differences, similarities or	Animals including humans: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Sc4/1.6 reporting on findings from enquiries, including oral and written	Animals including humans: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations	Animals including humans: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations Sc5/1.6 identifying scientific evidence that

		changes related to simple scientific ideas and processes Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings	explanations, displays or presentations of results and conclusions Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings		has been used to support or refute ideas or arguments
Plants: Sc1/1.1 asking simple questions and recognising that they can be answered in different ways Sc1/1.2 observing closely, using simple equipment Sc1/1.3 performing simple tests Sc1/1.4 identifying and classifying	Living things and their habitats: Sc2/1.1 asking simple questions and recognising that they can be answered in different ways Sc2/1.2 observing closely, using simple equipment Sc2/1.4 identifying and classifying	Plants: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Living things and their habitats: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Sc4/1.6 reporting on findings from enquiries, including oral and written	Living things and their habitats: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations	Living things and their habitats: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations

		Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes		
Materials: Sc1/1.1 asking simple questions and recognising that they can be answered in different ways Sc1/1.2 observing closely, using simple equipment Sc1/1.3 performing simple tests Sc1/1.4 identifying and classifying Sc1/1.5 using their observations and ideas to suggest answers to questions Sc1/1.6 gathering and recording data to help in answering questions	Plants: Sc1/1.1 asking simple questions and recognising that they can be answered in different ways Sc1/1.2 observing closely, using simple equipment Sc1/1.3 performing simple tests Sc1/1.4 identifying and classifying Sc1/1.5 using their observations and ideas to suggest answers to questions Sc1/1.6 gathering and recording data to help in answering questions	Materials: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled	Materials: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Materials: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.4 using test results to make predictions to set up further comparative and fair tests Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and	Evolution and inheritance: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments

		diagrams, keys, bar charts, and tables Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings	Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings	explanations of results, in oral and written forms such as displays and other presentations	
Earth and space: Sc1/1.2 observing closely, using simple equipment Sc1/1.5 using their observations and ideas to suggest answers to questions Sc1/1.6 gathering and recording data to help in answering questions	Materials: Sc1/1.1 asking simple questions and recognising that they can be answered in different ways Sc1/1.2 observing closely, using simple equipment Sc1/1.3 performing simple tests Sc1/1.4 identifying and classifying Sc1/1.5 using their observations and ideas to suggest answers to questions Sc1/1.6 gathering and recording data to help in answering questions	Forces: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and	Electricity: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.5 recording findings using simple scientific	Forces: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs	Light: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification

		presenting data in a variety of ways to help in answering questions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	language, drawings, labelled diagrams, keys, bar charts, and tables Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings	Sc5/1.4 using test results to make predictions to set up further comparative and fair tests Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments	keys, tables, and bar and line graphs Sc5/1.4 using test results to make predictions to set up further comparative and fair tests Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations
		Light: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.9 using straightforward scientific evidence to answer	Sound: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety	Earth and space: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such	Electricity: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs

		questions or to support their findings	of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings	as displays and other presentations Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments	Sc5/1.4 using test results to make predictions to set up further comparative and fair tests Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations