Summerseat Steps in Learning – Science				
Nursery	**Reception**	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Working Scientifically (Steps in Skills)				
•Use all their senses in hands-on exploration of natural materials. •Talk about what they see, using a wide vocabulary. •Talk about the differences between materials and changes they notice.	•Explore how things work. **•Explore the natural world around them.** •Describe what they see, hear and feel whilst outside. •Talk about what they see, using a wide vocabulary.	**• Ask simple questions and recognise they can be answered in different ways.** **• Observe closely, using simple equipment.** **• Perform simple tests.** **• Identify and classify.** **• Use observations and ideas to suggest answers to questions.** **• Gather and record data to help in answering questions.**	**• Ask relevant questions and using different types of scientific enquiries to answer them.** **• Set up simple, practical enquiries and comparative and fair tests.** **• Make systematic and careful observation and take accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers.** **• Gather, record, classify and present data in a variety of ways to help in answering questions.** **• Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.** **• Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.** **• Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.** **• Identify differences, similarities or changes related to**	**• Plan enquiries, including recognising and controlling variables where necessary.** • Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. **• Take measurements, using a range of scientific equipment, with increasing accuracy and precision.** **• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.** **• Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.** **• Present findings in written form, displays and other presentations.** **• Use test results to make predictions to set up further comparative and fair tests.** **• Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute**

			simple, scientific ideas and processes. **• Use straightforward, scientific evidence to answer questions or to support their findings.**	**ideas or arguments.**

Biology (Steps in Knowledge)							
Animals (Including Humans)							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
•Continue developing positive attitudes about the differences between people. (Notice differences is earlier) •Begin to understand the need to respect and care for the natural environment and all living things.	•Understand the importance of healthy food choices. **•Explore the natural world around them, making observations and drawing pictures of animals.** •I can name parts of my body. •I know that I need to eat fruit and vegetables to stay healthy and can name some. •I recognise the effect of exercise on my body. •Know and talk about the different factors that support their overall health:	**•Know how to classify things as living, dead or never lived.** **•Know that most living things live in a habitat and how a specific habitat provides for the basic needs of things living there (plants and animals) and how they depend on each other.** **•Know how to match living things to their habitats, including micro-habitats.** **•Know and can explain a simple food chain and identify and name different sources of**	**•Know the basic stages of a life cycle for animals (including humans).** **•Notice that animals, including humans, have offspring which grow into adults.** **•Describe the basic needs of animals – water, food, air** **•Know why exercise, a balanced diet and good hygiene are important for humans.** **•Identify, classify, describe and compare the structure a variety of animals according to fish, amphibians,**	•Identify and name the parts of the human digestive system. **•Know the functions of the organs in the human digestive system.** **•Identify and know the different types of teeth in humans** **•Know the functions of different human teeth.** **•Use food chains to identify producers, predators and prey.** **•Recognise that living things can be grouped in a variety of ways.** **•Use classification**	•Know about the importance of a nutritious, balanced diet. **•Identify that animals, including humans, need the right types of and amount of nutrition and they cannot make their own food.** •Know how nutrients, water and oxygen are transported within animals and humans **•Know about the skeletal and muscular system of animals including humans.**	**•Know the life cycle of different living things e.g. mammal, amphibian, insect and bird** **•Know the differences between different life cycles** **•Create a timeline to indicate stages of growth in humans** **•Describe the processes of reproduction in some plants and animals.** **•describe how living things are classified into broad groups according to common**	**•Know how the Earth and living things have changed over time** •Know how fossils can be used to find out about the past **•Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents)** •Know how animals and plants are adapted to suit their environment •Link adaptation over time to evolution •Know about evolution and can explain what it is

	including oral health (tooth brushing). •Know and talk about the different factors that support their overall health and wellbeing: having a good sleep routine. •I can name some animals that live in: the garden, the farm, the jungle, cold and hot places.	**food.**	**reptiles, birds, mammals and pets.** **•Know how to classify animals by what they eat (carnivore, herbivore and omnivore).** •Know how to sort living and non-living things. •Identify, name and label the basic parts of the human body. •Say which part of the body is associated with each sense.	**keys to group, identify and name living things** **•Know how changes to an environment could endanger living things**		**observable characteristics and based on similarities and differences, including microorganisms, plants and animals** **•give reasons for classifying plants and animals based on specific characteristics.**	**•Identify and name the main parts of the human circulatory system.** **•Know the function of the heart, blood vessels and blood.** **•Know the impact of diet, exercise, drugs and life style on health.** **•Know the ways in which nutrients and water are transported in animals, including humans.**
Link to RSHE							
/		**KS1**		LKS2		UKS2	
		*Know the importance of building regular exercise into daily and weekly routines and how to achieve this; for example walking or cycling to school, a daily active mile or other forms of regular, vigorous exercise.		*Know the importance of building regular exercise into daily and weekly routines and how to achieve this; for example walking or cycling to school, a daily active mile or other forms of regular, vigorous exercise. * Know the risks associated with an inactive lifestyle (including obesity). *Know how and when to seek support including which adults to speak to in school if they are worried about their health. * I know the importance of sufficient good quality sleep for good health and that a lack of sleep can affect weight, mood and ability to learn. *I know about dental health and the benefits of good oral hygiene and dental flossing, including regular check-ups at the dentist.		*Key facts about puberty and the changing adolescent body, particularly from age 9 through to age 11, including physical and emotional changes. *About menstrual wellbeing including the key facts about the menstrual cycle. • Know what constitutes a healthy diet (including understanding calories and other nutritional content). * *Know the principles of planning and preparing a range of healthy meals. * *Know the characteristics of a poor diet and risks associated with unhealthy eating (including, for example, obesity and tooth decay) and other behaviours (e.g. the impact of alcohol on diet or health). * *Know the facts about legal and illegal harmful substances and associated risks, including

						smoking, alcohol use and drug-taking. * * Know how to recognise early signs of physical illness, such as weight loss, or unexplained changes to the body. * **LKS2 in PSHE curriculum – good opportunity for revision in science*	
Plants							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
•Plant seeds and care for growing plants. •Begin to understand the need to respect and care for the natural environment and all living things.	•Plant seeds and care for growing plants. •Understand the key features of the life cycle of a plant •Begin to understand the need to respect and care for the natural environment and all living things. **•ELG - Explore the natural world around them, making observations and drawing pictures of plants.** •Know the names of some trees and plants in our local area.	**•Know and explain how seeds and bulbs grow into plants.** **•Know what plants need in order to grow and stay healthy (water, light & suitable temperature).**	**•Know and name a variety of common wild and garden plants** **•Know and name the petals, stem, leaves, fruit and root of a plant** **•Know and name the roots, trunk, branches and leaves of a tree** **•Know the meaning of the terms deciduous and evergreen**	**•Know the function of different parts of flowing plants and trees: roots, stem/trunk, leaves and flowers.** **•Know how water is transported within plants** **•Know the plant life cycle, especially the importance of flowers, including pollination, seed formation and seed dispersal.** **•Know plants need air, light, water, nutrients from the soil and room to grow to thrive and how they vary from plant too plant.**		**•Know the process of reproduction in plants**	•Know how animals and plants are adapted to suit their environment

Chemistry (Steps in Knowledge)							
Materials							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
•Explore collections of materials with similar and/or different properties. •Talk about the differences between materials and changes they notice.	•Talk about the differences between materials and changes they notice. •Explore collections of materials with similar and/or different properties. **•ELG – Safely use and explore a variety of materials.** **•ELG - Understand some important processes and changes in the natural world around them, including changing states of matter.**	**•Distinguish between an object and the material from which it is made.** **•Know how materials can be changed by squashing, bending, twisting and stretching** **•Know why a material might or might not be used for a specific job (wood, metal, plastic, glass, brick, rock, paper and cardboard).** **•Identify and name everyday materials: wood, plastic, glass, metal, water, rock** **•Compare and group everyday materials on the basis of simple properties.**			•Know the temperature at which materials change state **•Know about and explore how some materials can change state when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius** **•Know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature** **•Group materials, based on their state of matter (solid, liquid, gas)**	**•Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets** **•Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating)** **•Know and explain how a material dissolves to form a solution** **•Know and show how to recover a substance from a solution** **•Know and demonstrate that some changes are reversible and**	

						some are not **•Know how some changes result in the formation of a new material and that this is usually irreversible** **•Give reasons, based on evidence from comparative and fair tests, for particular uses of everyday materials, including metals, wood and plastic.**	
Physics (Steps in Knowledge)							
Movement, forces & magnets							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
•Explore and talk about different forces they can feel.	•Explore and talk about different forces they can feel.		•Notice and describe how things move, using simple comparisons such as faster and slower. •Compare how different things move.		**•Know how some forces require contact and some do not, giving examples** **•Know that magnetic forces can act at a distance** •Know how a simple pulley works and use to lift an object **•Know about and explain how magnets attract**	**•Identify and know the effect of friction.** **•Explain how levers, pulleys and gears allow a smaller force to have a greater effect.** **•Describe magnets as having two poles.** **•Predict whether two magnets will attract or repel each**	

					and repel **•Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.** **•Describe magnets as having two poles.** **•Predict whether two magnets will attract or repel each other, depending on which poles are facing.**	**other, depending on which poles are facing.** **•Identify and know the effect of air resistance.** **•Identify and know the effect of water resistance.** **•Know what gravity is and its impact on our lives.**	
Earth / Earth's Movement							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
	•Understand the effect of changing seasons on the natural world around them.		**•Observe changes across the four seasons.** •Know the names and characteristics of each season. **•Know about the weather associated with each season.** **•Know how day length changes**		**•Describe the movement of the Earth relative to the Sun in the solar system.** **•Describe the movement of the Moon relative to the Earth.** **•Know how soil is made and fossils**		**•Know about and explain the movement of the Earth and other planets relative to the Sun.** **•Know about and explain the movement of the Moon relative to the Earth.**

			across seasons.		**are formed.** **•Compare and group rocks based on their appearance and physical properties, giving a reason.** •Know about and explain the difference between sedimentary, metamorphic and igneous rock •Know about and describe how objects move on different surfaces		**•Know and demonstrate how night and day are created** **•Describe the Sun, Earth and Moon (using the term spherical).**
Electrical Circuits							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
			•Identify common appliances that run on electricity. •Construct a simple series electrical circuit.		**•Identify and name appliances that require electricity to function** **•Construct a series circuit** **•Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)** **•Predict and test whether a lamp**		**•Compare and give reasons for why components work and do not work in a circuit** **•Draw circuit diagrams using correct symbols** **•Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer**

					will light within a circuit **•Know the function of a switch** **•Know the difference between a conductor and an insulator; giving examples of each**		
Light & Seeing							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
			•Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes.	**•Know what dark is (the absence of light).** **•Know that light is needed in order to see.** **•Know that light is reflected from a surface.** **•Know the danger of direct sunlight and describe how to keep protected.** **•Recognise that shadows are formed when the light from a light source is blocked by an opaque object.** **•Find patterns in the way that the size of shadows change.**		**•Know how light travels** **•Know and demonstrate how we see objects** **•Know why shadows have the same shape as the object that casts them.** •Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.	

Sound							
Nursery	**Reception**	**KS1 A**	**KS1 B**	**LKS2 A**	**LKS2 B**	**UKS2 A**	**UKS2 B**
			•Observe and name a variety of sources of sound, noticing that we hear with our ears.	**•Know what happens to a sound as it travels away from its source.** **•Know how sound is made, associating some of them with vibrating** **•Know how sound travels from a source through a medium to the ears.** **•Know the correlation between pitch and the object producing a sound.** **•Know the correlation between the volume of a sound and the strength of the vibrations that produced it.**			