Parkwood Primary School Science Curriculum

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically Knowledge						
• Know how to observe (good looking, good listening, thinking about what is seen/heard)	• Know what a scientific question is • Know what measure means	• Know that scientific questions can be answered in different ways	• Know that there are different enquiry types that can be used to answer scientific questions • Know what a prediction is • Know the importance of recording findings	• Know what a comparative test is • Know what a fair test is • Know what a conclusion is • Know what a prediction is	• Know that different scientific questions are suited to different enquiry types • Know what a dependent variable is • Know what an independent variable is • Know what a controlled variable is • Know what a repeat reading is • Know why repeat readings are taken • Know what data is	• Know that scientific evidence can be used to agree or disagree with ideas
Working Scientifically Skills						
• Ask simple questions about the world around them and their experiences • Observe and make comments about the world around them	• Ask simple scientific questions • Perform tests to answer simple, scientific questions • Gather and record simple data • Sort objects and living things into groups based on simple properties	• Ask simple scientific questions (revisit from year 1) • Suggest different ways of answering scientific questions • Use simple equipment to make observations • Perform simple tests using standard units,	• Set up simple practical enquiries with support • Use scientific equipment to make observations • Perform tests and simple experiments and take measurements using standard units • Record findings with guidance (e.g., using	• Ask relevant scientific questions • Use different types of scientific enquiry to answer scientific questions • Make relevant predictions based upon scientific knowledge • Set up simple practical enquiries,	• Plan different types of scientific enquiry and identify the dependent, independent and controlled variables, with support • Take accurate measurements using a range of scientific equipment • Begin to take repeat readings when	• Take measurements using a range of scientific equipment with increasing accuracy and precision • Begin to decide when to take repeat readings • Make decisions about how to record increasingly complex data (e.g., using scientific

		where appropriate • Use gathered data to help answer questions • Use observations and ideas to suggest answers to simple scientific questions	simple scientific language, drawings, labelled diagrams, bar charts or tables) • Explain what has been found out (both orally and in writing) • Use findings to answer scientific questions	comparative and fair tests • Take accurate measurements, using standard units, using scientific equipment • Record findings (e.g., using simple scientific language, drawings, labelled diagrams, keys, bar charts or tables) • Explain what has been found out (orally, in writing, presenting results and making conclusions) • Use findings to draw simple conclusions • Begin to identify similarities, differences or changes in relation to simple ideas or processes • Use result to suggest improvements in scientific enquiries and raise further questions	appropriate, with guidance • Begin to make decisions about how to record data (e.g., using scientific diagrams and labels, classification keys, tables, bar charts or line graphs) • Report on what has been found (making conclusions and beginning to identify relationships)	diagrams and labels, classification keys, tables, scatter graphs, bar charts and line graphs) • Report on what has been found (making conclusions, identifying relationships and suggesting whether results are trustworthy) • Identify scientific evidence that has been used to agree or disagree with ideas • Use findings to make further predictions and set up further testing
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Plants Knowledge						

• Know what a plant is • Know what a tree is • Know what leaves are • Know what seeds are • Know what a trunk is • Know what bark is	• Know what deciduous trees are • Know what evergreen trees are • Know what a flowering plant is • Know what a shrub is • Know that a flowering plant has: leaves stem flower root • Know that a tree has: roots leaves trunk • Know that some trees bear fruit	• Know what seeds are (revisit from FS) • Know what a bulb is • Know what germination is • Know that seeds and bulbs need warmth and water for germination • Know that plants need warmth, water and light to grow	• Know the function of different parts of a flowering plant: leaves stem flower root • Know the function of different parts of a tree: roots leaves trunk • Know that plants need air, nutrients from the soil and room to grow • Know that plants can make their own food • Know that different plants have different requirements • Know that water is transported within plants from the roots and through the stem • Know what pollination is • Know what seed formation is • Know what seed dispersal is			
Plants Skills						
• Observe the growth of	• Identify deciduous trees	• Observe plants at different	• Observe and describe how			

plants over time • Discuss how to care for plants (e.g. watering them) • Describe and name plants and trees found on the school grounds (e.g. crocus, oak tree, daisy)	• Identify evergreen trees • Identify flowering plants • Identify shrubs • Identify the parts of a flowering plant: leaves stem flower root • Identify the parts of a tree: roots leaves trunk	stages of growth (through a comparative test)	water is transported within plants from the roots and through the stem • Observe and describe seed dispersal			
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Forces Knowledge						
• Know what push means • Know what pull means • Know what a magnet is • Know what float means • Know what sink means			• Know what a force is • Know that things move differently on different surfaces • Know what a magnetic force is • Know what attract means • Know what repel means • Know that magnets have two poles • Know that opposite poles attract • Know that the same poles repel each other • Know that some forces need contact		• Know what gravity is • Know who Isaac Newton was • Know that weight is measured in Newtons • Know what air resistance is • Know what water resistance is • Know what friction is • Know what a mechanism is (see DT vocabulary) • Know that levers, pulleys and gears (see DT vocabulary) are types of mechanisms	

			• between two objects • Know that magnetic forces can act at a distance		• used in everyday life	
Forces Skills						
• Talk about different forces they can feel. For example: - water pushes up when they try to push a plastic boat under it - how they can stretch an elastic band, snap a twig, but cannot bend a metal rod - magnetic attraction and repulsion (not necessarily using this vocabulary) • Observe how some materials float and others sink			• Name examples of where forces are used in everyday life • Observe and describe the behaviour different types of magnets • Identify magnetic materials • Compare and group materials dependent upon their properties (attracted to a magnet or not) • Predict whether two magnets will attract or repel each other using scientific knowledge		• Describe how forces make things begin to move, get faster or slow down • Observe and record the effects of friction on movement • Describe how mechanisms (levers, pulleys and gears) allow a smaller force to have a greater effect	
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Animals including Humans Knowledge						

• Know what an animal is • Know what a life cycle is	• Know what a fish is • Know what an amphibian is • Know what a reptile is • Know what a bird is • Know what a mammal is • Know what a carnivore is • Know what a herbivore is • Know what an omnivore is • Know the structure of common animals: legs feathers ears scales tail beak fur teeth • Know how to observe animals respectfully in the environment (remaining quiet, keeping distance, remaining still) • Know the name of different parts of the human body: head neck arms elbows legs knees	• Know what offspring means • Know that animals, including humans, have offspring which grow into adults • Know that animals need water, food and air for survival • Know what exercise means • Know nutrition means • Know the benefits of exercise and nutrition *Crossover with DT learning:* • Know what is included in the portion plate: - Bread, cereal, pasta, potatoes - Meat, fish and alternatives - Fatty and sugary food - Milk and dairy - Fruit and vegetables • Know that our diet should most include fruit and vegetables, and bread, cereal, pasta and potatoes • Know that our diet should include meat,	• Know that animals cannot make their own food • Know what carbohydrates are • Know why carbohydrates are important • Know what protein is • Know why protein is important • Know what fruit and vegetables are • Know why fruits and vegetables are important • Know what fats and oils are • Know why fats and oils are important • Know what dairy is • Know why dairy is important • Know what the human skeleton is and its function • Know that not all animals have a skeleton • Know what joints are • Know what muscles are	• Know what the digestive system is • Know the role of the following parts of the digestive system: mouth tongue teeth oesophagus stomach small intestine large intestine rectum saliva • Know that there are different types of teeth: molars canines incisors • Know the function of the different types of teeth • Know how to keep teeth healthy • Know what a food chain is (revisit from year 2) • Know what a producer is in a food chain • Know what a predator is in a food chain • Know what prey is in a food chain • Know what a consumer is in a food chain	• Know what puberty is • Know the six stages of the human life cycle: foetus baby childhood adolescence adulthood old age/elderly adult • Know some changes to the human body that occur at each of the stages of the human life cycle	• Know what the circulatory system is • Know the parts of the circulatory system: heart blood vessels blood • Know the functions of the circulatory system • Know the impact of the following on the way a body functions: diet exercise drugs lifestyle • Know how nutrients and water is transported within animals, including humans through the circulatory system

	face ears eyes hair mouth teeth • Know what a sense is • Know what the five senses are and the body part associated with them	fish and alternatives • Know that our diet should include milk and dairy • Know that we should eat less fatty and sugary foods				
Animals including Humans Skills						
• Name and describe animals found on the school ground (e.g. squirrel, magpie, pigeon) • Describe some of the stages of an animal's life cycle (e.g. frog: frogspawn, tadpole, frog)	• Observe animals in the local environment respectfully • Use senses to compare different textures, sounds and smells • Identify and classify animals according to their features	• Describe changes that occur as an animal grows (e.g. baby, toddler, child, teenager, adult or frogspawn, tadpole, frog) • Describe what animals need to survive • Describe what humans need to stay healthy	• Describe quantities of each food group that should be eaten as part of a healthy and balanced diet (Eatwell plate) • Classify animals with and without skeletons, comparing their movement	• Compare the teeth of carnivores, omnivores and herbivores (revisit from year 1) • Describe how to keep teeth healthy	• Describe changes that happen during puberty • Describe changes that happen during each stage of the human life cycle	• Describe how the circulatory system enables the body to function (transport of nutrients and water) • Describe how diet, exercise, drugs and lifestyle choices can impact the body, both positively and negatively
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Living Things and their Habitats Knowledge						
• Know how to care for the natural world around us, linking to our value of		• Know what living means • Know what dead means • Know that some things		• Know that living things can be grouped in a variety of ways: fish	• Know what a life cycle is (revisit from FS) • Know the life cycle of:	• Know what a classification key is (revisit from year 4) • Know what a characteristic is

responsible (for example; picking up litter, recycling, saving water, growing plants etc.) • Know what natural means • Know some animals that might live in familiar environments: woodland river beach • Know some animals that might live in unfamiliar environments: jungle desert		have never been alive • Know what a habitat is • Know what a microhabitat is • Know that different animals are suited to different habitats • Know that plants are a source of food • Know what a food chain is • Know what a food source is		amphibians reptiles birds mammals snails slugs worms spiders insects • Know what a vertebrate is • Know what an invertebrate is • Know what a classification key is • Know what the environment is • Know that humans impact environments, both positively and negatively	mammals amphibians insects birds • Know what sexual reproduction is in animals • Know the reproductive parts in plants: pollen stamen pistil anther filament ovule stigma style ovary • Know what sexual reproduction is in plants through pollination • Know what asexual reproduction is in plants • Know that people choose to study living things as their job (David Attenborough and Jane Goodall)	• Know the characteristics of a living organism • Know what a micro-organism is (bacteria, virus, fungi) • Know some features of micro-organisms
Living Things and their Habitats Skills						
• Observe the natural world around us and record what they see (e.g. through drawing pictures,		• Sort and classify things according to whether they are living, dead or were never alive		• Sort living things into groups • Describe how humans impact environments both positively and negatively	• Describe life cycles of: mammals amphibians insects birds	• Use classification keys to identify and sort animals and plants in the local environment

describing what they see, hear, feel and smell) • Name animals that might live in familiar environments: woodland river beach • Name animals that might live in unfamiliar environments: jungle desert		• Describe how living things depend upon each other to survive (plants as a source of food and shelter for animals) • Observe habitats in the local area • Construct simple food chains • Identify and describe different sources of food		with examples (e.g. deforestation, litter, nature reserves, ponds)	• Describe sexual reproduction in animals • Describe sexual reproduction in plants through pollination • Describe asexual reproduction in plants	• Explain why plants, animals and micro-organisms are classified in certain ways based on specific characteristics
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Evolution and Inheritance Knowledge						
						• Know what a fossil is (revisit from year 3) • Know that fossils give us information about living things that inhabited the Earth millions of years ago • Know what adaptation means • Know how some plants have adapted to suit their environment • Know how some animals have adapted to suit their environment

						• Know who Charles Darwin is • Know what evolution is • Know what natural selection is • Know what offspring means (revisit from year 2) • Know what inheritance is • Know what variation is
Evolution and Inheritance Skills						
						• Describe how adaptations lead to evolution • Explain which characteristics are possible to inherit and which are not
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Seasonal Change Knowledge						
Crossover with Geography knowledge and done though the daily discussion of the concept of time: • Name the four seasons	*Crossover with Geography knowledge and done through the daily discussion of the concept of time:* • Know what a season is • Name the four seasons (revisit from FS) • Know what weather is • Name examples of weather					

	• Know that in the autumn and winter there are less hours of daylight • Know that in the spring and summer, there are more hours of daylight • Know how to observe the weather safely (not looking directly at the sun)					
Seasonal Change Skills						
• Note and record the weather on a daily basis with reference to seasons as they pass	• Observe the weather on a daily basis • Describe the weather associated with the different seasons • Describe hours of daylight associated with the different seasons					
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Materials Knowledge (including States of Matter)						
Crossover with DT learning: • Know what a material is • Name different materials: paper card cardboard paper straws lollipop sticks wood fabric lego	• Know what a material is (revisit from FS) • Name different materials: wood plastic glass metal water rock paper fabric	• Know what a material is (revisit from FS) • Name different materials (see FS and year 1 knowledge) • Know that materials can be used for more than one thing (e.g. metal – coins,		• Know what state of matter means • Know what a solid is • Know what a liquid is • Know what a gas is • Know that some materials can change state	• Know what the following mean when describing materials: hardness solubility transparency conductivity (electrical and thermal) response to magnets	

duplo mobile stickle bricks • Know that some materials can change	• Know the properties of different materials: hard soft shiny dull rough smooth heavy light absorbent opaque transparent • Name the material some objects are made from (e.g. window – glass)	cans, table legs) • Know that different materials can be used for the same thing (e.g. spoon – plastic, wood, metal) • Name different materials: stone pebble brick • Know the properties of different materials: rough flexible rigid brittle translucent • Know that the shape of some materials can be changed by: folding squashing tearing bending twisting		• Know that temperature is measured in degrees Celsius (°C) • Know that a thermometer is used to measure temperature • Know what melting means • Know what freezing means • Know what evaporation means • Know what condensation means • Know what the water cycle is	• Know what dissolve means • Know what solution means • Know what substance means • Know that some materials will dissolve in liquid to form a solution • Know how to recover a substance from a solution • Know what filtering means • Know what sieving means • Know what a reversible change is • Know what an irreversible change is • Know that some changes result in the formation of new materials	
Materials Skills (including States of Matter)						
• Observe a material changing (ice melting and freezing)	• Describe the properties of materials • Compare and sort materials based upon their physical properties • Perform tests to answer simple, scientific questions	• Describe whether a material is suitable or unsuitable for a particular purpose • Suggest what a material could be used for		• Identify solids, liquids and gases • Sort materials according to whether they are solid, liquid or gas • Use a thermometer safely to measure temperature	• Describe the properties of materials using scientific vocabulary (see above) • Using scientific knowledge, perform tests to answer a scientific question about	

				• Describe how melting occurs (through heating) • Describe how freezing occurs (through cooling) • Describe how evaporation occurs (through heating) • Describe how condensation occurs (through cooling) • Describe how evaporation and condensation occur in the water cycle	the suitability of materials. • Describe how to recover a substance from a solution using scientific vocabulary • Give examples of reversible and irreversible changes and how these have impacted our lives (e.g. cooking)	
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Rocks Knowledge						
			• Know what a rock is • Know that there are different types of rocks: igneous sedimentary metamorphic • Know some simple properties of the different types of rock • Know what a fossil is • Know how fossils are formed • Know what soil is • Know there are different types			

			of soil: clay sandy chalk • Know what organic matter is • Know what permeable means • Know that soil is made from rocks and organic matter			
Rocks Skills						
			• Compare rocks by describing their appearance and simple physical properties • Describe how a fossil is formed • Compare soils according to their permeability			
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Light Knowledge						
			• Know that dark is the absence of light • Know that light is needed in order to see things • Know what a light source is • Name some natural light sources • Name some artificial light sources • Know what reflect means			• Know that light appears to travel in straight lines • Know how objects are seen (give out or reflect light into the eye) • Know what a shadow is (revisit from year 3) • Know how shadows are formed (revisit from year 3)

			• Know that light is reflected from surfaces (mirrors) • Know what a shadow is • Know how shadows are formed • Know how to stay safe in the sun (not looking directly at it, the importance of sunscreen)			• Know that shadows have the same shape as the objects that cast them
			Light Skills			
			• Explain how shadows are formed • Investigate how the length of a shadow changes throughout the day • Describe how to stay safe in the sun			• Explain how we see things (objects give out or reflect light into the eye) • Explain why shadows have the same shape as the objects that cast them
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Sound Knowledge						
• Know what a sound is • Know that we hear sounds with our ears • Know the volume of a sound can be made louder • Know the volume of a sound can be made quieter				• Know what a sound source is • Know what vibration means • Know that sound is made because something vibrates • Know how sound travels to the ear • Know what pitch means		

				• Know that smaller objects tend to produce higher pitches • Know that larger objects tend to produce lower pitches • Know what volume means • Know that larger vibrations produce a louder sound • Know that smaller vibrations produce a quieter sound • Know that sounds get fainter as the distance from the sound source increases		
Sound Skills						
				• Describe how sound is made • Explain how sound travels to the ear • Describe the relationship between pitch and the size of an object • Describe the relationship between the volume of a sound and the vibrations that produced it • Explain why the sound gets		

				fainter as the distance from the sound source increases		
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Electricity Knowledge						
				• Know that electricity is a type of energy • Name common appliances that run on electricity • Know what a series circuit is • Know what a component is • Know what the following components are and what they do: cells wire bulb switch buzzer • Know what electrical current is • Know that if a circuit is open, electrical current stops flowing • Know that if a circuit is closed, electrical current flows • Know what conductor means • Know what insulator means		• Know what voltage means • Know the performance of a component is related to the number and voltage of cells in a circuit (e.g. brightness of lamp, volume of buzzer) • Know the symbols for: cells wire bulb switch buzzer

				• Know that metals are conductors • Know how to work safely with electricity		
Electricity Skills						
				• Represent simple series circuits pictorially • Construct a simple series circuit, problem-solving as necessary • Predict whether a lamp will light or not in a simple series circuit • Demonstrate how to work safely with electricity		• Represent a series circuit in a diagram using recognised symbols • Use scientific knowledge to explain why a component performs in a particular way (brightness of bulbs, loudness of buzzers, on/off position of switches)
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Earth and Space Knowledge						
					• Know what a solar system is • Know the names of the planets in the solar system • Know that the Sun is a star and is at the centre of our solar system • Know that the Earth, Moon and Sun are approximately spherical	

					• Know what orbit means • Know that the Earth and other planets orbit the Sun • Know that a year on Earth is the amount of time it takes for the Earth to orbit the Sun • Know what a moon is • Know that the Moon orbits the Earth • Know what rotation means • Know that day and night occur because of the Earth's rotation	
Earth and Space Skills						
					• Explain the Earth's movement relative to the Sun • Explain the Moon's movement relative to the Earth • Explain why day and night occur using scientific language	