Science- Key Knowledge and Vocabulary

Golden Threads **Curiosity: Wondering like a Scientist, Enquiry: Working like a scientist, Vocabulary and Knowledge: Speaking and Understanding like a scientist, Environmentalist: caring like a scientist.**				
Year Group	**Unit**	**Knowledge**	**Vocabulary**	**Links to previous Science Learning**
1	Animals including humans	To know the names of and identify some common domestic and wild animals To know and use correctly the words fish, amphibians, mammals, reptiles and birds, To know the meaning of the words carnivore, herbivore and omnivore Name and identify basic parts of the human body – head, neck arms elbows, legs, knees, face, ears, eyes, hair, back, mouth and teeth.	fish amphibian reptile bird mammal carnivore herbivore omnivore head neck arm elbow legs knees face ears eyes hair mouth teeth back wings beak gills	***Understanding the world*** Investigate how animals grow and learn about different life cycles. Observing some first hand. Chicks and frogs. I will observe animals and plants and explains why some things occur, talking about changes.
1	Seasons	To know the names of the four seasons in the UK and the order they occur To know the length of the daylight hours changes from each season to season in the UK with it being longer in the summer and shorter in the winter To know that each season has different weather and that it is colder in the winter and warmer in the summer	season winter spring summer autumn day night light dark	***Understanding the world*** Regularly look at and discuss seasons and changes in the weather and environment. **ELG** **Understand some important processes and changes in the natural world around them the seasons and changing states of matter.**
1	Living things and their habitats- Plants	To know the names of and identify some common wild and garden plants To know the meaning of the words deciduous and evergreen To identify on a plant: petals, flower, fruit, leaves, stem, root, (tree) trunk and branches.	plant tree deciduous evergreen petal flower fruit leaves stem root trunk branch	***Understanding the world*** Observe and discuss growth, change and decay. Planting seeds and observing plants as they grow, harvesting our own vegetables for snacks. **ELG** **Explore the natural world around them, making**

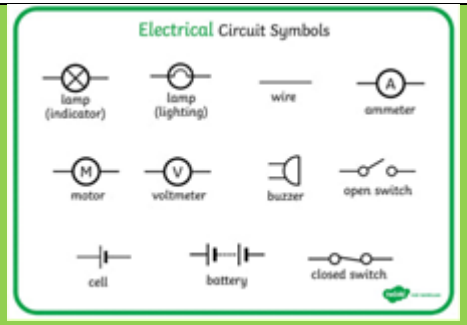
				observations and drawing pictures of animals and plants; know some similarities and differences between the natural world around.
1	Materials	To identify and name wood, plastic, glass, metal, water, fabric, paper and cardboard To know and use hard/soft bendy/stiff rough/smooth	wood plastic glass paper metal water fa cardboard hard soft bendy stiff rough smooth shin dull	***Understanding the world*** Provide interesting natural environments for children to explore freely outdoors. Make collections of natural materials to investigate together.
1	Light and Dark	To know the meaning of manmade, natural and source To know some natural and manmade sources of light To identify reflective and non-reflective materials Can they match a shadow to an' object'	source man-made natural bright dim light dark sun torch fire lightbulb reflective non reflective Shadow	***Understanding the world*** Explore how light passes through some materials and investigate shadows.
2	Living things and their habitats (a)	To know the difference between things that are dead, alive and have never been alive To know what animals need to stay alive To name woodland pond field and the plants and animals that can be found there. To use a simple food chain to show what eats what	living dead non living habitat energy food chain woodland pond field	Living things and their habitats- **Plants** (Year 1)
2	Everyday materials	To name common objects and the material it is made from To know why some materials are suited to a purpose and others are not To know some materials can be changed by using force	*wood plastic glass paper metal water fabric cardboard* foil brick force *hard soft bendy stiff rough smooth* waterproof absorbent opaque transparent squashing bending twisting stretching elastic	Everyday material **Properties** (Year 1)
2	Living things and their habitats (b)	To know the term 'habitat' and 'micro-habitat' To raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals. To compare animals in familiar habitats with animals found in less familiar habitats, (the seashore, in woodland, in the ocean, in the rainforest)	habitat microhabitat fungi survive shelter	Living things and their habitats- **Plants** (Year 1)

2	Animals including humans	To know animals have offspring that grow into adults and the names of the young of common animals- dog cat cow sheep pig horse To know the basic needs of animals – food (nutrients), water, air(oxygen) To know a healthy lifestyle includes eating the right foods and exercise	water food nutrients air oxygen offspring diet exercise Kitten puppy lamb calf piglet foal	Animals including humans: **Identifying and naming** (Year 1)
2	Plants	To know plants need water, light and suitable temperatures to grow To know seeds and bulbs need water but not light to germinate	temperature growth seed bulb conditions germinate	Plants **Identifying and Naming** (Year 1)
3	Animals including humans	To know animals have muscles and bones and what they are for To know what types of exercise keep our muscles strong To know how to keep our skeleton strong and healthy To know how the muscular and skeletal systems work together to create movement	movement, muscles, bones, skull, *nutrition*, skeleton fracture break calcium strength flexibility	Animals including humans **Identifying and naming** (Year 1) **Basic Needs, Health and growth.** (Year 2)
3	Rocks	To compare and group rocks according to property and appearance To know how fossils are formed To know that is soil is made or organic matter and rocks	rock organic matter fossil hard soft permeable impermeable	
3	Plants	To know the functions of the different parts of a plant – roots, stem, petals, leaves and flower To know what part of a plant different food (vegetable, fruit and pulses) are. To know the requirements of plants for life and growth – air light water nutrients from soil and room to grow-and that they vary from plant to plant	function *root stem leaf flower petal seed* pollen *nutrients* vegetable fruit pulse transport absorb anchor energy photosynthesis	Plants **Identifying and Naming** (Year 1) Plants: **Growth** (Year 2) Plants : **Reproduction and Healthy Growth** (Year 3)
3	Light	To know light is needed to see and that dark is the absence of light To know light from the sun is dangerous and we need to protect ourselves from it To know that shadows are made when an opaque object blocks light To know shadows change in size and direction	*shadow dark light reflective non reflective* opaque transparent translucent block mirror	**Light and Dark** (year 1)
3	Forces and magnets	To know forces need contact between two objects To know magnets attract and repel each other To know magnets have two poles and use this knowledge to predict attract/repel To know that all magnetic materials are metal(metallic) but not all metals are magnetic	force friction *rough smooth* contact magnet magnetic attract repel poles *metal(*lic)	
4	Animals including humans	To know that unlike plants, animals get nutrition and energy from what they eat To know the parts of the human digestive system and describe their functions. To know the types of teeth in humans- molar premolar canine incisor -and their functions	*nutrition digestion digestive system salivary glands oesophagus stomach small intestine large intestine herbivore carnivore omnivore canine incisor molar dentine enamel*	Animals including humans **Identifying and naming** (Year 1)

		To know humans have 20 milk teeth and 28 adult teeth and when they loss and grow these (approximately) To know how to keep teeth and gums healthy To know the term food chain	*milk teeth* *gums*	**Basic Needs, Health and growth.** (Year 2) **Health, nutrition and movement** (year 3)
4	Habitats	To know how to use classification keys to group, identify and name a variety of living things To know names of main classification groups for animals To know producers, predators, prey, and the roles they have in food chains.	vertebrates invertebrates *fish amphibian reptiles birds mammals* insects spiders (arachnids) worms (annelids) slugs and snails (molluscs) *habitat* environment predator prey *food chain* producer consumer characteristics	Living things and their habitats: **Where Animals and plants live and food chains** (Year 2) Living things and their habitats (b) Living things and their habitats (a) (Year 2)
4	Electricity	To know common appliances that need electricity to work To know the parts of a circuit and corresponding symbols– cells, wires, bulbs, switches and buzzers. To understand what and incomplete and complete circuit is and how a switch controls this . To know materials can be conductors or insulators and be able to recognise common ones.	cells wires bulbs switches buzzers battery circuit conductors insulators incomplete complete	
4	Sound	To know that sounds are made by vibrations that travel through mediums to our ears To know the pitch of sounds is linked to the objects that make them To know volume of sound is linked to the strength of vibrations that are made To know sound gets fainter as you move away from the source To know sound travels at 300m/s	vibration sound wave pitch volume sound barrier sonic boom	
4	States of matter	To know materials can be grouped into solids, liquids and gases To know changes of state can happen when materials are heated and cooled. To know how to measure temperatures in Celsius To explain the water cycle using evaporation and condensing	solid liquid gas evaporation evaporate condensation condense particles temperature Celsius freezing solidifying melting change of state heat cool water cycle	Everyday material **Properties** (Year 1) Everyday materials : **Uses** (Year 2)
5	Living things and their habitats 1	To know that living things reproduce and to be able to explain this life process To know the life cycle of a flowering plant To know compare plants from different habitats	Reproduce reproduction life cycle fertilisation germination pollination seed dispersal flower formation	Living things and their habitats: **Classification**

		To know the life cycle of different animals- an amphibian, insect, a bird, fish and mammal (humans will be covered in year 6)	growth stamen sigma carpel ovule pollen pollinator bird egg chick fledging robin amphibian spawn tadpole froglet frog insect egg caterpillar chrysalis butterfly mammal embryo young adult	**and endangered Animals** (Year 4)
5	Living things and their habitats 2	To identify the key stages of a Mammal's life cycle To explore the gestation periods of mammals To learn about foetal development To learn about changes experienced in puberty To describe the changes humans may experience during old age.	Offspring, foetus, dependent, adolescent, puberty, gestation, pregnant, toddler, prenatal, breeding, embryo, hormones, motor skills, keratin, neurodegenerative, duration, reproduce, growth, hormone, puberty, bloodstream.	Plants **Identifying and Naming** (Year 1) Plants**: Growth** (year 2) Plants : **Reproduction and Healthy Growth** (Year 3)
5	Properties and changes of materials	To know materials can be grouped according to their properties including – hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets To know some materials, dissolve in liquid to form a solution. And describe how to recover a substance from a solution To know the processes of filtering, sieving and evaporation can be used to separate mixtures To know that dissolving, mixing and changes of state are reversible changes To know some changes are not reversible and these changes can sometimes result in the creation of new materials	*hardness,* solubility, soluble solution solute *transparent* transparency, conductivity (electrical and thermal), substance filter sieve sort *evaporate evaporation condense condensation* mixture dissolve irreversible reversible chemical	Everyday material **Properties** (Year 1) Everyday materials : **Uses** (Year 2) Materials: **Change of state- water cycle** (Year 4)
5	Forces	To know unsupported objects fall towards Earth because of the force of gravity To know the forces of air resistance, water resistance and friction act between moving surfaces	Air resistance water resistance gravity newton forcementer *friction* streamline gears pulleys levers	Forces **Friction and Magnets** (Year 3)
5	Earth and Space	To know the movement of Earth and the other planets in relation to the sun To know how the moon moves in relation to the Earth To know the Earth, Sun and Moon are largely spherical bodies To know the sun does not move across the sky and be able to explain the Earth's movement in relation to the sun To know some mechanisms allow a smaller force to have a greater effect i.e. levers, pulleys and gears.	Earth sun moon planet satellite star phases of moon universe galaxy lunar constellation orbit rotation year day axis	

			spherical Mercury Venus earth Mars Jupiter Saturn Uranus Pluto	
6	Animals including humans 1	Locate and name major organs of the human body liver stomach heart lungs skin kidneys brain Know the functions of the main parts of the circulatory system- heart , blood vessels and blood Know the impact of lifestyle on human body including diet exercise and drugs	liver *stomach* heart lungs skin kidneys brain circulatory blood blood vessel veins arteries capillaries oxygenated deoxygenated valve *respiration* mental and physical health	Animals including humans **Identifying and naming** (Year 1) **Basic Needs, Health and growth.** (Year 2) **Health, nutrition and movement** (year 3) **Digestive system, Teeth and food chains.** (year 4)
6.	Living things and their habitat	To know the 7 characteristics of living things, nutrition, respiration, movement, excretion, growth, reproduction and sensitivity. To know classification groups for living things- plants, animals, micro-organisms, vertebrae, invertebrate, reptiles, amphibians, fish, mammals, insects and birds. To know about common microorganisms, virus, bacteria and fungi and benefits and harm from them.	Nutrition, respiration, movement, excretion, growth, reproduction, sensitivity *plants, animals, micro-organisms, vertebrae, invertebrate, reptiles, amphibians, fish, mammals, insects and birds.* Virus, bacteria, fungi, microbe, antibiotic	**Basic Needs, Health and growth.** (Year 2) **Health, nutrition and movement** (year 3) **Reproduction and Healthy Growth** (Year 3)
6	Evolution and inheritance	To know that adaptation is the process by which living creatures (animals and plants) suited to survive in their environment. To know that evolution is the process of change to animal and plant species over long periods of time To know that offspring are of the same species but not identical to parents To know offspring inherit characteristics from their parents	*fossils* adaptation (theory of) evolution characteristics Genetics inheritance *reproduction* *offspring*	Living things and their habitats: **Classification and endangered Animals** (Year 4) Plants**: Growth** (year 2) Plants : **Reproduction and Healthy Growth** (Year 3)
6	Electricity	Know the standard symbols for main components of a circuit.	component variation amp volt *cell wire bulbs switch buzzer battery circuit insulator conductor* series	Electricity: **Simple circuits and switches** (Year 4)

		 To know ways to vary outputs in circuits for eg brightness of bulbs, loudness of buzzers and on/off of switches.		
6	Light	Know that light travels in a straight line at 299,792,458 metres per second To know that we see when light from a source reflects off an object into the eye and to know how to show this in diagrams To know shadows are the same shape as the object casting them because light travels in a straight line	refraction *reflection* light spectrum rainbow colour eye iris pupil optic optic nerve lens cornea *shadow*	**Light and Dark** (year 1) **Light: Shadows** (year 3)
Additional unit, PSRE and Science link. Taught Discreetly as a two week block before XMAS.				
6	Animals including humans 2	To know the changes that occur in animals as they grow older. To know the stages of development – baby, child, puberty, adolescent, adult, old age	embryo foetus baby child adolescent adult *Fertilisation* menstruation ovary egg sperm gestation	Animals including humans **Identifying and naming** (Year 1) **Basic Needs, Health and growth.** (Year 2) **Health, nutrition and movement** (year 3) **Digestive system, Teeth and food chains.** (year 4) **Growth of and Development** (year 6)