

Substantive Knowledge Progression – SCIENCE – EYFS, KS1 & KS2

WIS		WJS				
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Animals, excluding Humans</p> <ul style="list-style-type: none"> Name British wildlife (that could be found in School grounds) hedgehog, squirrel, fox, Badger, owl, rabbit. Name British garden birds (that could be Found in school grounds) blue-tit, robin, Blackbird, thrush, sparrow. Identify different body parts associated with Different animals (wing, talons, bushy tail). <p>Living Things and their Habitats (Minibeasts)</p> <ul style="list-style-type: none"> Identify minibeasts in school grounds (worm, Woodlouse, beetle, Ladybird, butterfly, slug, snail). <p>Humans</p> <ul style="list-style-type: none"> Talk about their bodies/characteristics and identify similarities /differences. Identify 5 senses and how we use these to explore the world. Notice about how they have changed from being younger/a baby. Talk about what humans need to grow (healthy eating, sleep, hygiene, exercise). <p>Plants</p> <ul style="list-style-type: none"> Identify plants and trees in our school Grounds (cherry, rowan, sycamore, silver 	<p>Everyday Materials</p> <ul style="list-style-type: none"> Tell the difference between an object and the material from which it is made. Identify and name a variety of everyday materials. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. <p>Animals including Humans (Naming and Classifying)</p> <ul style="list-style-type: none"> Name some common animals including fish, amphibians, reptiles, birds and mammals. Identify and name carnivores, herbivores and omnivores. Describe and compare some common animals. Identify, name, draw and label the basic parts of the human body. Say which part of the body is associated with each sense. <p>Seasonal Changes</p> <ul style="list-style-type: none"> Observe changes across the four seasons. Observe and describe weather associated with the seasons. Describe how day length varies with the seasons. 	<p>Uses of Everyday Materials and their Properties</p> <ul style="list-style-type: none"> Identify and compare the suitability of a variety of everyday materials, for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. <p>Living Things and their Habitats</p> <ul style="list-style-type: none"> Explore and compare the differences between things that are living, dead, and things that have never been alive. 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, 	<p>Rocks</p> <ul style="list-style-type: none"> Rocks can be grouped together on the basis of their appearance and simple physical processes. Fossils are formed when things that have lived are trapped within rock. Soils are made from rocks and organic matter. <p>Light</p> <ul style="list-style-type: none"> Dark is the absence of light. Light is needed in order to see things. Light is reflected by materials. Light travels through some materials and not others. Shadows are formed when the light from a lights source is blocked by an opaque object. The size of shadows change according to the size of the object and the relative positions of the object and the light source. Light from the Sun can be dangerous and there are ways to protect the eyes. <p>Animals including Humans</p> <ul style="list-style-type: none"> Animals, including humans, need the right types and amounts of nutrition; they cannot make their own food and they get nutrition from what they eat. 	<p>Living Things and Habitats (Classification)</p> <ul style="list-style-type: none"> Species depend on one another and their environment to survive. Living things can be grouped in a variety of ways. Classification keys can be used to help group, identify and name a variety of living things in the local and wider environment. <p>Living Things and Habitats (Changing Environments)</p> <ul style="list-style-type: none"> Species depend on one another and their environment to survive. Environments can change and this can sometimes pose dangers to living things. <p>Sound</p> <ul style="list-style-type: none"> Sounds are made by something vibrating. Vibrations from sounds travel through a medium (solids, liquids, gases) to the ear. The pitch of a sound depends on the features of the object that produced it. The volume of a sound depends on the strength of the vibrations that produced it. Sounds get fainter as the distance from the 	<p>Forces</p> <ul style="list-style-type: none"> Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Air resistance, water resistance and friction act between moving surfaces Air resistance, water resistance and friction slow moving objects. Some mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect. <p>Light</p> <ul style="list-style-type: none"> Light travels in straight lines. We see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Shadows have the same shape as the objects that cast them. <p>Properties and Changing materials</p> <ul style="list-style-type: none"> Some solid materials will dissolve in liquid to form a solution and others will not. Substances can be separated from a solution. Mixtures can be separated through filtering, sieving and evaporating. 	<p>Living Things and their Habitats (Classification)</p> <ul style="list-style-type: none"> Living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. <p>Animals including Humans (Circulatory System)</p> <ul style="list-style-type: none"> Nutrients and water are transported via the circulatory system within animals, including humans The circulatory system includes the heart, lungs, arteries, veins and blood. Know the function of the heart, blood and blood vessels (The heart is the pump; the blood vessels (arteries and veins) contain the blood and the blood has different components which, between them, transport oxygen, nutrients and water around the body). <p>Electricity</p> <ul style="list-style-type: none"> Energy is transferred from the power supply to the components of a circuit. The brightness of a lamp or the volume of

<p>Birch, oak, willow) (acorn, sycamore seed (autumn) daffodil, crocus (spring) daisy, dandelion, (summer).</p> <ul style="list-style-type: none"> • Talk about what plants need to grow. • Plant seeds/bulbs. <p>Seasonal changes</p> <ul style="list-style-type: none"> • Observe and experience first-hand the weather in all 4 seasons. • Observe and explore the natural world using senses. • Observe cherry/apple tree in each season. <p>Materials</p> <ul style="list-style-type: none"> • Talk about textures of objects and fabrics • Know the names of some materials (fabric, Wood, glass, metal) • Find out about magnets and which objects (materials) are magnetic • Find out which objects (materials) float and Sink • Describe what happens when ice Melts/freezes and chocolate melts/ solidifies 	<p>Plants</p> <ul style="list-style-type: none"> • Identify and name a variety of common wild and garden plants. • Identify and describe the basic structure of a variety of common flowering plants, including trees (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem. 	<p>and how they depend on each other.</p> <ul style="list-style-type: none"> • 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. • Identify and name a variety of plants and animals in their habitats, including micro- habitats. • 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. <p>Animals including Humans</p> <ul style="list-style-type: none"> • Notice that animals, including humans, have offspring which grow into adults. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. <p>Plants</p> <ul style="list-style-type: none"> • Observe and describe how seeds and bulbs grow into mature plants. • Find out and describe how plants need water, light and a 	<ul style="list-style-type: none"> • Humans and some other animals have skeletons and muscles for support protection and movement. <p>Plants</p> <ul style="list-style-type: none"> • Flowering plants generally have the following parts: roots, stem/trunk, leaves and flowers. • Each part performs a specific role for the plant. • Plants need air, light, water, nutrients from soil and room for life and growth – the precise amounts vary from plant to plant. • Investigate the way in which water is transported within plants. • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <p>States of Matter</p> <ul style="list-style-type: none"> • Materials can be solids liquids or gases. • Materials change state with heating and cooling. • The rates of evaporation and condensation are affected by temperature. • Evaporation and condensation play a part in the water cycles where water circulates between the Earth's oceans, atmosphere and land. <p>Electricity</p>	<p>sound source increases.</p> <p>Animals including Humans (Digestive System)</p> <ul style="list-style-type: none"> • The digestive system in humans is comprised of several parts and each has a special function. • Teeth in animals differ according to their natural diet. • Teeth can be damaged and need to be cared for. • Living things rely on each other for food in the natural world; food chains and food webs can illustrate this relationship. <p>Earth and Space</p> <ul style="list-style-type: none"> • The Sun, Earth and moon are approximately spherical bodies. • The sun is a star at the centre of our solar system. • The Earth and other planets orbit the Sun. • A moon is a celestial body that orbits a planet. • Earth has one Moon and the Moon's orbit gives rise to the phases of the moon we observe on Earth. • The Earth's rotation about its axis explains day and night and the apparent movement of the Sun across the sky. <p>Forces and Magnets</p> <ul style="list-style-type: none"> • A force is a push or a pull. 	<ul style="list-style-type: none"> • Dissolving, mixing and changes of state are reversible changes. • Some changes result in the formation of new materials and this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. <p>Living Things and Habitats (Life Cycles)</p> <ul style="list-style-type: none"> • All living things have a life cycle with different stages – they are born, grow, reproduce and die. • There are differences in the life cycles of mammals, amphibians, insects and birds. <p>Animals including Human Growth</p> <ul style="list-style-type: none"> • Describe the changes as humans develop to old age. 	<p>a buzzer is associated with the number and voltage of cells used in the circuit.</p> <ul style="list-style-type: none"> • Recognised symbols are used to represent a simple circuit in a diagram. <p>Evolution and Inheritance</p> <ul style="list-style-type: none"> • Living things have changed over time. • Fossils provide information about living things that inhabited the Earth millions of years ago. • Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Characteristics of offspring can be inherited or non-inherited. • Adaptation may lead to evolution. • Animals and plants are adapted to suit their environment in different ways. • Physical and behavioural characteristics of plants and animals are related to their survival or extinction. <p>Animals including Humans (Diet and health)</p> <ul style="list-style-type: none"> • Diet, exercise, drugs and lifestyle have an impact on our body's function.
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		suitable temperature to grow and stay healthy.	<ul style="list-style-type: none"> • An electric circuit is a continuous loop of conducting materials. • A complete, closed circuit is needed for electricity to flow. • The basic components of an electrical circuit are wires, bulbs, switches and buzzers. • A switch opens and closes a circuit. • Some materials do not allow electricity to pass and these are called insulators. • Some materials do allow electricity to pass and these are called conductors. • Some common appliances run on electricity. • Mains electricity can be dangerous. 	<ul style="list-style-type: none"> • When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. • A magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. • The strongest parts of a magnet are the poles. • Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract. 		
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Concepts

	Chemistry	Biology	Physics
Year 1	<ul style="list-style-type: none"> • Everyday Materials 	<ul style="list-style-type: none"> • Animals including Humans • Plants 	<ul style="list-style-type: none"> • Seasonal Changes
Year 2	<ul style="list-style-type: none"> • Uses of everyday materials 	<ul style="list-style-type: none"> • Animals including Humans • Living Things and their Habitats • Plants 	<ul style="list-style-type: none"> • Weather
Year 3	<ul style="list-style-type: none"> • Rocks • States of Matter 	<ul style="list-style-type: none"> • Animals including Humans • Plants 	<ul style="list-style-type: none"> • Light • Electricity
Year 4		<ul style="list-style-type: none"> • Animals including Humans 	<ul style="list-style-type: none"> • Forces and Magnets

		<ul style="list-style-type: none"> • Living Things and their Habitats 	<ul style="list-style-type: none"> • Sound • Earth and Space
Year 5	<ul style="list-style-type: none"> • Properties and Change of Materials 	<ul style="list-style-type: none"> • Animals including Humans • Living Things and their Habitats 	<ul style="list-style-type: none"> • Forces • Light
Year 6		<ul style="list-style-type: none"> • Animals including Humans • Living Things and their Habitats • Evolution and Inheritance 	<ul style="list-style-type: none"> • Electricity