Science Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Animals Sorting animals, learning about animal babies.	Light and Dark Exploring shiny things – use of dark tent	Floating and sinking Exploring and sorting materials	Growing plants Sowing seeds and growing plants Life cycle of a butterfly	Senses What can you use to make a sound?	Keeping Healthy Keeping fit – link to PE, sports day and 'fit camp'
Making the most of the weather – windy days, sunny days, icy days, foggy days, rainy days (boxes of activities) Enhancing seasonal outdoor play						
Year 1	**Seasonal Changes (whole year focus)** 1. There are 4 different seasons in the year and the weather is different in each one 2. The changing seasons have dramatic effects on plants. 3. Populations of animals are affected by the changing seasons.	**Everyday materials** 1. There are lots of different materials doing different jobs 2. Different materials have different describable properties 3. Objects can be made from more than one type of material	**Animals** 1. There are many different animals with different characteristics in our local area 2. Different animals need different foods to survive 3. Different animals can be grouped by what they eat	**Plants** 1. There are lots of different types of plants with similarities and differences 2. Plants usually grow from seeds and bulbs 3. Plants need warmth, light and water to grow and survive	**Minibeasts/habitats / Animals** 1. There is variation between all living things 2. Different animals and plants are adapted to survive in different places 3. Environmental change can affect the plants and animals that live there	**Human body and senses** 1. Animals have different senses which help them survive 2. When animals sense things, they can respond eg. animals listen for danger 3. Sounds seem louder when closer to the source and quieter when further away
Longitudinal Study: Stanley the Stick Insect is visiting his friends at Whitchurch from Australia. He wants to know when will be the best time to come so that he sees as many friends as possible.						

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Year 2	**Animals (Human Focus)** 1. Exercise keeps animals' bodies in good condition and increases survival chances. 2. Animals need a variety of food to help them grow, repair their bodies, be active and stay healthy 3. Animals grow until they reach maturity, reproduce and eventually die	**Materials** 1. Materials can be changed by physical force (twisting, bending, squashing and stretching) 2. Different materials have different describable properties 3. Heating/Cooling can change some materials	**Food Chains** **Mini Study 1:** 1. Plants and animals are connected in simple food chains. **Materials (structures)** **Mini study 2:** 2. Materials can be changed by physical force. 3. The shape of a material affects its strength.	**Forces** 1. Pushing and pulling can make things move faster, slower or stop 2. Pushing and pulling can change the shape of things 3. Bigger pushes and pulls have bigger effects	**Plants** 1. Plants need light, water and a suitable temperature to grow and be healthy 2. Living things can be identified by their differences and similarities 3. Flowering plants make seeds to reproduce and make more plants.	**Animals (Non-human focus)** 1. Animals move to survive; exercise keeps animal's bodies in good condition and increases survival chances 2. Living things are adapted to survive in different habitats 3. Environmental change can affect the animals that live there.
Longitudinal study from September 2020. TBC.						

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Year 3	Rocks and Soils 1. Recognise soils are made from rock 2. Identify and compare types of rock 3. Describe how fossils are formed	Light and Shadows 1. We need light to see 2. Transparent materials let light through; opaque materials do not 3. Reflection happens when light bounces off some materials	Forces and Magnets 1. Magnets exert non-contact forces which attract some materials 2. Magnets repel and attract eachother 3. Magnetic forces are affected by: • Magnet strength • Object mass • Object material • Distance to object	**Materials** 1. Materials can be described by observable properties 2. It is important to choose the material with the right properties for the job 3.	Plants 1. Seeds and bulbs need the right conditions to germinate 2. Seed dispersal improves chance of germination and mature plant growth 3. Plants make food in their green parts (mainly leaves) from water & carbon dioxide, using sunlight as energy	Animals: Skeletons and Movement 1. Many animals have skeletons to support their bodies and protect vital organs 2. Movable joints connect bones and muscles are connected to move bones when they contract 3. Different animals are adapted to eat different foods
Longitudinal Study: Will the location of plants affect their growth?						

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Year 4	**Habitats and Survival (Feeding Relationships and the Environment)** 1. Living things can be divided into groups based upon their characteristics 2. Different food chains occur in different habitats 3. Human activity affects the environment and environmental changes affect habitats and animals in different ways.	**Materials: Insulators** 1. Thermal insulators will keep hot things hot and cold things cold 2. Temperature is a measure of how hot or cold things are 3. Something hot will cool down, or something cold will warm up, until it reaches the temperature of the surroundings	**Electrical Circuits** 1. A complete circuit is needed for electricity to flow and devices to work 2. Some materials allow electricity to flow easily and these are called conductors. Materials that don't allow electricity to flow easily are called insulators 3. Devices work harder when more electricity goes through them ie. More batteries will push the electricity round the circuit faster	**Animals: Digestion** 1. Animals have different types of teeth to do different jobs 2. Food is broken down by the teeth and further in the stomach and intestines where nutrients go into the blood. The blood takes nutrients around the body. 3. Some foods and drinks can damage our teeth and gums and we can prevent this.	**Materials: Solids, Liquids, Gases** 1. Materials can be divided into solids, liquids and gases as described by observable properties 2. Materials change state by heating and cooling: solids melt into liquids; liquids evaporate to gases; gases condense to liquids; and liquids freeze to solids **(focus on water)**. 3. Some mixtures may be separated by filtering or sieving.	**Changing Sound** 1. Sound is produced when an object vibrates. 2. Bigger vibrations produce louder sounds and smaller vibrations produce quieter sounds 3. Faster vibrations (higher frequencies) produce higher pitched sounds

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Year 5	**Changing State** 1. Solids, liquids and gases are described by observable properties- these properties may change with heating or cooling. 2. All matter, including gases, has mass 3. When a substance is added to a liquid it has dissolved if no bits of the substance can be seen and the liquid is transparent. This mixture is called a solution.	**Light: How we see things** 1. Light travels in straight lines and reflects off all objects (unless they are black). Non-shiny surfaces scatter light so we don't see a single beam. 2. Animals see light sources when light travels from the source into their eyes 3. Animals see objects when light is reflected off that object and enters their eyes	**Earth in Space** 1. Stars, planets and moons have so much mass they attract other things, including each other due to gravity. Larger masses exert bigger gravitational forces 2. Stars produce vast amounts of heat and light. All other objects are lumps of rock, metal or ice and can be seen because they reflect the light of stars. 3. Objects like planets, moons and stars spin; smaller mass objects like planets orbit large mass objects like stars.	**Forces** 1. Gravity is a force that acts from a distance 2. More than one force can act on an object 3. Forces are of varying sizes	**Interdependence and Adaptation** 1. Animals and plants in any habitat are interdependent 2. Different food chains and webs occur in different world habitats 3. Organisms are adapted to their environments	**Life Cycles** 1. Different types of organism have different life cycles 2. Life cycles have evolved to help organisms survive to adulthood 3. Some organisms reproduce sexually and some reproduce asexually

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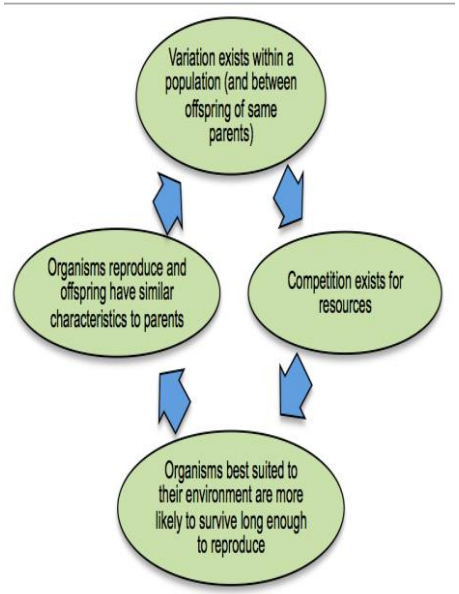
Year 6	**Materials: Reversible and Irreversible Changes** 1. Some mixtures of solids, liquids and gases may be separated by filtering, sieving and evaporating 2. Heating can sometimes cause materials to change permanently. When this happens, a new substance is made. These changes are not reversible. 3. Sometimes mixed substances react to make a new substance. These changes are usually irreversible.	**Fuel for Life (Animals: Respiration)** 1. Oxygen is breathed into the lungs where it is absorbed by the blood 2. The heart pumps blood around the body 3. Muscles need oxygen to release the energy from food to do work: Oxygen is taken into the blood in the lungs, the heart pumps blood through blood vessels to the muscles, the muscles take the oxygen and nutrients from the blood	**Forces and Movement** 1. Air resistance and water resistance are forces against motion caused by objects having to move air and water out of the way 2. Friction is a force against motion caused by two surfaces rubbing against each other 3. Some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move.	**Micro-organisms** 1. There exist very small organisms which can cause decay and illness. 2. These micro-organisms feed, grow and reproduce like other organisms. **3.** Micro-organisms can be used in food production eg. Yeast.	**Evolution and Inheritance** 1. Environmental change can affect how well an organism is suited to its environment.  2. 3. Over time the characteristics that are most suited to the environment become increasingly common.	**Changing Circuits** 1. Batteries store energy which pushes electricity round a circuit. Voltage measures the 'push' 2. Current is how much electricity is flowing round a circuit; the greater the current the harder a device works 3. When current flows through wires, heat is released. The greater the current the more heat is released