	**The Natural World- (links with NC Science)**	**How we have changed from when we were babies (human life cycle)** **Looking after ourselves- healthy body and mind** **Basic hygiene** **Naming body parts** **Our senses** **Wild Woods**	**Investigate the properties of toys.** **Winter-animals and hibernation, freezing and melting, seasonal changes to plants** **Wild Woods**	**Explore forces-superhero cars, push and pull-tug of war** **Wild Woods**	**Make observations of plants and animals.** **Spring/growing plants** **Wild Woods**	**Grow and care for plants from seeds- understanding of life cycles.** **Living things- plants and animals (bones, fossils, etc.)** **Wild Woods**	**Materials and their properties.** **Explore collections of materials and use senses.** **Wild Woods**	
	Reception 'sticky knowledge'	I know about the life cycles of humans. I know how to take care of myself. I know about and can explore my 5 senses I know how to describe people who are familiar to me.	I know about light sources Know what happens when they shine lights on different materials. Know about shadows. Know how a rainbow is formed.	I know about and can feel forces. I know about and can explore how things work I know about and can explore how objects/ materials are affected by forces. I know how to change the way things work.	I know how to grow plants. I know how to watch and observe plants at their different stages of growth. I know how to observe features of plants. I know about the life cycles of minibeasts and animals. I know about and can compare adult animals to their babies.	I know how to grow plants. I know how to watch and observe plants at their different stages of growth. I know how to observe features of plants. I know about the life cycles of minibeasts and animals. I know about and can compare adult animals to their babies.	I know about, and can name and explore a range of materials including natural materials. I know how to make objects from different materials, including natural materials. I know how to observe, measure and record how materials change when heated and cooled (including cooking).	**The Natural World 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 them and contrasting environments, drawing on their experiences and what has been read in class;**
				I know about and can explore how the wind moves objects. I know how objects move in water.	I know how baby animals change over time. I know about the solar system and stars I know about space travel.	I know how baby animals change over time. I know how to name and describe animals that live in different habitats. I know how to describe different habitats.	I know how to compare how materials change over time and in different conditions.	**Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.**
		WILD WOODS I know how to play and explore outside in all seasons and weather. I know how to observe living things throughout the year. I know about and can explore the plants and animals in the surrounding environment. I know about and can explore natural objects from the surrounding environment.						

	**OUTDOOR LEARNING WILD WOODS (NC: Science and Geography)**	**Agreements and boundaries** **Tree climbing** **Den building**	**Sawing-name cookie** **Balancing-rope walk and hammocks** **Tree identification**	**Whittling** **Bird spotting** **Rope swing**	**Layers of the woodland** **Loppers** **Pond Life and Maintenance**	**Hapa Zome-hammering** **Who lives in our woods? Tracks/bug hunting and flowers/plants.**	**Sawing-woodies** **Who lives in our woods? Tracks/bug hunting and flowers/plants.** **Fire lighting** **Water battle**	
		I know the signals to return to base: whistle for emergency, call any other time. I know the boundary of the Wild Woods. I can safely play within the boundary of the Wild Woods. I understand the need for agreements to keep me safe. I can follow the agreements. I can climb/begin to climb the tree (no higher than 1m) I know how to make mini dens for animals, or elves and ensure it is waterproof. I know how to safely move the large logs by dragging them behind. I can work co-operatively to make a 'lean to' den using the logs. I know how to create a ridgeline and hang a tarp. I know that I must wash my hands before eating	I know how to safely hold and use a bow saw (with 1:1 adult support). I can safely balance along a rope walk, holding on with 2 hands and moving one foot at a time. I can climb in and out of the hammock safely. I know the names of some of the trees that grow in our woods.	I know how to safely hold and use a peeler to whittle a stick (independently). I know the name of some of the birds that live in our wood. I can say how I can help to look after birds in winter. I know how to help put up a rope swing. I know how to use the rope swing safely.	I know the different layers of the woodland: Canopy, Shrub, Field, and Ground. I can identify the woodland animals: deer and squirrel I can identify the plants: holly, bramble/nettles, oak tree, bluebells. I know how to safely hold and use loppers to cut (1:1 with support). I know how to be safe around the pond. I can help to maintain the pond area. I can identify some creatures that live in and around the pond.	I know how to safely hold and use a hammer to create a piece of art. I can name some of the plants and flowers that grow in our woods. I can name the different types of wildlife that live in our wood. I can identify different native tracks and name the animal that leaves them.	I know how to safely hold and use a bow saw (more independently). I can name some of the plants and flowers that grow in our woods. I can name the different types of wildlife that live in our wood. I can identify different native tracks and name the animal that leaves them. I can collect the correct types of wood for a fire: tinder, kindling, bigger sticks, branches, logs. I can talk about the safety rules around the firepit. I know how to extinguish a fire. I can talk about fire safety awareness. I know a range of fire safety games.	

Whole School Long Term Plan: Science

Year B	Autumn	Spring	Summer
Year 1 & 2 **Working Scientifically** **Investigation** **Curiosity**	**Animals incl. Humans (Y1)** • Name and label the parts of the human body. • Name the five senses and to perform simple tests to find out more about them. • Identify and name some common animals. • Describe and compare the structure of a variety of common animals. • Identify, name and sort animals that are herbivores, carnivores and omnivores.	**Habitats and homes (Y2)** • Compare the differences between things that are living, dead and have never been alive. • Identify and name a variety of plants and animals and their habitats. • Describe a habitat and identify animals live in it. • Identify how an animal is suited to its habitat. • Explain how living things in a habitat depend on each other. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain	**Plants (Y1)** • Find out what a plant is. • Identify and describe garden plants. • Identify and describe wild plants. • Identify and describe a range of trees. • Identify the different parts of a plant. • Make observations of growing plants. **Properties of materials – seaside objects (Y1) (sorting and classifying)** • Identify and name different materials. • Explain the difference between an object and the materials it is made from. • Describe the properties of everyday materials.

			• Identify which materials have certain properties. • Sort objects by their properties. • Carry out an investigation which tests suitable materials and use observations to make a decision.
Year 3 & 4 **Working Scientifically** **Investigation** **Curiosity**	**Rocks, soils and fossils (Y3)** • Investigate different types of rock • Group rocks based on their properties. • Explain how fossils are formed. • Explain Mary Anning's contribution to palaeontology. • Explain how soil is formed. • Investigate the permeability of different soils. **Teeth/digestive system/food chains (Y4)** • Identify and name parts of the human digestive system. • Explain the functions of the digestive system.	**States of Matter (Y4)** • Sort and describe materials into solids, liquids and gases. • Investigate gases and explain their properties. • Investigate how heating and cooling can change a material's state. • Explore how water can change its state to a solid, liquid or a gas. • Investigate how water evaporates. • Identify and describe the different stages of the water cycle. **All Living Things (Y4)** • Recognise that living things can be grouped in a variety of ways. • Identify vertebrates by observing their similarities and differences.	**Plants (Y3)** • Name the different parts of flowering plants and explain their jobs. • Plant growth investigation • Investigate how water is transported in plants. • Name the different parts of a flower and explain their role in pollination and fertilisation. • Understand and order the stages of the life cycle of a flowering plant.

	• Identify the types and functions of teeth. • Set up an investigation to understand what causes tooth decay. • Make careful observations, record results and use them to develop further investigations. • Construct and interpret food chains.	• Use a key to identify invertebrates. • Show the characteristics of living things in a table and a key. • Identify changes and dangers in the local habitat. • Describe environmental dangers to endangered species.	
Year 5 & 6	**Properties and changes of materials (Y5)** • Compare and group materials according to their properties. • Investigate thermal conductors and insulators. • Investigate which electrical conductors make a bulb shine brightest. • Investigate materials which will dissolve. • Use different processes to separate mixtures of materials. • identify and explain irreversible chemical changes. **Forces (Y5)** • Identify forces acting on objects. • Explore the effect gravity has on objects and how gravity was discovered.	**Earth and Space (10-week unit) (Y5)** • Learn that the solar system is a collection of 8 planets and their moons in orbit around the sun. • Know the order of the planets from the sun is Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. • Learn that Earth rotates on an axis at a tilt at the same time orbiting around the sun. • Know that the sun is in the centre of our solar centre. • Know that orbit is a path an object takes in space when it goes around a star, planet or a moon. • Describe the movement of the Moon relative to the Earth. • Describe the Sun, Earth and Moon as approximately spherical bodies	**Living Things and their habitats (Y5)** • Describe the life process of reproduction in some plants and animals by exploring sexual reproduction in plants. • Plant investigation • Describe the life cycles of different mammals. • Explain what Jane Goodall discovered about chimpanzees. • Compare the life cycles of amphibians and insects. • Compare the life cycles of plants, mammals, amphibians, insects and birds.

	• Investigate the effects of air resistance. • Explore the effects of water resistance. • Investigate the effects of friction. • Explore and design mechanisms	• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.	**All living things (Y6) (Classification)** • Give reasons for classifying animals based on their similarities and differences. • Describe how living things are classified into groups. • Classify a creature based on its characteristics. • Describe and investigate helpful and harmful microorganisms • Identify the characteristics of different types of microorganisms. • Explain the classification of organisms found in my local habitat.

Whole School Plan: Science

Year A	Autumn	Spring	Summer
Class 2 Year 1 & 2 **Working Scientifically** **Investigation** **Curiosity**	**Animals including humans (Y2)** • Match, sort and group young animals and their adults. • Find out how animals change as they grow into adults. • Compare the stages of the human life cycle. • Research and describe what animals, including humans, need to survive. • Investigate the importance of healthy eating and hygiene.	**Seasonal Changes (Y1)** • Explore seasons and the weather associated. • Name all four seasons and describe key features of each. • Compare seasons • Know how day length varies • Investigate rainfall • Investigate how different seasons affect animals.	**Plants (Y2)** • Design and set up a test to find out what plants need to stay healthy. • Look closely at the parts of a seed that will grow into a plant and explain how it will germinate. • Describe the life cycle of a plant. • Explain what plants need to grow and stay healthy. • Describe what happens if plants don't get all the things they need. • Explain how plants are suited to their habitats.

			Uses of everyday materials (Y2) (investigating and problem solving) • Identify uses of different everyday materials. • Identify and group the uses of everyday materials. • Compare the suitability of different everyday materials. • Explain how the shapes of objects made from some materials can be changed. • Explain the process of recycling. • Find out about the inventor John McAdam.
Class 3 **Year 3 & 4**	**Motions and Forces (Y3)** • Identify the forces acting on objects. • Investigate how a toy car moves over different surfaces • Sort magnetic and non-magnetic materials. • Investigate the strength of magnets. • Explore magnetic poles. • Observe how magnets attract some materials.	**Light (Y3)** • Recognise that I need light to see things, and that dark is the absence of light. • Investigate which surfaces reflect light. • Use a mirror to reflect light and explain how mirrors work. • Understand that light from the sun can be dangerous and that there are ways we can protect our eyes.	**Animals including humans: nutrition/skeletons & muscles (Y3)** • Sort foods into food groups and find out about the nutrients that different foods provide. • Explore the nutritional values of different foods by gathering information from food labels. • To sort animal skeletons into groups, discussing

	Electricity (Y4) • Explain ways that electricity is generated. • Identify electrical appliances and the types of electricity they use. • Identify complete and incomplete circuits. • Identify and sort materials into electrical conductors or insulators. • Explain how a switch works and why they are needed. • Switches investigation.	• Investigate which materials block light to form shadows. • Find patterns when investigating how shadows change size. **Sound (Y4)** • Describe and explain sound sources. • Explain how different sounds travel. • Explore ways to change the pitch of a sound. • Investigate ways to absorb sound. • Investigate the best material for absorbing sound. • Find patterns between the pitch of a sound and features of the object that produced it, by making a musical instrument and explaining how it works.	patterns and similarities and differences. • Investigate an idea about how the human skeleton supports movement. • Explain how bones and muscles work together to create movement.
Class 4 Year 5 & 6 Working Scientifically Investigation Curiosity	**Animals including Humans (Y6) (Heart, blood & diet)** • Identify and name the parts of the human circulatory system.	**Electricity (Y6)** • Explain the importance of the major discoveries in electricity. • Observe and explain the effects of differing volts in a circuit. • Understand variations in how components function.	**Evolution and inheritance (Y6) (cont'd)** • Find out about how the work of scientists has helped develop our understanding of the process of evolution.

	• Describe the functions of the main parts of the circulatory system. • Explain how water and nutrients are transported within the body. • Describe how diet and exercise impact on human bodies. • Plan an enquiry that compares and categorises different forms of exercise and by taking accurate pulse measurements to gather data. • Explain the impact of drugs and alcohol on the body. **Light (Y6)** **(Behaviour of light & sight)** • To recognise that light appears to travel in straight lines. • Understand how mirrors reflect light, and how they can help us see objects. • Investigate how refraction changes the direction in which light travels.	• Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. (2 Lessons) **Evolution and inheritance (Y6)** **(Adaptation)** • Explain the scientific concept of inheritance. • Demonstrate understanding of the scientific meaning of adaptation. • Identify the key ideas of the theory of evolution.	• Recognise that living things have changed over time and that a number of factors can affect a species' evolution • Understand how humans have evolved over time, and how human behaviour can affect change in species over time. **Animals, including humans (Y5)** **(Changes from birth)** • Describe the stages of human development. • Explain how babies grow and develop. • Describe and explain the main changes that occur during puberty. • Identify the changes that take place in old age. • Report findings from enquiries, in the context of the gestation period for animals. • Analyse data on gestation periods and life expectancies of animals.

	• Investigate how a prism changes a ray of light. • Investigate how light enables us to see colours. • Explain why shadows have the same shape as the object that casts them.		