



Thorngumbald Primary School **Science Long Term Plan – Progression and Coverage**

	<u>Autumn 1</u>	<u>Autumn 2</u>	<u>Spring</u>	<u>Summer 1</u>	<u>Summer 2</u>
EYFS	<u>Summary</u> Understand some important processes and changes in the natural world around them, including the seasons. To comment and ask questions about aspects of their familiar world. Discuss observations made e.g. plants, animals, natural and found objects on nature walks. Observe the senses and label parts of the body.	<u>Summary</u> Understand some important processes and changes in the natural world around them, including the seasons. Develop an understanding of growth, decay and changes over time. Show care and concern for living things and the environment. Look at changes over time e.g. hibernation and tree changes.	<u>Summary</u> 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. Look closely at similarities, differences, patterns and change. For example, weather patterns and comparison of hot and cold countries. To investigate waterproof materials.	Explore the natural world around them, making observations and drawing pictures of animals and plants. <u>Summary</u> To recognise similarities and differences in relation to places, objects, materials and living things. For example, how some objects float and others sink. To recognise features of environments and how they vary from one another. To develop an understanding of the importance of healthy eating.	Explore the natural world around them, making observations and drawing pictures of animals and plants. <u>Summary</u> To observe animals and plants and explain why things occur and change. To investigate plant growth through planting seeds. To order life cycles.
1	<u>Autumn 1&2:</u> <u>Everyday Materials</u> <u>Summary</u> Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials based on their simple physical properties. <u>Links to prior learning</u> <i>EYFS investigations of materials and some of their properties.</i>		<u>Spring:</u> <u>Animals including humans</u> <u>Summary</u> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees. Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). <u>Links to prior learning</u> <i>EYFS identification of animals now leading onto how these can be grouped.</i>	<u>Summer 1&2:</u> <u>Animals including humans (continued)</u> <u>Summary</u> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>Links to prior learning</u> <i>EYFS looking at the parts of the body.</i> <u>Plants</u> <u>Summary</u> To be able to know and name a variety of common wild and garden plants. <u>Links to prior learning</u> <i>EYFS nature walks introducing children some common plants found in there are.</i>	



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1 (continued)	Seasonal Changes – To be taught throughout the year Summary Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. Links to prior learning <i>EYFS observations of the seasons and changes.</i>			
2	Autumn 1: Animals including humans Summary 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. Links to prior learning <i>Continuing work about healthy eating done in EYFS.</i>	Autumn 2: Living things and their habitats Summary 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, and how they depend on each other Identify and name a variety of plants and animals in their habitats, including microhabitats 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 Links to prior learning <i>Continuing work done in EYFS looking at habitats and how they vary.</i>	Spring: Everyday materials and properties Summary Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Links to prior learning <i>Consolidate and expand on work done in EYFS. In YR 1, children identified materials and could describe physical properties. Now children look at considering how these properties make the material suitable or unsuitable for different uses.</i>	Summer 1&2 Everyday materials and properties Summary Continued from Autumn 1: Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Links to prior learning <i>Continuing work about materials in Spring. Apply knowledge to this new topic area – also focusing on materials of the future.</i> Plants Summary Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Links to prior learning <i>Building on identification done in Year 1 and classification.</i>



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3	Autumn 1: Rocks	Autumn 2: Forces and Magnets	Spring: Animals including humans	Summer 1: Light	Summer 2: Plants
	Summary Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.	Summary Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.	Summary Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Summary Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.	Summary Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they 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.
	Links to prior learning <i>Use knowledge of grouping from Yr 1 and 2 to consider ways to group and compare properties.</i>	Links to prior learning <i>Building on grouping of materials done in Year 2 based on their properties.</i>	Links to prior learning <i>Links to diet and health in Yr 2 and the requirements of animals including humans to survive and be healthy.</i>	Links to prior learning <i>Applying understanding of ways to protect and look after our bodies and skills from Year 2 of finding links and patterns.</i>	Links to prior learning <i>Building on Yr 2 work about the requirements of plants to live and grow.</i>



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4	Autumn 1: Animals including humans <u>Summary</u> Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey. <u>Links to prior learning</u> <i>Building on Y2 simple food chains and sources of food.</i>	Autumn 2: States of Matter <u>Summary</u> Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <u>Links to prior learning</u> <i>Year 2/3 skills of comparing and grouping materials together based on their properties</i>	Spring: Electricity <u>Summary</u> Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. <u>Links to prior learning</u> <i>Link to properties of materials in KS1, children will be able to associate being conductive with metal.</i>	Summer 1: Sound <u>Summary</u> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases. <u>Links to prior learning</u> <i>Using Year 3 skill of finding links and patterns. Knowledge from KS1 of our bodies to understand how our ears are used to hear.</i>	Summer 2: Living things and their habitats <u>Summary</u> Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. <u>Links to prior learning</u> <i>Building on YR 2 work on habitats and classification with given classification keys.</i>
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5	Autumn 1: Forces	Autumn 2: Earth and Space	Spring: Properties and their materials	Summer 1: Animals including Humans	Summer 2: Living things and their habitats
	<u>Summary</u> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <u>Links to prior learning</u> <i>Year 3 how objects move on different surfaces.</i>	<u>Summary</u> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <u>Links to prior learning</u> <i>Children understand how daylight changes over different seasons and are now looking at changes over the course of a day and reasons for these changes.</i>	<u>Summary</u> Compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. <u>Links to prior learning</u> <i>Building on Yr 2-3 to compare and group materials and objects.</i>	<u>Summary</u> Describe the changes as humans develop to old age. <u>Links to prior learning</u> <i>Building on Yr 1 and 2 to identify features of the body that change and moving on to more complex and internal changes.</i>	<u>Summary</u> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals. <u>Links to prior learning</u> <i>Building on from Yr 3 life cycles of plants.</i>



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6	Autumn 1: Animals including Humans	Autumn 2: Electricity	Spring: Light:	Summer 1: Evolution and Inheritance	Summer 2: Living things and their habitats
	Summary Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans. <u>Links to prior learning</u> <i>Diet from Year 2-3</i>	Summary Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 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. Use recognised symbols when representing a simple circuit in a diagram. <u>Links to prior learning</u> <i>Increasing complexity of circuits from Yr 4</i>	Summary Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. <u>Links to prior learning</u> <i>Building on Yr 3 how light travels and is reflected.</i>	Summary Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <u>Links to prior learning</u> <i>Adaptation in Yr 2 looked at how animals are suited to their environments. Now children are looking at how these adaptations can lead to evolution.</i>	Summary Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. <u>Links to prior learning</u> <i>More broad classification leading on from Yr 1, 2 and 4.</i>