Yew Tree Primary School

SCIENCE CURRICULUM OVERVIEW

RESPONSIBILITY:
We are responsible for what we do – if it's to be, it's up to me! We are prepared, organised and recognise consequences of our actions on ourselves and others.

RESPECT:
We are respectful by treating others how we wish to be treated – using manners, being thoughtful, kind and celebrating diversity

COURAGE:
We are brave and we take chances. We develop resilience to keep going even when things are tough. We face our fears and we are not afraid to make mistakes.

AMBITION:
We believe we can achieve in anything that we put our mind to. We aim high, love learning, have a positive 'can do' attitude and aim to be the best!

PRIDE:
We are proud of who we are and where we are from. We believe in our abilities and celebrate our success. We are a family at Yew Tree!

Intent	**Curriculum Aim**	To offer a broad, balanced & inclusive curriculum which acts as a starting point to stimulate awe, wonder & curiosity and which encompasses 'Learning Without Limits' so that children are empowered and able to achieve their full potential.	**What does this mean for Science** **What does this subject area offer our curriculum?** A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. **What are the key features of this subject area?** Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. **What should this subject look like in our curriculum?** Children should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.
	Curriculum Objectives	• To develop the child as a responsible and confident citizen who is prepared to live in an ever-changing and diverse world. • To develop the child as an individual who embraces challenge and makes the most of every opportunity to learn. • To develop the child as a life-long learner who has a range of skills, which ensure a high level of achievement.	

Yew Tree Primary School
Science Key Skills & Knowledge Overview

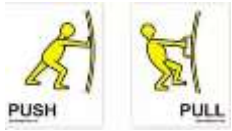
Term / Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	TOPIC 1	TOPIC 2	TOPIC 3	TOPIC 4	TOPIC 5	TOPIC 6
YN	**Me and My Community / Exploring Autumn**  **Key skills** Care for growing seeds and plants and describe observables features of different types of plants and trees. Plants seeds and care for growing plants. Begin to understand the need to respect and care for the natural environment and all living things	**Once Upon a Time / Sparkle and Shine**  **Key skills** Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about the difference between materials and changes they notice.	**Starry Night / Winter Wonderland**  **Key skills** Begin to understand the need to respect and care for the natural environment and all living things Name a variety of domestic and wild animals. Make simple comparisons between objects and materials, such as bigger and smaller, and softer and harder Begin to talk about and name the body parts of common animals, including pets	**Dangerous Dinosaurs / Puddles and Rainbows**  **Key skills** Understand the key features of the life cycle of a plant and an animal . Talk about some of the things that they have observed using simple scientific vocabulary. Make a shadow bigger or smaller using toys, play equipment and a light source. Say what the daily weather is like	**Sunshine and Sunflowers / Reflections**  **Key skills** Understand the key features of the life cycle of a plant and an animal Begin to understand the need to respect and care for the natural environment and all living things Begin to observe and talk about living things in the local environment Care for growing seeds and plants and describe observable features of different	**Sunshine and Sunflowers / Reflections**  **Key skills** Understand the key features of the life cycle of a plant and an animal Begin to understand the need to respect and care for the natural environment and all living things Ask or answer a simple scientific question.

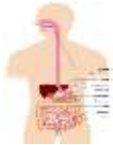
			Talk about things they can do on winter evenings and things they can do on summer evenings and begin to notice the difference in day length Describe simply how weather changes as the seasons change Talk about some of the things that they have observed using simple scientific vocabulary.		types of plants and trees.	
EYFS	**TOPIC 1**		**TOPIC 2**	**TOPIC 3**		**TOPIC 4**
YR	**Let's Explore and Build it up**  **Key skills** With support, observe, record and talk about materials and living things. Compare and group objects and materials according to simple given criteria. Observe and describe living things and their habitats within the local environment.		**Long Ago and Stories and Rhymes**  **Key skills** Describe simply how weather changes as the seasons change. Recognise and discuss how they have changed from when they were babies. Name and sort everyday items into groups of the same material.	**Ready Steady grow**  **Key skills** Represent scientific observations by mark making, drawing or creating simple charts and tables. Offer explanations for why things happen, making use of vocabulary, such as, because, then and next. Record observations about the way the local environment changes throughout each season.		**Animal Safari**  **Key skills** Identify common features for different groups of animals, including wild and domestic animals. With support, observe, record and talk about materials and living things. Match animals to their young. Match animals to the foods that they eat.

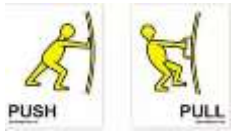
			Explore the natural world around them and give simple descriptions, following observation, of changes. Describe simply how weather changes as the seasons change. With support, observe, record and talk about materials and living things.	Identify common features for different groups of animals, including wild and domestic animals. Observe and describe living things and their habitats within the local environment. Represent scientific observations by mark making, drawing or creating simple charts and tables. Offer explanations for why things happen, making use of vocabulary, such as, because, then and next.

KS1 and KS2	TOPIC 1	TOPIC 2	TOPIC 3	TOPIC 4	TOPIC 5
Y1	**Identifying Plants** (Plants) Name a variety of plants, identifying evergreen and deciduous trees. Know the basic structure of plants and trees.  **Key Skills** Making observations and simple comparisons between different types of plants and their roots. Recording observations of growing plants Planning simple investigations with support.	**Materials** (Everyday materials) Name what objects are made from and identify simple physical properties of everyday materials.  **Key Skills** Compare and group together a variety of everyday materials on the basis of their simple physical properties. Perform simple tests. Identify and classify materials based on their properties e.g. Which materials are waterproof?	**My Body** (Animals, inc humans) Name basic parts of the body and identify senses.  **Key Skills** Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Performing simple tests e.g. What is in the mystery box? What sense am I going to use to find out?	**Seasonal Changes** Observe changes across the 4 seasons and observe and describe weather.  **Key Skills** Describe changes across the four seasons Observe and describe weather associated with the seasons and how the seasons affect humans. Describe how day length varies.	**Identifying animals** (Animals, inc humans) Name common animals and identify herbivores and omnivores. Name basic parts of the body and identify senses.  **Key Skills** Asking simple questions and recognising that they can be answered in different ways observing closely features of different mammals. Identifying common herbivores and omnivores using simple classifications.

Y2	**Exploring everyday materials** (Uses of everyday materials) Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, and rock, paper and cardboard for particular uses. Explore how materials can be changed by squashing, bending, twisting and stretching  **Key Skills** Asking simple questions and recognising that they can be answered in different ways. Performing simple tests such as which materials are easiest to squash/bend/twist? Identify and classify materials using own criteria based on properties.	**Super Scientists** Research a range of scientists and how there work has impacted on today's world. Scientists include Isaac Newton  **Key Skills** Asking simple questions and recognising that they can be answered in different ways e.g. What happens to light as it passes through different objects? Observing closely, using simple equipment. Performing simple tests such as the effects of gravity using different materials. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions record in simple tables/graphs	**Growth and Survival** (Animals inc humans) Find out about and describe the basic needs of animals, including humans, for survival (water, food, air), describe the importance of exercise and that animals have off spring.  **Key Skills** Identifying and classifying animal groups e.g. animals that give birth to live young or lay eggs. Using ideas to suggest answers to questions. E.g. Are older children always tallest? Gather and record data using simple equipment such as tape measure / meters rulers to record findings.	**Growing Plants** (Plants) Describe how plants grow and stay healthy (water, light and temperature) Observe and describe how seeds and bulbs grow into mature plants.  **Key Skills** Making observations and simple predictions. E.g. How many seeds do you think this fruit has? Recording observations Planning investigations with support E.g. What conditions affect germination?	**Living in Habitats** (Living things and their habitats) Explore and compare the differences between things that are living, dead, and things that have never been alive Identify and name a variety of plants and animals in their habitats, including micro- habitats. To explore food chains in habitats.  **Key Skills** Record observations of habitats in writing and drawing. Suggest answers to questions e.g. Why does this animal live here? Identify and classify animals living in different habitats. E.g. animals live by the seaside? Compare differences between habitats and microhabitats. Which

Y3	Rocks, fossils and soils (Rocks)	Forces and magnets	Health and movement (Animals inc humans)	Light and Shadow (Light)	How plants grow (Plants)
	Compare and group together different kinds of rocks. Recognise that soils are made from rocks and organic matter Describe how fossils are  **Key Skills** Set up simple practical enquiries, comparative and fair tests- erosion of rocks. Make careful observations of rocks. Group and classify rocks using Venn and Carroll diagrams. Taking accurate measurements using standard units e.g. Which soil sample is the most absorbent using ml/l. Gather record, classify and presenting data in a variety of ways – soil samples. Record findings using simple scientific language, drawings, labeled diagrams, keys, bar charts, and tables. Use straightforward scientific evidence to answer questions or to support their findings	Compare how things move on different surfaces, describe if magnets attract or repel depending on their poles, compare and groups materials depending whether they are attracted to a magnet.  **Key Skills** Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and predictions E.g. How do objects move on different surfaces. Taking accurate measurements using standard units, using a range of equipment. Including bar magnets. Gather, record and classify findings e.g. Which materials are magnetic? . Record findings using simple scientific language, drawings, labeled diagrams, keys, bar charts, and tables.	Identify that animals, including humans, need the right types and amount of nutrition. Identify humans and some other animals have skeletons and muscles for support, protection and movement  **Key Skills** Ask relevant questions and using different types of scientific enquiries to answer them. Gather, record, classify and present data in a variety of ways to help in answering questions. E.g. Which foods hold the most nutrition and why? What muscles help us to move? Record findings using simple scientific language, drawings, labeled diagrams, keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, display or present results and conclusions.	Recognise that they need light in order to see things Notice that light is reflected from surfaces Explore how shadows are formed and find patterns in shadows. Recognise light from the Sun can be dangerous  **Key Skills** Set up simple practical enquiries, comparative and fair tests – Comparing shadows and made by different materials How can shadows move? Shadows through the day. Make systematic and careful observations. Taking accurate measurements using standard units, using a range of equipment – measuring the length of shadows. Gather record, classify and presenting data in a variety of ways. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables .	Identify and describe the functions of different parts of flowering plants. Explore the requirements of plants for life and growth. Investigate the way in which water is transported within plants Explore the role of flowers in the life cycle of flowering plants,  **Key Skills** Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations e.g. How do plants take up water? What are the functions of leaves in flowering plants? Taking accurate measurements using standard units, using a range of equipment, meter sticks, rulers. Gather record, classify and presenting data in a variety of ways E.g. which seeds come from air dispersal/animal dispersal. Record findings using simple scientific language, drawings, labeled diagrams, keys, bar charts, and tables. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

Y4	**Living in environments** (Living things and their habitats)	**Circuits and Conductors** (Electricity)	**Changing Sounds** (Sound)	**Eating, digestion and teeth** (Animals inc humans)	**States of matter**
	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys. Look at changes to environments and habitats.  **Key Skills** Make systematic and careful observations and, where appropriate. Gather, record, classify and present data in a variety of ways to help in answering questions. E.g. How can we classify and group these animals based on their characteristics. Using classification keys. Record findings using simple scientific language, drawings, labelled diagrams, keys, and tables.	Identify common appliances that run on electricity. Construct a simple series electrical circuit Identify whether or not a lamp will light in a simple series circuit Recognise that a switch opens and closes a circuit. Recognise some common conductors and insulators, and associate metals with being good conductors  **Key Skills** Ask relevant questions and using different types of scientific enquiries to answer them Set up simple practical enquiries. Make systematic and careful observations; take accurate measurements using standard units, using a range of equipment, including batteries, bulbs, buzzers etc. Gather record, classify and present data in a variety of ways. Record findings using simple scientific language e.g. This component won't work in this circuit because it is an insulator. Draw, label diagrams, of electrical circuits. Use results to draw simple conclusions, make predictions for new values, and suggest improvements e.g. How powerful were the switches in your circuit? How could you improve the conductivity? Raise further questions.	Identify how sounds are made. Recognise that vibrations travel through a medium. Sounds get fainter as the distance from the sound source increases. Find patterns between the pitch of a sound and between the volume of a sound.  **Key Skills** Ask relevant questions and using different types of scientific enquiries to answer them E.g. Which materials do not allow sound to pass through them easily? Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations; take accurate measurements using standard units, using a range of equipment, buzzers, and clocks including meter sticks, tape measure, and rulers. Gather record, classify and present data in a variety of ways. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Use results to draw simple conclusions The material best for soundproofing is… this is because…	Describe 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  **Key Skills** Ask relevant questions and using different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests. Record findings using mirrors. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. E.g. Which organs are associated with the digestive system and why?	Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state Identify the part played by evaporation and condensation in the water cycle.  **Key Skills** Set up simple practical enquiries, comparative and fair tests. Gather, record, classify and present data in a variety of ways to help in answering questions. Use a range of equipment such as measuring cylinders, beakers, water, jugs using standard units ml/l Compare and group materials according to a solid or liquid. Record findings using simple scientific language e.g. some materials vary in viscosity such as cotton wool and sand. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further question

Y5	**Forces in Action** (Forces) Explain that unsupported objects fall towards the Earth because of the force of gravity Identify the effect of air resistance, water resistance and friction. Recognise that some allow a smaller force to have a greater effect of gravity.  **Key Skills** Plan different types of scientific enquiries to answer questions, E.g. Why do objects fall towards the center of the earth? Controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. E.g. How can we investigate which of these surfaces has the most friction and so would make moving an object on it the most difficult? Record data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphs. Report and presenting findings from enquiries e.g. The effects of water resistance are…	**Properties and changes of materials** Compare and group together everyday materials. Know that some materials will dissolve. Use solids, liquids and gases to decide how mixtures might be separated. Explain that some changes result in the formation of new materials,  **Key Skills** Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary .E.g Which materials 'dissolve', 'react', become a 'solution' or 'soluble' when mixed? Which variables are they changing? How will the test be fair? Report and present findings from enquiries, including conclusions.	**Life Cycles** (Living things and their habitats) Describe the difference 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  **Key Skills** Record data and results of increasing complexity using scientific diagrams, scatter graphs, e.g. Animal Offspring Report and present findings from enquiries, E.g. Describe the life process of sexual and a sexual reproduction in flowering plants? Including conclusions, causal relationships and explanations. Identify scientific evidence that has been used to support or refute ideas or arguments. E.g. the life cycle of animals in our local environment compared to with animals around the world are different/ similar because…	**Changes and reproduction** (Animals inc humans) Describe the changes as humans develop to old age  **Key Skills** Plan different types of scientific enquiries to answer questions E.g. explain some of the physical changes that occur at different stages in the life cycle of humans? Identify scientific evidence that has been used to support or refute ideas or arguments E.g. Evidence suggests ways inn which older people can stay fit and healthy are… I refute or agree with these because...	**Earth and Space** Describe the movement of the Earth, and other planets relative to the Sun. Describe the movement of the Moon relative to the Earth. Explain day and night.  **Key Skills** Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs, take measurements using rulers and compasses. Give clear explanations and scientific reasoning E.g. Explain why night and day do not happen at the same time in different parts of the world?

Y6	**Classifying organisms** (Living things and their habitats) Describe how living things are classified into broad groups according to characteristics. Give reasons for classifying plants and animals based on specific characteristics  **Key Skills** Plan different types of scientific enquiries to answer questions, including recognising and controlling variables-E.g. Yeast experiment. Record data and results of increasing complexity using scientific diagrams and labels, classification keys E.g. grouping organisms based on their characteristics, tables, scatter graphs, bar and line graphs. Report and present findings from enquiries, E.g. Explain the difference between vascular and non-vascular plants? Including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	**Seeing Light** (Light) Recognise that light appears to travel in straight lines. Explain that light travels in straight lines. Explain how we see things. Explain how shadows are formed and why shadows have the same shape as the objects that cast them  **Key Skills** Plan different types of scientific enquiries to answer questions, E.g. do all objects create a shadow? What happens when the object is moved further away from the torch? Including recognising and controlling variables where necessary. Report and present findings from enquiries, E.g. How can light be reflected and changed direction? Draw conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	**Evolution and inheritance** Recognise that living things have changed over time. Recognise that living things produce offspring of the same kind, but vary. Identify how animals and plants are adapted to suit their environment.  **Key Skills** Report and present finding from enquires, E,G explain why. characteristics are more likely to be passed from generation to generation? Including conclusions, causal relationships and explanations. Identify scientific evidence that has been used to support or refute ideas or arguments.	**Changing Circuits** (Electricity) 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 n how components function. Use recognised symbols when representing a simple circuit in a diagram  **Key Skills** Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary E.g. To investigates ways in which the brightness of a bulb or speed of a motor is changed. Report and present findings from enquiries, E.g. create a circuit for a particular use. Including conclusions, causal relationships and explanations, in oral and written forms such as displays and other presentations.	**Healthy Bodies** (Animals inc humans) Identify and name the main parts of the human circulatory system. Recognise the impact of diet, exercise, drugs and lifestyle. Describe the ways in which nutrients and water are transported within animals, including humans  **Key Skills** Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. E.g. Which is the highest fat/protein/carbohydrate content that you can find?' 'Which is the healthiest/unhealthiest ready-meal find?' Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Report and present findings from enquiries, including conclusions, E.g. The circularity system transports blood and nutrients to different parts of the body by