



Science Year Group Knowledge Overview

Autumn 1

Autumn 2

Spring 1

Spring 2

Summer 1

Summer 2

EYFS

- 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 own experiences and what has been read in class.
- Understand some processes and changes in the natural world around them including the seasons and changing states of matter.

Willow Class
(Year 1)

Changing Seasons introduction

- name the four seasons
- describe weather associated with the seasons and how day length varies.

Identifying Materials

- 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.

Comparing Materials

- know 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.

Types of Animals

- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- can explain the terms- carnivores, herbivores and omnivores. Be able to name a variety of common animals for each group.

Parts of Animals

- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
- identify, name, draw and label the basic parts of the human body.
- be able to say which part of the body is associated with each sense.

Plants

- 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.

Maple Class
(Year 2)

Changing Shape

- know the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Uses of Materials

- identify and compare the suitability of a variety of everyday materials for particular uses.

Living Things

- compare the differences between things that are living, dead, and things that have never been alive
- know that animals, including humans, have offspring which grow into adults

Habitats

- identify that most living things live in habitats to which they are suited
- Know habitats provide the basic needs of different animals and plants,

Feeding and Exercise

- know how animals obtain their food from plants and other animals, using the idea of a simple food chain,
- describe the basic needs of animals, including humans, for

Growing Plants

- describe how seeds and bulbs grow into mature plants
- be able to describe how plants need water, light and a suitable temperature to grow and stay healthy.

				• identify and name a variety of plants and animals in their habitats, including micro-habitats.	survival (water, food and air) • be able to explain the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	
Year 3	<u>Movement and Feeding</u> • know 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 • be able to explain that humans and some other animals have skeletons and muscles for support, protection and movement.	<u>Magnets and Forces</u> • know that some forces need contact between two objects, but magnetic forces can act at a distance • explain how magnets attract or repel each other • be able to group a variety of everyday materials on the basis of whether they are attracted to a magnet • know magnets as having two poles	<u>Rocks and Soils</u> • know how to 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 • know that soils are made from rocks.	<u>Light and Shadows</u> • know 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 • understand how shadows are formed and the size of these can change	<u>What Plants Need</u> • be able to explain 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.	<u>Parts of Plants</u> • describe the functions of different parts of flowering plants: roots, stem/ trunk, leaves and flowers • understand the way in which water is transported within plants • know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
Year 4	<u>Human Nutrition</u> • know and describe the simple functions of the basic parts of the digestive system in humans • name and identify the different types of teeth in humans and their simple functions.	<u>Grouping Living Things</u> • know that living things can be grouped in a variety of ways • be able to use classification keys to group, identify and name a variety of living things in their local and wider environment.	<u>Dangers to Living Things</u> • recognise that environments can change and that this can sometimes pose dangers to living things • be able to explain, construct and interpret a variety of food chains,	<u>Sound</u> • explain how sounds are made, associating some of them with something vibrating • know that vibrations from sounds travel through a medium to the ear • know what pitch means and how it can be altered	<u>Electricity</u> • identify common appliances that run on electricity • be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	<u>Changes of State</u> • compare and group materials together, according to whether they are solids, liquids or gases • know that some materials change state when they are heated or cooled • measure the temperature at which

			identifying producers, predators and prey.	• explain how the volume of a sound relates to the strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases.	• identify whether or not a lamp will light in a simple series circuit, • know that a switch opens and closes a circuit • recognise some common conductors and insulators	this happens in degrees Celsius (°C) • explain the part played by evaporation and condensation in the water cycle, relating the speed with temperature.
Year 5	<u>Forces</u> • explain that unsupported objects fall towards the Earth because of the force of gravity • know 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>Separating Mixtures</u> • know that some materials will dissolve in liquid to form a solution • how to recover a substance from a solution • describe how mixtures might be separated, including through filtering, sieving and evaporating.	<u>Types of Change</u> • know that dissolving, mixing and changes of state are reversible changes • explain that some changes result in the formation of new materials, including changes associated with burning and the action of acid on bicarbonate of soda.	<u>Earth and Space</u> • know how the movement of the Earth, and other planets, relates to the Sun in the solar system • be able to explain the movement of the Moon relative to the Earth • describe the Sun, Earth and Moon as approximately spherical bodies • explain how day and night are formed related to the apparent movement of the sun across the sky.	<u>Life Cycles</u> • be able to explain 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 • describe the changes that happen as humans develop to old age.	<u>Materials</u> • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • use evidence to give reasons for the particular uses of everyday materials, including metals, wood and plastic.
Sycamore (Year 6)	<u>Light and Sight</u> • know that light appears to travel in straight lines and with this, objects are seen because they give out or reflect light into the eye	<u>Changing Circuits</u> • know the brightness of a lamp or the volume of a buzzer changes with the number and voltage of cells used in the circuit	<u>Our Bodies</u> • identify and name the main parts of the human circulatory system • describe the functions of the heart,	<u>Evolution and Inheritance</u> • recognise that living things have changed over time and that fossils provide information about living things that	<u>Classifying Living Things</u> • describe how living things are classified into broad groups according to common observable characteristics and	<u>Review and celebration</u> This unit differs from other units. Its purpose, is to allow children to review what they have learned in science

	• 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 • know how shadows are formed and they have the same shape as the objects that cast them.	• give reasons for variations in how components function • be able to draw a simple circuit diagram and use recognised symbols.	blood vessels and blood • know 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.	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 • know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	based on similarities and differences, including micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics.	throughout Key Stage 2, before moving on to Key Stage 3.
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This is planned using Pearson's Science Bug scheme of work.

Due to the mixed aged classes, the year3-5 units will be taught on a rolling programme to ensure the children study the whole of the Science curriculum, during their time in key stage two at Thornton Primary School.