Science Overview

EYFS – Foundation Stage 1

Animals Including Humans

Natural Science – Biology
Key Concept – Animals
Curricular Goal
Pupils can talk about the changes they observe as they watch a caterpillar grow into a butterfly
Learning Objectives
- To be able to understand the key features of the life cycle of an animal.
- To begin to understand the need to respect and care for the natural environment and all living things.

Plants

Natural Science – Biology
Key Concept – Parts of a Plant
Curricular Goal
Pupils can talk about the changes they observe after they have planted a seed and watch a plant grow
Learning Objectives
- To be able to plant seeds and care for growing plants.
- To understand the key features of the life cycle of a plant
- To begin to understand the need to respect and care for the natural environment and all living things

Everyday Materials

Natural Science – Chemistry
Key Concept – Change
Curricular Goal
Pupils can use their sense of touch to explore materials and talk about how they are different
Pupils can talk about what happens when they push and pull an object
Learning Objectives
- To be able to talk about the differences between materials and changes they notice
- To be able to explore how things work
- To be able to explore and talk about different forces they can feel

EYFS – Foundation Stage 2

Animals Including Humans

Natural Science – Biology
Key Concept – Animals
Curricular Goal
Pupils can talk about different animals both in the natural world around them and in other contrasting environments.
Learning Objectives
- To be able to explore the natural world around them, making observations and drawing pictures of animals

Plants

Natural Science – Biology
Key Concept – Parts of the Plant
Curricular Goal
Pupils can describe what they observe as a seed grows into a plant. Pupils can describe what a plant needs to be healthy.
Pupils can explore planting seeds in different places
Learning Objectives
- To be able to explore the natural world around them, making observations and drawing pictures of plants

Everyday Materials

Natural Science – Chemistry
Key Concept – Change/ Materials
Curricular Goal
Pupils can talk about what they observe when ice is melting in different places
Pupils can explore the strength of materials when building a house for the Three Little Pigs
Pupils can explore floating and sinking when making a boat for a Pirate
Learning Objectives
- To understand some important processes and changes in the natural world around them, including changing states of matter

Seasonal Change

Natural Science – Physics
Key Concept – Change
Curricular Goal
Pupils can name the seasons and describe some changes to the natural world as the seasons change
Learning Objectives
- To understand some important processes and changes in the natural world around them, including the seasons

All Living Things and their Habitats

Natural Science – Biology
Key Concept – Habitats
Curricular Goal
Pupils can describe different environments explaining some similarities and differences between them and can compare them to where they live.
Learning Objectives
- To 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

Year 1

Animals Including Humans

Natural Science – Biology
Key Concept – Parts of the Body
Curricular Goal 1:
Label the parts of the human body, making links to the senses
Curricular Goal 2:
Classify animals according to their animal groups
Learning Objectives
- To identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals
- To know and classify animals by what they eat (carnivore, herbivore and omnivore)
- To be able to describe and compare the structure of a variety of common animals
- To be able to identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Plants

Natural Science – Biology
Key Concept – Parts of a plant
Curricular Goal:
Make observations of plants and know and name the main parts of them
Learning Objectives
- To know and name a variety of common and wild garden plants, including deciduous and evergreen trees
- To know and name the petals, stem, leaves and root of a plant
- To know and name the roots, trunk, branches and leaves of a tree

Everyday Materials

Natural Science – Chemistry
Key Concept – Properties of Materials
Curricular Goal:
Test which materials could be used to make a house
Learning Objectives
- To be able to distinguish between an object and the material from which it is made
- To be able to identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock
- To know about the properties of everyday materials
- To be able to compare and group together a variety of everyday materials based on their simple physical properties (hard/soft, stretchy/stiff, waterproof/not waterproof, rough/smooth)

Seasonal Change

Natural Science – Physics
Key Concept – Change
Curricular Goal:
To observe and describe changes in the four seasons, including the weather and how the day length varies.
Learning Objectives
- To be able to name the seasons and know about the type of weather in each season
- To be able to observe and describe how the day length varies in the four seasons.

Year 2

Animals Including Humans

Natural Science – Biology
Key Concept – Lifecycles
Curricular Goal 1: Describe how to become a healthy person.
Curricular Goal 2: Describe the lifecycles of chicks and humans and know how they are different
Learning Objectives
- To know the basic stages in a life cycle for animals, (including humans)
- To be able to find out about and describe the basic needs of animals, including humans, for survival
- To know why exercise, a balanced diet and good hygiene are important for humans

Plants

Natural Science – Biology
Key Concept – Plants needs
Curricular Goal: Describe the life of a healthy plant
Learning Objectives
- To know and explain how seeds and bulbs grow into plants
- To know what plants need in order to grow and stay healthy

Everyday Materials

Natural Science – Chemistry
Key Concept – Properties of Materials
Curricular Goal: Identify and compare the properties of materials and select the most suitable materials for different purposes.
Learning Objectives
- To know why a material might or might not be used for a specific job
- To know how materials can be changed by squashing, bending, twisting and stretching

All Living Things and their Habitats

Natural Science – Biology
Key Concept – Food chains
Curricular Goal: To explain how habitats provide ideal conditions for living things, giving specific examples and including the food chain.
Learning Objectives
- To be able to classify things by living, dead or never lived
- To know how a specific habitat provides for the basic needs of things living there (plants and animals)
- To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats
- To be able to name some different sources of food for animals
- To know about and explain a simple food chain

Year 3

Animals Including Humans

Natural Science – Biology
Key Concept – Healthy Bodies
Curricular Goal: To describe the role of the skeleton and muscular system, giving specific examples.
Learning Objectives
- To know about the importance of a nutritious, balanced diet
- To know about the skeletal and muscular system of a human

Plants

Natural Science – Biology
Key Concept – Water transportation in plants
Curricular Goal: To explain why each part of a plant is vital to its survival.
Learning Objectives
- To be able to identify and describe the function of different parts of a flowering plant
- To be able to explore the requirements of plants for life and growth (air, light, water, nutrients from the soil, room to grow) and how they vary from plant to plant.
- To investigate how water is transported within plants
- To know the plant life cycle, especially the importance of flowers

Rocks

Natural Science – Chemistry
Key Concept – Rocks and Soils
Curricular Goal: To use relevant scientific language to explain how rocks are classified and to describe the different types of rocks. (Quiz)
Learning Objectives
- To be able to compare and group rocks based on their appearance and physical properties, giving reasons
- To be able to describe how soil is made
- To be able to describe how fossils are formed
- To know about and explain the difference between sedimentary, metamorphic and igneous rock

Forces

Natural Science – Physics
Key Concept – Forces in motion
Curricular Goal: To explain the patterns in the way magnets, behave with each other and with other everyday materials.
Learning Objectives
- To be able to compare how objects move on different surfaces
- To be able to observe which materials magnets attract and which materials they do not
- To be able to compare and group together materials based on whether they are attracted to a magnet
- To know how some forces require contact but magnetic forces do not
- To know about and explain how magnets attract and repel
- To be able to predict whether magnets will attract or repel and give reasons

Light

Natural Science – Physics
Key Concept – Shadows
Curricular Goal: To be able to evidence that light travels in a straight line, giving specific examples.
Learning Objectives
- To know that dark is the absence of light
- To know that light is needed in order to see and is reflected from a surface
- To know and demonstrate how a shadow is formed and explain how a shadow changes shape
- To be able to find patterns in the way that the size of a shadow changes
- To know about the danger of direct sunlight and describe how to keep eyes protected

Year 4

Animals Including Humans

Natural Science – Biology
Key Concept – Digestion and teeth
Curricular Goal: To describe the journey food takes through the human body.
Learning Objectives
- To be able to identify and name the parts of the human digestive system
- To describe the simple functions of the basic parts in the human digestive system
- To be able to identify and know the different types of human teeth and their simple functions
- To be able to construct and interpret food chains to identify producers, predators and prey

States of Matter

Natural Science – Chemistry
Key Concept – Melting points and the water cycle
Curricular Goal: To use relevant scientific language to explain how, why and when materials change state (Quiz)
Learning Objectives
- To compare and group materials together, according to whether they are solids, liquids or gases
- To know the temperature at which materials change state
- To know about and explore how some materials can change state
- To know the part played by evaporation and condensation in the water cycle
- To test how temperature is associated with the rate of evaporation

Electricity

Natural Science – Physics
Key Concept – Constructing circuits
Curricular Goal: To construct a simple series circuit for use in an everyday item.
Learning Objectives
- To be able to identify and name appliances that require electricity to function
- To be able to construct a series circuit
- To be able to identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)
- To be able to predict and test whether a lamp will light within a circuit
- To know the function of a switch
- To know the difference between a conductor and an insulator; giving examples of each

Sound

Natural Science – Physics
Key Concept – Hearing
Curricular Goal: To be able to explain why different objects produce different sounds, giving examples.
Learning Objectives
- To know how sound is made, associating some of them with something vibrating
- To know how sound travels from a source, through a medium to our ears
- To identify the patterns between the pitch of a sound and the features of the object that produced it
- To know the correlation between the volume of a sound and the strength of vibrations that produced it
- To know what happens to a sound as it travels away from its source

All Living Things and their Habitats

Natural Science – Biology
Key Concept – Classification
Curricular Goal: To explain how humans have impacted animal habitats in the local area, detailing the positive and negative impact on the different types of animals.
Learning Objectives
- To be able to recognise that living things can be grouped in different ways
- To be able to use classification keys to group, identify and name living things
- To know how changes to an environment could endanger living things

Year 5

Animals including Humans

Natural Science – Biology
Key Concept – Gestation in the animal kingdom
Curricular Goal: To recall the changes as humans develop to old age, including puberty (Quiz)
Learning Objectives
- To be able to describe the changes as humans develop to old age using a timeline
- To be able to describe the changes as humans experience puberty

Properties and changes in materials

Natural Science –Chemistry
Key Concept – Changes of state
Curricular Goal: To predict and test which materials are soluble and which are not, recording results in a table.
Learning Objectives
- To be able to compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets
- To be able to give reasons for the particular uses of everyday materials including metals, woods and plastic (Comparative and fair testing)
- To know and explain how a material dissolves to form a solution
- To know and show how to recover a substance from a solution
- To know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating)
- To know and demonstrate that some changes are reversible, and some are not
- To know how some changes results in the formation of a new material and that this is usually irreversible

Earth and Space

Natural Science – Physics
Key Concept – Our place in the solar system
Curricular Goal: To explain the structure and movement of the solar system.
Learning Objectives
- To know about and explain the movement of the Earth and other planets relative to the Sun
- To know about and explain the movement of the Moon relative to the Earth
- To know and demonstrate how night and day are created
- To be able to describe the Sun, Earth and Moon (using the term spherical)

Forces

Natural Science – Physics
Key Concept – Gravity/Friction
Curricular Goal: Use relevant scientific language and illustrations to prove that friction would not exist without gravity.
Learning Objectives
- To know what gravity is and its impact on our lives
- To be able to identify and know the effect of air and water resistance
- To be able to identify and know the effect of friction
- To be able to explain how levers, pulleys and gears allow a smaller force to have a greater effect

All Living Things and their Habitats

Natural Science – Biology
Key Concept – Life Cycles
Curricular Goal: To describe how different plants and animals (from the local area and abroad) reproduce and go through their life cycle. (Quiz)
Learning Objectives
- To know the life cycles of a mammal, an amphibian, an insect and a bird
- To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- To know the process of sexual and asexual reproduction in plants
- To know the process of sexual reproduction in animals

Year 6				
Animals including Humans	**Evolution and Inheritance**	**Electricity**	**Light**	**All Living Things and their Habitats**
Natural Science – Biology **Key Concept – Heart Health** **Curricular Goal:** Quiz on all taught knowledge **Learning Objectives** • To be able to identify and name the main parts of the human circulatory system • To know and describe the function of the heart, blood vessels and blood • To know the impact of diet, exercise, drugs and lifestyle on the way the human body functions (Test the impact of exercise on the heart) • To know the ways in which nutrients and water are transported within animals, including humans	**Natural Science – Biology** **Key Concept – Adaptation** **Curricular Goal:** To explain how living things adapt to survive, giving specific examples. **Learning Objectives** • To know how living things have changed over time • To know that fossils provide information about living things that inhabited the earth millions of years ago • To know that living things produce offspring of the same kind • To know that offspring vary and are not usually identical to their parents • To know how animals and plants are adapted to suit their environment in different ways • To know that adaptation over time can lead to evolution	**Natural Science –Physics** **Key Concept – Testing components** **Curricular Goal:** To construct and draw a series circuit which has multiple components for a purpose. **Learning Objectives** • To be able to compare and give reasons for variations in how components function • To be able to use recognised symbols when representing a simple circuit diagram • To know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer	**Natural Science –Physics** **Key Concept – How light travels** **Curricular Goal:** Explain how light behaves including light sources, reflection and shadows **Learning Objectives** • To know that light appears to travel in straight lines • To know how objects can be seen because they give out or reflect light • To know why shadows, have the same shape as the object that casts them	**Natural Science – Biology** **Key Concept – Classifying** **Curricular Goal:** Design and explain a way to classify a range of living things. **Learning Objectives** • To be able to classify living things into broad groups according to observable characteristics and based on similarities and differences • To be able to give reasons for classifying plants and animals in a specific way • To know how living things have been classified