Science curriculum

STATUTORY

Nursery and Reception	Year 1 and Year 2
Early Learning Goal: Children at the expected level of development will: **<u>Understanding the World</u>** **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; • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	**Working scientifically** • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions. **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. • observe and describe how seeds and bulbs grow into mature plants • find out and describe how plants need water, light and a suitable temperature **Animals, including humans** • 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) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • 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) **Living Things and their habitats** • 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 micro-habitats • 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. **Everyday Materials and their use** • 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 on the basis of their simple physical properties. • 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. **Seasonal Changes** • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies

THELWALL INFANT SCHOOL AGE EXPECTATIONS

EYFS

Forces	Plants	Animals, including humans	Everyday Objects and Materials	Seasonal Changes
• Explore and talk about different forces they can feel. • Investigate forces through classroom resources e.g. - how the water pushes up when they push a boat down, -how magnets attract/repulse, -how elastic stretches when you pull it.	• There are plants in the immediate environment. • Plant seeds and care for growing plants. • Plants grow and should be treated with care. • Know that plants are living but artificial plants are not living. • Care for the natural environment and all living things.	• Know the names of some animals and match the adults to their young. Begin to know the name of some animals. • Sort and group animals in different ways, e.g. number of legs, colour, furry, scaly etc. • Understand how to care for living things- find out how to take care of animals • Find out about animal life cycles life. • Identify the different parts of the body and find out what they do – My hands can… My feet can…	• Explore and recognise everyday materials, including collections of materials with similar or different properties e.g. wood, glass, plastic. • Comment on how objects, materials and living things are similar and different. • Compare and group together some everyday objects made from wood, plastic and glass. • Talk about the difference between materials e.g. if it floats or sinks. • Explore how light can travel thorough some materials and not others, and investigate shadows.	• Observe the changes in the natural world around them; -exploring the changes in colour of leaves on the trees -what happens to the plants and flowers -what happens to the animals • Make seasonal collections of leaves and plants and look for similarities and differences. • Observe changes in the weather across the seasons e.g. through daily weather charts, rainy day and windy day boxes.

Working Scientifically

EYFS	Year 1	Year 2
Working Scientifically - asking simple questions and recognising that they can be answered in different ways		
Show curiosity and interest and talk about their ideas.	With a little help I ask questions about my exploration or observations of the world.	I can ask questions such as 'What will happen if…..?'
Working Scientifically observing closely, using simple equipment		
Explore the natural world around them through frequent opportunities for outdoor play.	I can explore the world around me. I can use every day experiences to talk about observations and to help answer a question	I can use my prior knowledge to talk about what I observe and answer questions.
Talk about what they see using a wide vocabulary.	Over time I can look closely at how things change. I can make simple records of how things change.	Over time I can use simple equipment to observe and record changes.
Working Scientifically performing simple tests		
Look closely at how things change and talk about what they have noticed.	I can carry out a simple comparative test e.g. Do bigger bubbles float higher?	I can carry out a simple fair test and explain why it might not be fair
Working Scientifically identifying and classifying		
Use senses to explore the world around them. Naming objects, materials and living things	I can use simple features to compare objects, materials and living things.	With support I can decide how to sort and group objects, materials and living things.
Working Scientifically using their observations and ideas to suggest answers to questions		
Begin to say why something is happening e.g. why the ice is melting (may not always be logical)	I can give a reason why (may not always be logical)	I can use what has been observed to make further predictions. I can give a simple reason why something happened. I can write a simple explanation for an investigation using the word 'because.'
Working Scientifically gathering and recording data to help in answering questions		
Explore and respond to different natural phenomena in school and on trips e.g. rainy day box, watering plants, walking through tall grass, mini-beast hunting.	I can record my observations and findings as a labelled drawing or by annotating a photograph.	I can record my observations as; Labelled drawings (annotated), Photographs (sequenced/annotated) Simple, prepared tables, tallies, charts etc.
	I am beginning to use a simple table to record.	

KEY STAGE 1 (Year 1 Year 2)

Seasonal Change

(Earth's movement in space) Observe changes across the four seasons.

- Name the four seasons.
- Notice and name the key features of a season.
- Organise images or objects from each season into categories. Explain your categories.

(Weather) Observe and describe weather associated with the seasons and how day length varies.

- Observe and record the weather over four seasons.
- Describe the weather in a named season.
- Describe how day length varies in each season.
- Compare and contrast weather and day length across the four seasons.
- Identify patterns in days lengths across the four seasons.

Everyday Materials and Their Use

Distinguish between an object and the material from which it is made.

- Match an object to its original material.
- Name the object and its original material.
- Choose some objects and explain how they we made from their original material. E.g. Explain how a bottle is made of sand.

Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.

- Observe and name everyday materials.
- Arrange objects made from the same materials and label the materials.
- Group objects made based on the materials they are made from. Explain your groupings.

Describe the simple physical properties of a variety of everyday materials.

- Observe and name properties of everyday materials.
- Complete tables that describe the properties of materials.
- Explain why the properties of materials are useful for deciding which materials to use for an object. Give examples.

Compare and group together a variety of everyday materials on the basis of their simple physical properties.

- Place materials into groups under the headings given to you.
- Describe the different properties of materials.
- Describe how best to group materials on the basis of their properties.
- Compare and contrast the different properties of materials.

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

- Observe and describe changes to the shape of solid objects when they are squashed, bent, twisted or stretched.
- Experiment with changing the shape of solid objects. Organise and summarise your findings.

Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock and paper/cardboard for particular uses.

- List different uses for everyday materials.
- List reasons for the suitability of materials for particular uses.
- Compare and contrast the properties of materials and explain why certain materials are used for particular purposes.

Plants	Animals including humans	Living things and their habitats
Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • Name some common wild plants • Name some common garden plants • Name some common trees • Identify evergreen and deciduous trees • Name some common wild and garden plants. • Think of ways to categorise plants. • Name some common trees and identify evergreen and deciduous trees. Look at similarities and differences (including structural features). **Identify and describe the basic structure of a variety of common flowering plants, including trees** •Name the parts of a flowering plant •Describe the structure of each part of a flowering plant •Identify and compare the structural features of different flowering plants **Observe and describe how seeds and bulbs grow into mature plants** •Describe the growth of seeds and bulbs •Explain the similarities and differences between the growth of seeds and bulbs **Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.** •Identify what plants need in order to stay healthy •Use prior knowledge of plant needs to identify ways to revive plants that have not been in the right conditions (fridge, dark, no water so dried out)	**Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.** • Name some common animals. • Match the animals to the labels: bird, fish, amphibian, reptile, mammal and invertebrate. • Explain the main differences between birds, fish amphibians, reptiles, mammals and invertebrates. **Identify and name a variety of common animals that are carnivores, herbivores and omnivores.** • Name some common animals. • Label animals as carnivores, herbivores and omnivores. • Describe how carnivores, herbivores and omnivores are similar and different. **Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).** • Name and label the structures of common animals. • Complete tables that compare the structures of common animals. • Compare and contrast mammals with amphibians. **Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with which sense**. • Label the main parts of the human body. • Illustrate the parts of the body associated with the 5 senses. • Explain why some senses are more important in certain contexts/situation e.g. why the sense of touch may be important to a blind person. **Notice that animals, including humans, have offspring which grow into adults.** • Name the offspring of animals and humans. • Match the offspring to the adult. • Explain the main differences between adult animals and humans and their offspring. **Investigate and describe the basic needs of animals, including humans, for survival (water, food and air).** • List the basic needs of animals, including humans, for survival. • Compare the different types of food that different animals require. **Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.** • Describe a healthy diet. • Describe a healthy lifestyle. • Observe and describe the effect of exercise. • Sort food types and explain why each group is important to humans.	**Explore and compare the differences between things that are living, that are dead and things that have never been alive.** • Observe and list the key features of things that are living, dead and that have never been alive. • Describe things as living, dead or never been alive. • Classify things of your choice into groups: living, dead and never been alive. **Identify that most 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.** • Observe animals / plants in their natural habitats. • Match the animal/plant to its habitat. • Describe why the animal / plant is suited to its habitat. • Categorise animals/plants according to the conditions they require. • Explain your categories. **Identify and name a variety of plants and animals in their habitats, including micro-habitats.** • Match common animals/plants to their habitats. • Explain why a habitat for a particular plant or animal is suitable. **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.** • What does a (name of animal) like to eat? • Draw a food chain. • Name sources of food. • Explain the differences between a food chain for a herbivore and a carnivore.