



ST JAMES

C.E. PRIMARY SCHOOL

DREAM • BELIEVE • LEARN • ACHIEVE

Science Overview

All Years

Cycle A	Autumn		Spring		Summer
KS1	Seasonal Changes (Autumn and Winter)	Everyday materials	Animals Including Humans (Long unit)	Seasonal Changes (Spring and Summer)	Plants
LKS2	Rocks	Animals including Humans	Light	Forces and Magnets	Plants
UKS2	Light	Animals including Humans	Evolution and Inheritance	Electricity	Living things and their habitats
Cycle B	Autumn		Spring		Summer
KS1	All living things and their habitats	Uses of Everyday Materials	Animals Including Humans		Plants
LKS2	Animals including Humans	States of Matter	Electricity	Sound	Living things and their habitats
UKS2	Earth and Space	Living things and their habitats	Properties and changes of materials	Forces	Animals, including humans

New Science Curriculum - KS1 Programme - Cycle A (Y1 Objectives)

KS1 WS Vocabulary	Working Scientifically (WS)	Ways of Working Scientifically
<p>Observe Compare Classify Equipment Test Enquire</p>	<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • 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. <p>Non-Statutory</p> <ul style="list-style-type: none"> • Pupils in years 1 and 2 should explore the world around them and raise their own questions. • They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. • They should use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they should begin to notice patterns and relationships. • They should ask people questions and use simple secondary sources to find answers. • They should use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. • With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language. <p>These opportunities for working scientifically should be provided across years 1 and 2 so that the expectations in the programme of study can be met by the end of year 2. Pupils are not expected to cover each aspect for every area of study.</p>	<ul style="list-style-type: none"> • Observing changes over time • Looking for naturally occurring patterns or relationships • Identifying, classifying and grouping • Researching using secondary sources • Comparative and fair testing • Making things and developing systems • Investigating models

Vocabulary	Seasonal Changes		WS - Investigations and Skills
<p><u>Tier 2</u> Temperature Time</p> <p><u>Tier 3</u> Spring Summer Autumn Winter Season Weather</p> <p><u>Additional</u> Day Hour Month Year Sun Thermometer Cloud Snow Rain Hail Thunder Lightning Safety</p>	<p>Statutory Knowledge and Understanding Objectives</p> <ul style="list-style-type: none"> I can observe changes across the four seasons (1 and 4) I can observe and describe weather associated with the seasons and how day length varies. (2, 3, 5 and 6) <p>Non-Statutory</p> <ul style="list-style-type: none"> Pupils should observe and talk about changes in the weather and the seasons. Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils might work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change. 	<p>Sequence of Lessons and Intended Knowledge (ESSENTIAL KNOWLEDGE)</p> <p>Autumn and Winter - base the learning of each lesson around these seasons.</p> <p>1. Identify the four seasons Know that it is now autumn and soon it will be winter <i>What do we see when we go outside? what do we wear in these seasons? what can we do?</i> Also consider plants ready for the plants topic later in the year - photo evidence. <i>Recognise different types of cold weather</i></p> <p>2. Understand thunderstorms, lightning, thunder and hail, know how to keep safe during thunderstorms</p> <p>3. Learn about clouds and rainfall</p> <p>Spring and Summer - base the learning of each lesson around these seasons.</p> <p>4. What do we remember about our previous learning? <i>What do we see when we go outside now? what do we wear in these seasons? what can we do?</i> <i>Recognise the different types of weather</i></p> <p>5. Look at the different types of weather and how it affects places on Earth Learn It Is not safe to look directly at the sun</p> <p>6. How is the length of day different now to when it was winter? <i>The days are longer in Summer and shorter in Winter. It goes dark earlier when it is Winter.</i></p>	<ul style="list-style-type: none"> Question - Ask/Answer questions Identify - changes during the seasons and typical weathers Compare - seasons Observe - changes across the seasons Observe - The weather and temperature Observe - changes in the length of day through the year Create a rain gauge <p>Links to Writing</p> <ul style="list-style-type: none"> Description - weather during different seasons Comparison of the weather during different seasons Diary entries - different seasons - explaining weather, months, clothing and what they do during that season
<p>Scientists</p> <p>-Christopher Wren -Robert Hooke</p>			<p>Links to Maths</p> <ul style="list-style-type: none"> Names of months Measurement - time and temperature Tables and charts

Vocabulary	Everyday Materials		WS - Investigations and Skills
<p><u>Tier 2</u> Property Object</p> <p><u>Tier 3</u> Material Appearance Texture Waterproof Absorbent Transparent</p> <p><u>Additional</u> Bendy Rigid Dull Hard Opaque Shiny Smooth Soft Stretchy Stiff Magnet Pull Push Recycle</p>	<p>Statutory Knowledge and Understanding Objectives</p> <ul style="list-style-type: none"> I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock (1) I can distinguish between an object and the material from which it is made (2) I can describe the simple physical properties of a variety of everyday materials (3,4 and 5) I can compare and group together a variety of everyday materials on the basis of their simple physical properties. (6) <p>Non-Statutory</p> <ul style="list-style-type: none"> Pupils should explore, name, discuss and raise and answer questions about everyday materials so that they become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. Pupils should explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, foil. Pupils might work scientifically by: performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?' 	<p>Sequence of Lessons and Intended Knowledge (ESSENTIAL KNOWLEDGE)</p> <ol style="list-style-type: none"> Recognise a variety of widely used materials Identify plastic, metal, wood, glass, water and rock Discuss how materials can be recycled Understand that some materials are natural, and some are man made Identify objects and the material they are made from Understand some objects are made from more than one material Recognise why materials are chosen for specific tasks Describe the simple physical properties of a variety of everyday materials Describe what these materials feel and look like Understand why materials are chosen such as a window is made of glass and why cutlery is made of plastic or metal Use vocabulary to describe Explore everyday materials which are opaque and transparent Explore everyday materials which are absorbent and non-absorbent Compare and group together every day materials based on their simple physical properties 	<ul style="list-style-type: none"> Question - Ask/Answer questions Identify - materials objects are made of Classify - Objects by what material they are made of Identify - physical properties e.g. appearance, texture, colour etc. Simple tests - exploring materials <p>Links to Writing</p> <ul style="list-style-type: none"> Poetry - identify properties of materials through acrostic poems Descriptions - A house with strange uses for materials
Scientists			Links to Maths
<p>Chester Greenwood Wilbur and Orville Wright</p>			<ul style="list-style-type: none"> Counting Sorting/Tables Shape - use of shape language for properties of objects

Vocabulary	Animals Including Humans		WS - Investigations and Skills
<p><u>Tier 2</u> Common Structure</p> <p><u>Tier 3</u> Animal Carnivore Herbivore Human Omnivore Sense</p> <p><u>Additional</u> Fish Amphibian Reptile Bird Mammal Touch Smell Taste Sight Hearing Offspring</p>	<p>Statutory Knowledge and Understanding Objectives</p> <ul style="list-style-type: none"> I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (2) I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) (3) I can identify and name a variety of common animals that are carnivores, herbivores and omnivores (4) I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (5 and 6) <p>Non-Statutory</p> <ul style="list-style-type: none"> Pupils should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study. Pupils should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes. Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells. 	<p>Sequence of Lessons and Intended Knowledge (ESSENTIAL KNOWLEDGE)</p> <ol style="list-style-type: none"> Observe animals in their habitat (Winter) Identify five main types of animals. Identify fish, amphibian, reptile, bird and mammal as the types of animal. Know the main features of a mammal (fur), a bird (feathers, wings beak), a reptile (scales, cold-blooded, lay eggs), an amphibian (land and water, lay eggs) and a fish (eggs, scales, body parts) Describe and compare structures of animals Sort and compare animals bodies Identify carnivores, omnivores and herbivores. Explore how animals obtain food and how pets need to be cared for differently Know that humans are omnivores but that humans can be vegetarian if they choose. Know some of the features of carnivorous animals (big cats having sharp canines, forward facing eyes, sharp claws) Discuss and know where common foods come from. (eggs, carrots, chicken, milk, apples) <p>5. Identify, name, draw and label basic parts of the human body Learn about changes in your body since you were a baby</p> <p>6. Identify five senses and which body parts are associated with this. Know the senses sight, taste, hear, smell and touch - sensory learning .</p> <p>7. Observe animals in their habitat (Spring)</p>	<ul style="list-style-type: none"> Question - Ask/Answer Identify - names of common animals Classify - Types of animals Compare - structure of different animals Observe - habitats of animals in the local area Identify - parts of the body Observe - how we experience each sense <p>Links to Writing</p> <ul style="list-style-type: none"> Write a story as a carnivore, omnivore or herbivore to show they understand differences and difficulties these animals might face Descriptions using senses of visiting a new place
<p>Scientists</p>			<p>Links to Maths</p> <ul style="list-style-type: none"> Counting Sorting/ Tables
<p>Carl Hagenbeck</p>	<p>Note: refer to Human Development and Reproduction in the Primary Curriculum document for further guidance</p>		

Vocabulary	Plants		WS - Investigations and Skills
<p><u>Tier 2</u> Growth Structure</p> <p><u>Tier 3</u> Deciduous Evergreen Leaves Roots Seed Stem</p> <p><u>Additional</u> Flower Petal Branch Warmth Light Water</p>	<p>Statutory Knowledge and Understanding Objectives</p> <ul style="list-style-type: none"> I can identify and describe the basic structure of a variety of common flowering plants, including trees. (1) I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (2, 3 and 4) <p>Non-Statutory</p> <ul style="list-style-type: none"> Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem). Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants. 	<p>Sequence of Lessons and Intended Knowledge (ESSENTIAL KNOWLEDGE)</p> <p>1. Know the basic parts of a plant Know the terms: Leaf, flower, petal, stem, root, seed, trunk, bark, branch, fruit, root, bulb Label these features on a plant and on a tree</p> <p>2. Understand what a plant needs in order to grow Grow a plant to observe through the unit Know that plants grow upwards towards the sun and that roots keep the plant sturdy Know that the roots gather water and nutrients from the soil</p> <p>3. Identify common wild and garden plants Look in the local area/school grounds to identify plants Think about how the plants have changed through the year (seasons topic)</p> <p>4. Understand the difference between an evergreen and deciduous plants Classify pictures of plants into flowering, fruiting, tree, evergreen, deciduous. Give pupils opportunity to cross over some of these (lemon tree)</p> <p>5. Understand that some food is grown as a crop on a farm</p> <p>6. How plants change over time Own plant and those observed during the seasons topic</p>	<ul style="list-style-type: none"> Question - Ask/Answer questions Identify and Classify - Types of plants - use the local area to identify also Identify - structure of a plant Observe - Where plants grow and parts of a plant - magnifying glass Observe - Plants that they grow Classify - deciduous and evergreen trees Compare - How plants change over a period of times - record observations
<p>Scientists</p>			<p>Links to Writing</p> <ul style="list-style-type: none"> Instructions - how to plant a bulb Recount of planting a bulb
<p>Jane Colden</p>			<p>Links to Maths</p> <ul style="list-style-type: none"> Counting Sorting Measurement - size and vocabulary related to this e.g. bigger, smaller, taller, shorter, faster, slower