Marshside PRIMARY SCHOOL Science

Subject Lead: Steph Gordon

	Autumn	Spring	Summer
YR	**Understanding the World - All about Me** • Identifying their family. Commenting on photos of their family; naming whom they can see and of what relation they are to them. Can describe people who are familiar to them. • Can talk about what they do with their family and places they have been with their family. Can draw similarities and make comparisons between other families. Name and describe people who are familiar to them. • Can talk about things they have observed such as animals. • Can ask questions about aspects of their familiar world such as the place where they live or the natural world. • Can talk about why things happen: making bread.	**Understanding the World - Amazing Animals** • Use images, video clips, shared texts and other resources to bring the wider world into the classroom. Listen to what children say about what they see. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. • Changing seasons: winter • Ice experiments • Can understand the effects of changing seasons on the world around them. • Similarities and differences between countries/environments/animals. • Growth & Change: chick life cycle • Growth & Change: frog life cycle • Growth and change butterfly life cycle • Environment: care can concern: chicks • Can describe what a plant needs to grow (growing the beanstalk). • Can understand the key features of the life cycle of a plant. • Learn about what a palaeontologist is and how they explore old artefacts. Introduce Mary Anning as the first female to find a fossil.	**Understanding the World - Travel** • Can show care and concern for living things in the environment. • Can start to develop an understanding of growth, decay and changes over time. • Can talk about some of the things they have observed such as plants, animals, natural and found objects. • Children can differentiate between land and water. • Can understand where dinosaurs are now and begin to understand that they were alive a very long time ago. • Materials: Floating / Sinking – boat building Metallic / non-metallic objects. • Listen to how children communicate their understanding of their own environment and contrasting environments through conversation and in play.
Key vocabulary	Familiar Resemblance Similarity Genes Characteristics Observation Natural Yeast Environment	Experiment Season Spring Summer Autumn Winter Growth Fossil Palaeontologist Artefact Mary Anning	Decay Existence Materials Floating Sinking Metallic Non-metallic Communication Contrast Similar

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<table>
<tr><th></th><th>Autumn</th><th>Spring</th><th>Summer</th></tr>
<tr><td>Core Text</td><td>Beegu</td><td>Bog baby</td><td>The Rabbit Problem</td></tr>
<tr><td rowspan="2">Y1</td><td><u>Seasonal Change 1</u>

<u>Everyday Materials</u>

Pupils should be taught to:
• 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.</td><td rowspan="2"><u>Animals</u>

Pupils should be taught to:
• 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.</td><td><u>Plants (Summer 1)</u>

Pupils should be taught to:
• 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.</td></tr>
<tr><td><u>Seasonal Change 2</u>

Pupils should be taught to:
• Observe changes across the four seasons
• Observe and describe weather associated with the seasons and how day length varies.</td></tr>
<tr><td rowspan="2">Key vocabulary</td><td><u>Seasonal Change</u>
Weather
Temperature
Thermometer
Deciduous
Coniferous
Hemisphere
Climate
Diversity</td><td rowspan="2"><u>Animals</u>
Fish
Mammals
Amphibians
Reptiles
Birds
Omnivore
Carnivore
Herbivore
Nocturnal
Diurnal</td><td><u>Plants</u>
Buds
Bulbs
Blossom
Petals
Branches
Environment</td></tr>
<tr><td><u>Everyday materials</u>
Stretch
Stiff
Bend
Water proof
Shiny
Moulded
Liquid
Gas
Solid</td><td><u>Seasonal Change</u>
Weather
Temperature
Thermometer
Deciduous
Coniferous
Hemisphere
Climate
Diversity</td></tr>
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Working scientifically:	*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:* - *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.*		
Core Text	***Wild***	***Traction Man is Here***	***The Flower***
Y2	**<u>Living things and their habitats (Autumn 1)</u>** Pupils should be taught to: • 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.	**<u>Uses of everyday materials</u>** Pupils should be taught to: • 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. .	**<u>Plants</u>** Pupils should be taught to: • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
	<u>Animals, including humans</u> **(Autumn 2 – Spring 1)** Pupils should be taught to: • 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) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		

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<table>
<tr><td>Working scientifically:</td><td colspan="3">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:
- 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.</td></tr>
<tr><td rowspan="2">Key vocabulary</td><td><u>Living things and their habitats</u>
Species
Microhabitat
Indigenous
Dinosaur
Woodland
Desert
Nutrients
Diversity
Climate
Food Chain
Producers
Consumers
Prey
Predators</td><td rowspan="2"><u>Uses of everyday materials</u>
Suitable
Traction
Squashing
Bending
Twisting
Stretching
Transparent
Development
Surface
Course</td><td rowspan="2"><u>Plants</u>
Disperse
Dispersal
Pollination
Seed
Bulb
Nutrients
Growth
Germination
Leaves
Stem
Roots</td></tr>
<tr><td><u>Animals, including humans</u>
Species
Life cycle
Metamorphosis
Mammals
Amphibians
Reptiles
Oxygen
Human
Offspring
Reproduce
Hygiene
Diet</td></tr>
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<table>
<tr><th></th><th>Autumn</th><th>Spring</th><th>Summer</th></tr>
<tr><td>Core Text</td><td>Orion and the Dark</td><td>The Street Beneath My Feet</td><td>The Night Gardener</td></tr>
<tr><td rowspan="2">Y3</td><td><u>Animals, including humans (Autumn 1)</u>

Pupils should be taught to:
• Identify 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
• Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</td><td rowspan="2"><u>Rocks</u>

Pupils should be taught to:
• Compare and 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
• Recognise that soils are made from rocks and organic matter.</td><td><u>Plants (Summer 1)</u>

Pupils should be taught to:
• Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
• Explore 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
• Investigate the way in which water is transported within plants
• Explore the part that flowers play in the life cycle.</td></tr>
<tr><td><u>Light (Autumn 2)</u>

Pupils should be taught to:
• Recognise that 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
• Recognise that shadows are formed when the light from a light source is blocked by a solid object
• Find patterns in the way that the size of shadows change.</td><td><u>Forces and magnets (Summer 2)</u>

Pupils should be taught to:
• Compare how things move on different surfaces
• Notice that some forces need contact between two objects, but magnetic forces can act at a distance
• Observe how magnets attract or repel each other and attract some materials and not others
• Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
• Describe magnets as having two poles
• Predict whether two magnets will attract or repel each other, depending on which poles are facing.</td></tr>
<tr><td>Working scientifically</td><td colspan="3">During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
Asking relevant questions and using different types of scientific enquiries to answer them</td></tr>
</table>

<table>
<tr><td></td><td colspan="3">

- *Setting up simple practical enquiries, comparative and fair tests*
- *Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers*
- *Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions*
- *Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables*
- *Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions*
- *Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions*
- *Identifying differences, similarities or changes related to simple scientific ideas and processes*
- *Using straightforward scientific evidence to answer questions or to support their findings.*

</td></tr>
<tr><td rowspan="2">Key vocabulary</td><td><u>Animals, including humans</u>
Skeleton
Muscles
Joint
Pelvis
Cartilage
Tendon
Ligament
Rib cage
Spinal cord</td><td rowspan="2"><u>Rocks</u>
Fossil
Crystals
Organic matter
Sedimentary
Metamorphic
Igneous
Attributes
Diversity</td><td><u>Plants</u>
Roots
Stigma
Anther
Nutrients
Soil
Pollination
Seed dispersal
Fertiliser
Seed formation</td></tr>
<tr><td><u>Light</u>
Reflection
Light source
Shadows
Opaque
Refraction
Nocturnal
Convex
Concave
Sustainability</td><td><u>Forces and magnets</u>
Gravity
Resistance
Magnetic pole
Magnetic field
Prediction
Attract
Repel
Area
Geographic</td></tr>
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<table>
<tr><th>Core Text</th><th>The Pied Piper</th><th>The Incredible Book-eating Boy</th><th>The Promise</th></tr>
<tr><td rowspan="2">Y4</td><td><u>States of Matter (Autumn 1)</u>

Pupils should be taught to:
• Compare and group materials together, according to whether they are solids, liquids or gases
• Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</td><td rowspan="2"><u>Animals, including humans</u>

Pupils should be taught to:
• Describe the simple 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.</td><td><u>Living things and their habitats (Summer 1)</u>

Pupils should be taught to:
• Recognise that living things can be grouped in a variety of ways
• Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
• Recognise that environments can change and that this can sometimes pose dangers to living things.</td></tr>
<tr><td><u>Sound (Autumn 2)</u>

Pupils should be taught to:
• Identify how sounds are made, associating some of them with something vibrating
• Recognise that vibrations from sounds travel through a medium to the ear
• Find patterns between the pitch of a sound and features of the object that produced it
• Find patterns between the volume of a sound and the strength of the vibrations that produced it
• Recognise that sounds get fainter as the distance from the sound source increases.</td><td><u>Electricity (Summer 2)</u>

Pupils should be taught to:
• Identify common appliances that run on electricity
• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
• Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
• Recognise some common conductors and insulators, and associate metals with being good conductors.</td></tr>
<tr><td>Working scientifically</td><td colspan="3">During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
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- *Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions*
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- *Identifying differences, similarities or changes related to simple scientific ideas and processes*
- *Using straightforward scientific evidence to answer questions*

</td></tr>
<tr><td rowspan="2">Key vocabulary</td><td><u>States of matter</u>
Solids
Liquid
Gas
Substance
Evaporation
Condensation
Viscosity
Transpiration
Precipitation
Water vapour</td><td rowspan="2"><u>Animals, including humans</u>
Salivary gland
Molars
Canines
Incisors
Oesophagus
Pancreas
Stomach
Intestines
Food chain
Prey
Predators</td><td><u>Living things and their habitats</u>
Classifying
Categories
Vegetation
Climate
Habitat
Threatened
Endangered
Extinct
Environment</td></tr>
<tr><td><u>Sound</u>
Vibration
Pitch
Volume
Insulation
Cochlea
Hammer
Auditory
Aural
Frequency</td><td><u>Electricity</u>
Circuit
Buzzers
Conductor
Insulator
Appliance
Socket
Cells</td></tr>
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	Autumn	Spring	Summer
Core Text	***Cosmic***	***The Man Who Walked Between the Towers***	***The Nowhere Emporium***
Y5	**<u>Living things and their habitats (Autumn 1)</u>** Pupils should be taught to: • Describe 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.	**<u>Forces</u>** Pupils should be taught to: • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • Identify 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>Animals, including humans (Summer 1)</u>** Pupils should be taught to: • Describe the changes as humans develop to old age.
	<u>Earth and Space (Autumn 2)</u> Pupils should be taught to: • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system • Describe the movement of the Moon relative to the Earth • Describe the Sun, Earth and Moon as approximately spherical bodies • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.		**<u>Properties and changes of materials</u>** **(Summer 2)** Pupils should be taught to: • 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 • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • Demonstrate that dissolving, mixing and changes of state are reversible changes • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

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<table>
<tr><td>Working scientifically</td><td colspan="3">During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments.</td></tr>
<tr><td>Key vocabulary</td><td><u>Living things and their habitats</u>
Classification
Conception
Fertilisation
Gestation
Embryo
Foetus
Amphibious

<u>Earth and Space</u>
Solar system
Orbit
Astronomical
Rotation
Spherical
Eclipse
Lunar
Crescent and gibbous moon
Neil Armstrong</td><td><u>Forces</u>
Friction
Gravity
Air resistance
Water resistance
Levers
Pulleys
Parachute
Galileo Galilei
Isaac Newton</td><td><u>Animals, including humans</u>
Toddler
Puberty
Adolescence
Reproduction
Adulthood

<u>Properties and changes of materials</u>
Solubility
Conductivity
Transparency
Thermal evaporation
Dissolve
Filtering
Melting
Separate</td></tr>
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<table>
<tr><th>Core Text</th><th>Pig-Heart Boy</th><th>Wonder</th><th>The Spider and the Fly</th></tr>
<tr><td rowspan="2">Y6</td><td><u>Electricity (Autumn 1)</u>

Pupils should be taught to:
• 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 variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
• Use recognised symbols when representing a simple circuit in a diagram.</td><td rowspan="2"><u>Evolution and Inheritance</u>

Pupils should be taught to:
• Recognise that living things have changed over time and that fossils provide information about living things that 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
• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</td><td><u>Living things and their habitats (Summer 1)</u>

Pupils should be taught to:
• Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
• Give reasons for classifying plants and animals based on specific characteristics.</td></tr>
<tr><td><u>Animals, including humans (Autumn 2)</u>

Pupils should be taught to:
• Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
• Recognise 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.</td><td><u>Light (Summer 2)</u>

Pupils should be taught to:
• Recognise that light appears to travel in straight lines
• Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
• 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
• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</td></tr>
<tr><td>Working scientifically</td><td colspan="3">During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments.</td></tr>
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Key vocabulary	**Electricity** Conductor Insulator Series Cells Volts Generator Voltmeter Fuse Turbine Static Hydropower Thomas Edison	**Evolution and Inheritance** Adaptation Evolution Inheritance Genes Chromosomes Syndrome Genotype Palaeontologist Offspring Development Mary Anning Charles Darwin	**Living things and their habitats** Diversity Environment Microorganism Vertebrates Invertebrates Species Fungi Monera Protista Algae Carl Linnaeus
	Animals, including humans Blood vessels Arteries Veins Capillaries Cardiovascular Pulse Circulatory Respiratory Atrium Ventricle Ultrasound Diffusion Osmosis		**Light** Light wave Source Concave Convex Lens Retina Cornea Iris Pupil Filters