HEYHOUSES C.E. PRIMARY SCHOOL SCIENCE CURRICULUM

At Heyhouses we aspire to be all that God has created us to be.

'I can do all thing through Christ who strengthens me.' Philippians 4:13

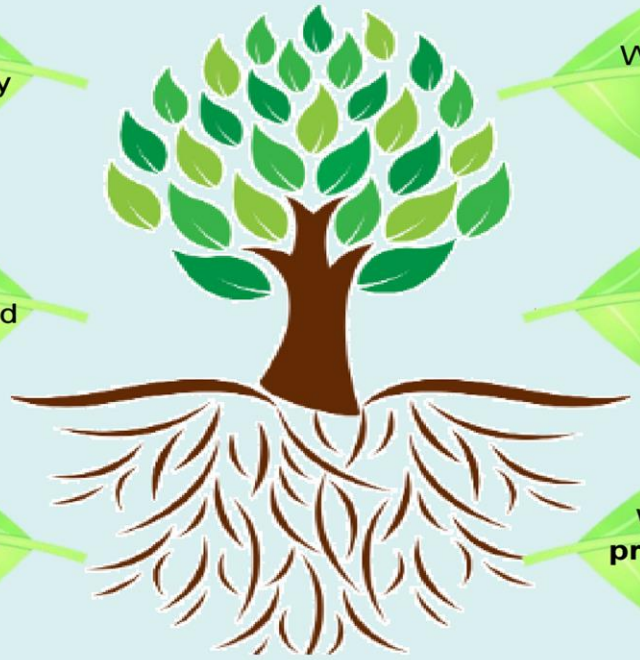
Our aim and purpose in education is based on firm beliefs and values; that Jesus is our redeemer; that each individual is unique and valued; and that although all different, we are dependent upon one another.

In our school we seek to provide for the spiritual, mental, moral and physical development, growth and well-being of all our children.

— Firm Foundations — Ambitious Learning — Flourishing for life —

Curriculum Intent

At Heyhouses, the seeds of scientific curiosity are nurtured, enabling them to flourish. Providing children with the understanding, skills and desire to become the scientists of tomorrow.



We **solve problems** using **knowledge** and **skills** from a variety of areas.

Our natural curiosity is fuelled by **questions** and **investigations** in and out of school.

We all experience a **broad curriculum** with opportunities for **challenge**.

We are **inspired** by famous and 'everyday' scientists.

We experience a variety of **assessments** that inform our learning.

We develop a responsibility to **protect**, **sustain** and **explore** our planet and what lies beyond.

— Firm Foundations — Ambitious Learning — Flourishing for life —

Curriculum Map

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Animals, including humans	Plants- Seasonal Changes	The Body and the Senses	Plants- Seasonal Changes	Plants- Seasonal Changes	Everyday materials
British Isles focus	Identify and name a variety of common British Flora and Fauna (common British plants/trees and common UK animals)					
Year 2	Living Things and their Habitats	Use of everyday materials	Plants	Plants	Living Things and their Habitats	Animals, including Humans (label parts of the body)
British Isles focus	Identify and name a variety of common British Flora and Fauna (Invertebrates)					
Year 3	Light, Shadows and reflections	Forces and Magnets	Rocks and Fossils	Skeletons	Plants	Human Health and Nutrition
British Isles focus	Identify and name a variety of common British Flora and Fauna (common British flowers/trees)					
Year 4	Sound	Electricity (DT link)	Digestive system and Teeth	Teeth Habitats (Animals including Humans)	Teeth Habitats (Animals including Humans)	States of Matter
British Isles focus	Identify and name a variety of common British Flora and Fauna (Garden Birds/British Birds of Prey)					
Year 5	Material Properties – Reversible and Irreversible changes		Earth and Space	Forces and Falling Objects	Living things and their Habitats	Animals including humans
British Isles focus	Identify and name a variety of common British Flora and Fauna (Common aquatic species)					
Year 6	Evolution and Inheritance	Electricity (circuits and components)	Healthy Living and the Circulatory system		Classification	Light
British Isles focus	Identify and name a variety of common British Flora and Fauna					

Science in EYFS

2020 Development Matters highlights the prerequisite skills for science within the National Curriculum, they are from three areas of the seven.

Three and Four-year-olds		
Understanding the World	Personal, Social and Emotional Development	Communication and Language
• Use all their senses I hands on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice.	• Make healthy choices about food, drink, activity and toothbrushing.	• Understand 'why' questions like; "Why do you think the caterpillar got so fat?"
Reception		
Understanding the World	Personal, Social and Emotional Development	Communication and Language
• Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.	• Know and talk about different factors that support their overall health and wellbeing: Regular physical activity Healthy eating Toothbrushing Sensible amounts of 'screen time' Having a good sleep routine Being a safe pedestrian	• Learn new vocabulary • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities,

Science in EYFS

		• and to explain how things work and why they might happen. • Use new vocabulary in different contexts.
Early Years Goals		
Understanding the World	Personal, Social and Emotional Development	Communication and Language
• 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.	• Manage their own basic hygiene and personal needs including dressing, going to the toilet and understanding the importance of healthy food choices.	• Make comments about what they have heard and ask questions to clarify their understanding.

Science in KS1

<table>
<tr><th colspan="4">Y1 Plants</th></tr>
<tr><td colspan="3">Scientific knowledge and understanding</td><td rowspan="2">Vocabulary
Local, plants, trees, leaves, flowers, blossom, petals, fruit, vegetables, seeds, roots, bulb, stem and trunk. Year, seasons autumn, winter, spring and summer.
Observe, change, compare, same, different.</td></tr>
<tr><td>Revision
Exploring the natural world
Planting in reception
Observing seasonal change</td><td colspan="2">Year 1
• 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.
Scientist:
Profession: Gardener
Opportunities for science capital:</td></tr>
<tr><td colspan="4">Scientific Enquiry</td></tr>
<tr><td colspan="2">Asking questions and recognising they can be answered in different ways
While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.
The children answer questions developed with the teacher often through a scenario.
The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.</td><td>Observing and using equipment
Children explore the world around them. They make careful observations to support identification, comparison and noticing change (seasons).
They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.
They begin to take measurements, initially by comparisons, then using non-standard units</td><td>Performing simple tests
The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher.
They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.</td></tr>
<tr><td>Identifying and classifying
Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting.
They use simple secondary sources (such as identification sheets) to name living things.
They describe the characteristics they used to identify a living thing.</td><td>Gathering and recording data
Children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.
They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs.
They classify using simple prepared tables and sorting rings.</td><td colspan="2">Using their observations and ideas to suggest answers to questions
Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.
The children recognise ‘biggest and smallest’, ‘best and worst’ etc. from their data</td></tr>
</table>

Science in KS1

<table>
<tr><th colspan="3">Y1 Seasonal Changes</th></tr>
<tr><th colspan="2">Scientific knowledge and understanding</th><td rowspan="2">Vocabulary
Year, seasons autumn, winter, spring and summer. Wind, rain, hail, snow, sunshine cloud. Day and night.</td></tr>
<tr><td>Revision
Observing seasonal change in reception.</td><td>Year 1
• Observe changes across the four seasons.
• Observe and describe the weather associated with the seasons and how day length varies.
Scientist:
Profession: Weather Person
Opportunities for science capital:</td></tr>
<tr><th colspan="3">Scientific Enquiry</th></tr>
<tr><td colspan="2">Asking questions and recognising they can be answered in different ways
While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.
The children answer questions developed with the teacher often through a scenario.
The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.</td><td>Observing and using equipment
Children explore the world around them.
They make careful observations to support identification, comparison and noticing change (seasons).
They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.
They begin to take measurements, initially by comparisons, then using non-standard units</td><td>Performing simple tests
The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher.
They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.</td></tr>
<tr><td>Identifying and classifying
Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting.
They use simple secondary sources (such as identification sheets) to name living things.</td><td colspan="2">Gathering and recording data
The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.
They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs.</td><td>Using their observations and ideas to suggest answers to questions
Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.</td></tr>
</table>

Science in KS1

They describe the characteristics they used to identify a living thing.	They classify using simple prepared tables and sorting rings.	The children recognise 'biggest and smallest', 'best and worst' etc. from their data

Y1 Animals, including humans		
Scientific knowledge and understanding		**Vocabulary**
Revision Zoo trip reception In reception Understanding the world, life cycles, growth, senses.	**Year 1** • **Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.** • **Identify and name a variety of 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 and draw and label the basic parts of the human body and say which part of the body is associated with each sense.** Scientist: Profession: Opportunities for science capital:	Fish, amphibians, reptiles, birds and mammals, Carnivores, herbivores and omnivores. Compare, contrast, group, same, different. Head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth and teeth. Senses, see, hear, smell, taste and feel.
Scientific Enquiry		
Asking questions and recognising they can be answered in different ways While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.	**Observing and using equipment** Children explore the world around them. They make careful observations to support identification, comparison and noticing change (seasons). They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They begin to take measurements, initially by comparisons, then using non-standard units	**Performing simple tests** The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.

Science in KS1

Identifying and classifying Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	**Gathering and recording data** The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.	**Using their observations and ideas to suggest answers to questions** Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. The children recognise 'biggest and smallest', 'best and worst' etc. from their data

Y1 Everyday materials		
Scientific knowledge and understanding		**Vocabulary**
Revision Understanding the World hands on exploration of materials.	**Year 1** • **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.** Scientist: Profession: Opportunities for science capital:	Materials, wood, plastic, glass, metal, water and rock. Physical properties hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent.
Scientific Enquiry		
Asking questions and recognising they can be answered in different ways While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to	**Observing and using equipment** Children explore the world around them. They make careful observations to support identification, comparison and noticing change (seasons). They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.	**Performing simple tests** The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern

Science in KS1

recognise that there are different ways in which questions can be answered.	They begin to take measurements, initially by comparisons, then using non-standard units	seeking enquiries; and make observations over time.

Identifying and classifying Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	**Gathering and recording data** Children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.	**Using their observations and ideas to suggest answers to questions** Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. The children recognise 'biggest and smallest', 'best and worst' etc. from their data

Y2 Living things and their habitats		
Scientific knowledge and understanding		**Vocabulary** Habitat, micro-habitat, local and unfamiliar, environment, conditions, food chain, number and type of. Living, dead, never lived. Question, identify, sort and classify.
Revision In reception Understanding the world Year 1 Identifying different types of plants and animals.	**Year 2** • **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 microhabitats.** • **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.** Scientist: Profession: Nurse Opportunities for science capital:	

Science in KS1

Scientific Enquiry		
Asking questions and recognising they can be answered in different ways While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.	**Observing and using equipment** Children explore the world around them. They make careful observations to support identification, comparison and noticing change (seasons). They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They begin to take measurements, initially by comparisons, then using non-standard units	**Performing simple tests** The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.
Identifying and classifying Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	**Gathering and recording data** Children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.	**Using their observations and ideas to suggest answers to questions** Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. The children recognise 'biggest and smallest', 'best and worst' etc. from their data

Science in KS1

<table>
<tr><th colspan="4">Y2 Plant Growth</th></tr>
<tr><th colspan="2">Scientific knowledge and understanding</th><th rowspan="2">Vocabulary
Growth, survival, requirements, germination, reproduction. Water, light, temperature. Living, dead. Flowers, blossom, petals, fruit, vegetables, seeds, roots, bulb, stem.
Observe, change, compare, same, different, investigate, variables, fair test.</th></tr>
<tr><td>Revision
Exploring the natural world including planting and growing in reception
Observing seasonal change
Naming plants, learning basic structure in Year 1</td><td>Year 2
• Observe and describe how seeds and bulbs grow into mature plants (over time).
• Find out and describe how plants need water, light and suitable temperature to grow and stay healthy (and how changing these affects the plant).
Scientist:
Profession: Gardener
Opportunities for science capital:</td></tr>
<tr><th colspan="4">Scientific Enquiry</th></tr>
<tr><td colspan="2">Asking questions and recognising they can be answered in different ways
While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.
The children answer questions developed with the teacher often through a scenario.
The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.</td><td>Observing and using equipment
Children explore the world around them. They make careful observations to support identification, comparison and noticing change (seasons).
They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.
They begin to take measurements, initially by comparisons, then using non-standard units</td><td>Performing simple tests
The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher.
They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.</td></tr>
<tr><td>Identifying and classifying
Children use their observations and testing to compare objects, materials and living things.</td><td colspan="2">Gathering and recording data
Children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.</td><td>Using their observations and ideas to suggest answers to questions
Children use their experiences of the world around them to suggest appropriate answers to questions.</td></tr>
</table>

They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.	They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. The children recognise 'biggest and smallest', 'best and worst' etc. from their data

Y2 Animals, including humans		
Scientific knowledge and understanding		**Vocabulary** Survival requirements, basic needs water, food, air, sleep. Reproduction and growth. Life cycles – egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep; baby, toddler, child, teenager adult. Health of bodies and minds, sleep, nutrition, exercise, medicine.
Revision In reception Understanding the world, life cycles, growth. Making healthy choices about food, drink and sleep. Year 1 identified, named and compared structure of common animals. Identified basic human body parts.	**Year 2** • **Notice that animals including humans have offspring that grow into adults (children need to recognise growth and change, be introduced to the process of reproduction not how it occurs).** • **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.** Scientist: Profession: Nurse Opportunities for science capital:	

Scientific Enquiry		
Asking questions and recognising they can be answered in different ways While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to	**Observing and using equipment** Children explore the world around them. They make careful observations to support identification, comparison and noticing change (seasons). They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.	**Performing simple tests** The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.

Science in KS1

recognise that there are different ways in which questions can be answered.	They begin to take measurements, initially by comparisons, then using non-standard units	

Identifying and classifying Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	**Gathering and recording data** Children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.	**Using their observations and ideas to suggest answers to questions** Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. The children recognise 'biggest and smallest', 'best and worst' etc. from their data

Y2 Everyday materials		
Scientific knowledge and understanding		**Vocabulary** Materials, wood, plastic, glass, metal, brick, rock, paper and cardboard. Physical properties hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. Suitable for purpose. Uses.
Revision Understanding the World hands on exploration of materials. Year 1 Recognise what materials objects are made of and some of their properties.	**Year 2** • **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 shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.** Scientist - John Dunlop, Charles Macintosh, John McAdam, people who have developed useful new materials. Profession - Opportunities for science capital -	

Scientific Enquiry		
Asking questions and recognising they can be answered in different ways While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.	**Observing and using equipment** Children explore the world around them.	**Performing simple tests** The children use practical resources provided to gather evidence to answer questions

Science in KS1

The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.	They make careful observations to support identification, comparison and noticing change (seasons). They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They begin to take measurements, initially by comparisons, then using non-standard units	generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.

Identifying and classifying Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	**Gathering and recording data** The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.	**Using their observations and ideas to suggest answers to questions** Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. The children recognise 'biggest and smallest', 'best and worst' etc. from their data

Science in KS2

Y3 Life Processes (animal) – Animals Growth and Movement		
Scientific knowledge and understanding		**Vocabulary** Skeleton, support, protection, movement, skull, spine (backbone, vertebrae), ribs, pelvis, growth, muscles, vertebrates, invertebrates, endoskeleton, exoskeleton and hydrostatic skeleton, classify.
Revision Those animals, including humans, have offspring which **grow** into adults. Basic needs for survival, water, food, air.	**Year 3** • **Identify that humans and some other animals have skeletons and muscles for support, protection and movement.** • **Recognise the Life Processes of Growth and Movement.** Scientist – Charles Darwin (classification) Profession – Opportunities for science capital -	
Scientific Enquiry		
Questioning and Research • I can ask some relevant questions about the world around us. • I am beginning to carry out simple research on my own.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. • I can begin to record results in tables and bar charts.	
Equipment and Measurement • I can begin to observe and measure accurately using standard units eg. mm, cm, m • I can make systematic and careful observations.	**Communicating and Presenting** • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I am beginning to communicate findings using simple scientific language.	**Considering Evidence and Evaluating**. • I am beginning to talk about and identify differences and similarities or changes related to simple scientific ideas and processes. • I am beginning to answer my questions using the results of my enquiry.

Y3 Life Processes (animal) – Animals Health and Nutrition		
Scientific knowledge and understanding		
Revision Animals have different diets. Importance of exercise, diet and hygiene.	**Year 3** • **Identify that animals, including humans, need the right types and amount of nutrition from what they eat and cannot make their own.** • **An adequate and varied diet and regular exercise is beneficial to health.** Scientist – Profession – Opportunities for science capital -	**Vocabulary** Health, nutrition, diet, energy, exercise, sleep, physical and mental health, resilience.

Science in KS2

<table>
<tr><th colspan="3">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
• I can use some different types of scientific enquiry to answer questions.
• I am beginning to carry out simple research on my own.</td><td>Planning and Recording
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.</td></tr>
<tr><td>Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds.</td><td>Communicating and Presenting
• I am beginning to identify simple changes related to simple scientific phenomena.
• I can begin to record findings using simple scientific language, keys, bar charts and tables.</td><td>Considering Evidence and Evaluating
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.
I am beginning to use results to draw simple conclusions.</td></tr>
</table>

<table>
<tr><th colspan="3">Y3 Materials and their properties - Rocks and soils</th></tr>
<tr><th colspan="2">Scientific knowledge and understanding</th><th>Vocabulary</th></tr>
<tr><td>Revision
Observed the material of rock in the environment, recognise some of its physical properties.</td><td>Year 3
• Compare and group different kinds of rocks, on the basis of their appearance and physical properties. D
• Describe how a fossil is formed.
• Recognise that soils is formed from rocks and organic matter.
Scientist – Mary Anning
Profession –
Opportunities for science capital -</td><td>Properties, texture, appearance, purpose. Permeable, impermeable, absorb. Igneous (volcanic), sedimentary and metamorphic. Granite, pumice, sandstone, chalk, slate and marble. Fossil, organic. Predict, compare, similarities and differences, fair test, variables, conclusions.</td></tr>
<tr><th colspan="3">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.</td><td>Planning and Recording
• I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.</td></tr>
</table>

Science in KS2

Equipment and Measurement • I can make systematic and careful observations. • I can use a range of equipment.	**Communicating and Presenting** • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	**Considering Evidence and Evaluating**. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to properties, based on testing.

Y3 Physical processes - Forces and Magnets		
Scientific knowledge and understanding		**Vocabulary** Force, push, pull, friction, gravity, air and water resistance, magnetism, contact, attract, repel, pole. Predict, compare, similarities and differences, fair test, variables, conclusions.
Revision Distinguish between an object and the material it is made from, including wood, plastic, glass, metal, rock. Describe their physical properties. Suitability for material for its use. Pushes and pulls.	**Year 3** • **Compare how things move on different surfaces.** • **Contact and noncontact forces.** • **Magnets attract and repel some materials. Magnets have 2 poles.** • **Comparing, grouping, materials and making predictions based on magnetic properties.** Scientist – Sir Isaac Newton Profession – Opportunities for science capital -	
Scientific Enquiry		
Questioning and Research • I am beginning to help decide which variables to keep the same and which to change. • I can set up some simple practical enquiries, including comparative and fair tests.		**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. • I can begin to see a pattern in my results.
Equipment and Measurement • I can make systematic and careful observations. • I can begin to choose from a selection of equipment and can use new equipment.	**Communicating and Presenting** • I am beginning to describe my observations and my findings. • I can begin to describe cause and effect.	**Considering Evidence and Evaluating**. • I am beginning to talk about and identify differences and similarities in the properties of materials and other scientific phenomena.

		• I can begin to compare and group according to properties, based on testing.

Y3 Life Processes - Plants		
Scientific knowledge and understanding		**Vocabulary** Structure, function, roots, stem, leaves, flowers, fruit, seeds, dispersal, transportation, nutrients, photosynthesis, pollination, life cycles. Predict, compare, similarities and differences, fair test, variables, conclusions.
Revision Life cycles – seeds and bulbs. Requirements for life - water, light, suitable temperature to grow and stay healthy.	**Year 3** • **Identify and describe the structure and function of flowering plants, roots, stem/trunk, leaves and flowers.** • **Including pollination, seed formation and seed dispersal. Investigate the way in which water is transported within plants.** • **Requirements for life and growth and how they can vary from plant to plants.** Scientist – Profession – Opportunities for science capital – Bee visit, pollination.	
Scientific Enquiry		
Questioning and Research • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to help decide which variables to keep the same and which to change.	**Planning and Recording** • I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I am beginning to collect data in a variety of ways, including labelled diagrams	
Equipment and Measurement • I can make systematic and careful observations. • I can use a range of equipment.	**Communicating and Presenting** • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to identify simple changes related to simple scientific phenomena.	**Considering Evidence and Evaluating**. • I can begin to compare and group according to properties, based on testing. • I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

Science in KS2

<table>
<tr><th colspan="4">Y3 Physical Processes - Light</th></tr>
<tr><th colspan="3">Scientific knowledge and understanding</th><td rowspan="2">Vocabulary
Light source, light rays, reflect, reflector, dark, shadow, block, transparent, translucent, opaque, solar system, sun, earth, axis.

Measurement, pattern investigation, cause and effect.</td></tr>
<tr><td>Revision
Senses and sight, seasonal changes and day length, materials and solid objects.</td><td colspan="2">Year 3
• Need light to see. Dark is the absence of light. Light is reflected from surfaces. Sunlight can be dangerous, eyes need protection.
• A shadow is formed when light from a light source is blocked by a solid object.
• To find patterns in the way shadows change.
Scientist – Alhazen
Profession –
Opportunities for science capital -</td></tr>
<tr><th colspan="4">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
I can begin to decide when research will help in my enquiry.
• I can set up some simple practical enquiries, including comparative and fair tests.</td><td colspan="2">Planning and Recording
• I can begin to look for naturally occurring patterns and relationships and decide what data to collect and identify them.
• I can begin to see a pattern in my results.</td></tr>
<tr><td>Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, mm, including time in minutes and seconds.
• I can use a range of equipment.</td><td>Communicating and Presenting
• I am beginning to identify simple changes related to simple scientific phenomena.
• I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest.</td><td colspan="2">Considering Evidence and Evaluating.
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.
• I can begin to compare and group according to behaviour or properties, based on testing.</td></tr>
</table>

Science in KS2

<table>
<tr><th colspan="3">Y4 Living things and their habitats</th></tr>
<tr><th colspan="2">Scientific knowledge and understanding</th><th>Vocabulary</th></tr>
<tr><td>Revision
Vertebrate and invertebrates, differences in mechanisms for movement, support, protection. Different diets of animals. Grouping and sorting based on similarities and differences.</td><td colspan="2">Year 4
• Recognise that living things can be grouped in different ways.
• Explore and use classification keys to help group, identify and name a variety of living things in local and wider environment.
• Recognise that environments can change and that this sometimes poses danger to living things.
Scientist –
Profession –
Opportunities for science capital -</td><td>Classification keys, identification, habitats, human impact, seasons, vertebrate and invertebrate groups.</td></tr>
<tr><th colspan="3">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.</td><td colspan="2">Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.</td></tr>
<tr><td>Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds.
• I can make systematic and careful observations.
• I can begin to choose from a selection of equipment.</td><td>Communicating and Presenting
• I am beginning to communicate findings using simple scientific language.
• I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions.</td><td>Considering Evidence and Evaluating.
• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes.
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.</td></tr>
</table>

Science in KS2

• I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	• I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	• I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y4 Animals Including Humans – Teeth, Eating and Digestion		
Scientific knowledge and understanding		**Vocabulary**
Revision Basic needs of animals. Animals need the right types and amount of nutrition. Nutrition is from what they eat. Carnivore, omnivore, herbivores.	**Year 4** • **Describe simple functions of basic parts of the digestive system in humans.** • **Identify different types of teeth in humans and their function.** • **Construct and interpret a variety of food chains, identifying producers, predators and prey.** Scientist – Profession – Opportunities for science capital -	Digestive system, mouth, teeth, canines, incisors, molars, saliva, oesophagus, stomach, large intestine, small intestine, colon, anus. Food chain, producers, predators, prey, energy.
Scientific Enquiry		
Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions. • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own.		**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results.

Science in KS2

• I can make systematic and careful observations. I am beginning to help decide which variables to keep the same and which to change. • I can begin to decide when research will help in my enquiry.		• I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts. • I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.
Equipment and Measurement • I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	**Communicating and Presenting** • I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	**Considering Evidence and Evaluating**. • I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y4 States of Matter		
Scientific knowledge and understanding		**Vocabulary** Solids, liquids, gases, temperature, Celsius, evaporation, condensation, water cycle, reversible and irreversible change. (Particles?)
Revision How solid objects can be changed by applying force, squashing,	**Year 4** • **Compare and group materials together according to whether they are solids liquids and gases.**	

Science in KS2

bending, twisting and stretching.	• **Observe that some materials change state when they are heated or cooled and measure research the temperature at which this happens in degrees Celsius.** • **Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.** Scientist – Profession – Opportunities for science capital -	

Scientific Enquiry

Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions. • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own. • I can make systematic and careful observations. I am beginning to help decide which variables to keep the same and which to change. • I can begin to decide when research will help in my enquiry.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results. • I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts. • I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement • I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers.	**Communicating and Presenting** • I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written	**Considering Evidence and Evaluating**. • I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and

Science in KS2

• I can decide which equipment to use and can use new equipment e.g. data logger	explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

<table>
<tr><th colspan="4">Y4 Sound</th></tr>
<tr><th colspan="3">Scientific knowledge and understanding</th><td rowspan="2">Vocabulary
Sound, vibration, volume, travel, pitch, tension, thickness, air column, muffling, blocking.</td></tr>
<tr><td>Revision
Senses and which body part.</td><td colspan="2">Year 4
• Identify how sound are made, associating some of them with something vibrating.
• Recognise that vibrations from sounds travel through a medium to the ear.
• Find patterns between pitch of a sound and features of the object that produced the sound.
Scientist –
Profession –
Opportunities for science capital -</td></tr>
<tr><th colspan="4">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.</td><td colspan="2">Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.</td></tr>
<tr><td>Equipment and Measurement</td><td colspan="2">Communicating and Presenting</td><td>Considering Evidence and Evaluating</td></tr>
</table>

Science in KS2

• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	• I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y4 Electricity		
Scientific knowledge and understanding		**Vocabulary** Series, electrical, circuit, cells, wires, bulbs, switches, buzzers, conductors, insulators.
Revision Properties of metals.	**Year 4** • **Construct a simple series electrical circuit identifying and naming its basic parts. Including cells, wires, bulbs, switches and buzzers.** • **Identify whether a lamp will light or not in a simple series circuit.** • **Recognise that a switch opens and closes a circuit.** • **Recognise some common conductors and insulators associate metals with being good conductors.** Scientist – Profession –	

Science in KS2

	Opportunities for science capital –	

Scientific Enquiry

Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.

Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds.
• I can make systematic and careful observations. • I can begin to choose from a selection of equipment.
• I can use a range of equipment, including thermometers and data loggers.
• I can decide which equipment to use and can use new equipment e.g. data logger

Communicating and Presenting
• I am beginning to communicate findings using simple scientific language.
• I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions.
• I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
• I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
• I am beginning to describe my observations and my findings.
• I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest.
• I can begin to describe cause and effect.

Considering Evidence and Evaluating
• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes.
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.
• I can begin to compare and group according to behaviour or properties, based on testing.
• I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena.
I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry.
• I am beginning sometimes to think of cause and effect

Science in KS2

Y5 Earth and Beyond – Light and Astronomy		
Scientific knowledge and understanding		**Vocabulary** Solar system, sun, moon, spherical bodies, planets, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto dwarf planet). Movement, rotation, moon, day and night, seasons.
Revision Light and shadows. Apparent movement of sun in the sky as Earth turns.	**Year 5** • **Describe the movement of the Earth, and other planets, relative to the sun and each other in the solar system.** • **Describe the movement of the moon relative to the Earth.** • **Use idea of Earth's rotation to explain day and night. Use the Earth's movement in space to explain the apparent movement of the sun across the sky.** Scientist - Margaret Hamilton (Dorothy Vaughan), Polemy, Alhazn, Copernicus Professions – Opportunities for science capital -	
Scientific Enquiry		
Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions. • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own. • I can make systematic and careful observations. I am beginning to help decide which variables to keep the same and which to change.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results. • I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts.	

Science in KS2

• I can begin to decide when research will help in my enquiry.	• I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement	**Communicating and Presenting**	**Considering Evidence and Evaluating**
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	• I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y5 Forces – Effects on movement		
Scientific knowledge and understanding		**Vocabulary** Forces, friction, air resistance, water resistance, magnetic forces, gravity, levers, pulleys, gears, contact and non-contact.
Revision Forces, friction and magnetic force. Contact and noncontact forces.	**Year 5** • **Explain that unsupported objects fall towards mechanisms including levers, pulleys and gears 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 for a smaller force to have a greater effect.**	

Science in KS2

	• **There are different types of forces, (friction, air resistance, water resistance, magnetic forces, gravity) which have different effects on objects.** • **Gravity can act without direct contact between the Earth and an object.** Scientist – Galileo Galilei, Isaac Newton Profession – Opportunities for science capital -	

Scientific Enquiry

Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions. • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own. • I can make systematic and careful observations. I am beginning to help decide which variables to keep the same and which to change. • I can begin to decide when research will help in my enquiry.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results. • I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts. • I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement • I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers.	**Communicating and Presenting** • I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings.	**Considering Evidence and Evaluating** • I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements

Science in KS2

• I can decide which equipment to use and can use new equipment e.g. data logger	• I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect.

<table>
<tr><th colspan="3">Y5 Materials and their properties</th></tr>
<tr><th colspan="2">Scientific knowledge and understanding</th><td rowspan="2">Vocabulary
Materials, metals, wood, plastic, properties, hardness, solubility, transparency, conductivity (electrical and thermal), magnetic, metals, wood, plastic.
Evidence, comparative tests, fair tests</td></tr>
<tr><td>Revision
Properties of different materials. Opaque, translucent and transparent.
Rocks properties and uses.
Electricity. Insulators.
Solids, liquids and gases.
Magnetic force and metals.</td><td>Year 5
• Compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.
• Give reasons, based on evidence from comparative and fair tests, for the uses of everyday materials., including metals, wood, and plastic (advantages and disadvantages).
Scientist –
Profession –
Opportunities for science capital -</td></tr>
<tr><th colspan="3">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.</td><td>Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.</td></tr>
</table>

Science in KS2

		• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.
Equipment and Measurement • I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	**Communicating and Presenting** • I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	**Considering Evidence and Evaluating** • I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y5 Reversible and Irreversible changes		
Scientific knowledge and understanding		**Vocabulary** Reversible and irreversible change, solid, liquid, gas, mixtures, separate, dissolve, filter, sieve, evaporate.
Revision Solids liquids and gases. Changing states. Evaporation and condensation, water cycle.	**Year 5** • **Know that some materials will dissolve in liquid to form a solution, and to describe how to recover a substance from a solution.** • **Use knowledge of solids, liquids and gases to decide how mixtures might be separated, through filtering, sieving and evaporation.** • **Demonstrate that dissolving, mixing and changes of state are reversible changes.** • **Recognise everyday situations where dissolving occurs.** Scientists - Chemists Spencer Silver, Ruth Benerito Profession – Opportunities for science capital –	

Science in KS2

Scientific Enquiry

Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.

Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds.
• I can make systematic and careful observations. • I can begin to choose from a selection of equipment.
• I can use a range of equipment, including thermometers and data loggers.
• I can decide which equipment to use and can use new equipment e.g. data logger

Communicating and Presenting
• I am beginning to communicate findings using simple scientific language.
• I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions.
• I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
• I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
• I am beginning to describe my observations and my findings.
• I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest.
• I can begin to describe cause and effect.

Considering Evidence and Evaluating
• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes.
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.
• I can begin to compare and group according to behaviour or properties, based on testing.
• I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena.
I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry.
• I am beginning sometimes to think of cause and effect

Science in KS2

<table>
<tr><th colspan="3">Y5 Animals and Plant Life Cycles</th></tr>
<tr><th colspan="2">Scientific knowledge and understanding</th><td rowspan="2">Vocabulary
Life cycle, mammal, amphibian, insect and bird.
Life processes (Mrs Gren), Movement, Respiration, Senses, Growth, Reproduction, Excretion and Nutrition. Sexual and asexual reproduction. Puberty. Gestation.
Comparative research.</td></tr>
<tr><td>Revision
Classification
Structure and function
Role of flowering plants in the life cycle</td><td>Year 5
• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
• Describe the life processes of reproduction in some plants and animals.
• Describe the changes as humans develop to old age.
Scientists – naturalists and animal behaviourists, David Attenborough and Jane Goodall
Profession –
Opportunities for science capital –</td></tr>
<tr><th colspan="3">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.</td><td>Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.</td></tr>
<tr><td>Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds.
• I can make systematic and careful observations. • I can begin</td><td>Communicating and Presenting
• I am beginning to communicate findings using simple scientific language.
• I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions.</td><td>Considering Evidence and Evaluating
• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes.
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.
• I can begin to compare and group according to behaviour or properties, based on testing.</td></tr>
</table>

Science in KS2

to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	• I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	• I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect.

Y6 Living things and their habitats - Classification		
Scientific knowledge and understanding		**Vocabulary** Classification, characteristics. Micro-organisms, plants and animals. Vertebrates and invertebrates. Flowering plants and non-flowering plants.
Revision Classification keys in broad groupings Skeletons, vertebrates and invertebrates Lifecycles	**Year 6** • **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.** Scientist – Carl Linnaeus Profession - Opportunities for science capital -	
Scientific Enquiry		
Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions. • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own. • I can make systematic and careful observations.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results. • I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts.	

Science in KS2

I am beginning to help decide which variables to keep the same and which to change. • I can begin to decide when research will help in my enquiry.	• I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement	**Communicating and Presenting**	**Considering Evidence and Evaluating**
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	• I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y6 Living things and their habitats- Evolution and inheritance		
Scientific knowledge and understanding		**Vocabulary**
Revision Rocks and fossils in year 3 Reproduction sexual and asexual in year 5 Classification in year 4 and 6	**Year 6** • **Recognise that living things have changed overtime 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 parent.** • **Identify how plants and animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.** Scientists - Charles Darwin and Alfred Wallace.	Evolution, inheritance, fossils, nonidentical offspring, adaptation. Advantages and disadvantages, selection.

Science in KS2

	Profession – Opportunities for science capital -	

Scientific Enquiry

Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions. • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own. • I can make systematic and careful observations. I am beginning to help decide which variables to keep the same and which to change. • I can begin to decide when research will help in my enquiry.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results. • I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts. • I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement • I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	**Communicating and Presenting** • I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	**Considering Evidence and Evaluating** • I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Science in KS2

<table>
<tr><th colspan="3">Y6 Animals including humans- Exercise, health and the circulatory system</th></tr>
<tr><th colspan="2">Scientific knowledge and understanding</th><th>Vocabulary</th></tr>
<tr><td>Revision
Main body parts and internal organs (skeletal, muscular, digestive) in Year 3 and 4.
Health and nutrition, food groups, diets in Year 3.
Life processes in Year 5</td><td colspan="2">Year 6
• Identify the main parts of the 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 bodies function.
• Describe the ways in which nutrients and water are transported within animals including humans.
Scientist -
Profession -
Opportunities for science capital –</td><td>Circulatory system, blood vessels, oxygen, nutrients.
Life processes, (MRS GREN), Movement, Respiration, Senses, Growth, Reproduction, Excretion and Nutrition. Proteins, fats, carbohydrates, vitamins and minerals.</td></tr>
<tr><th colspan="3">Scientific Enquiry</th></tr>
<tr><td colspan="2">Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.</td><td colspan="2">Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.</td></tr>
<tr><td>Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds.</td><td>Communicating and Presenting
• I am beginning to communicate findings using simple scientific language.
• I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions.</td><td>Considering Evidence and Evaluating
• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes.
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.
• I can begin to compare and group according to behaviour or properties, based on testing.</td></tr>
</table>

Science in KS2

• I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	• I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	• I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y6 Electricity		
Scientific knowledge and understanding		**Vocabulary** Simple circuit diagrams, series circuits, switch, bulb, buzzer, motors. Prediction, systematic identification, cause and effect.
Revision Electricity circuits in year 4.	**Year 6** • **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, brightness of bulbs, loudness of buzzers, on and off positions of switches.** • **Use recognised simple circuit in a diagram using recognised symbols.** Scientist - Profession - Opportunities for science capital -	
Scientific Enquiry		
Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.	

Science in KS2

• I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own. • I can make systematic and careful observations. I am beginning to help decide which variables to keep the same and which to change. • I can begin to decide when research will help in my enquiry.	I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results. • I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts. • I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement	**Communicating and Presenting**	**Considering Evidence and Evaluating**
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	• I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Y6 Light and Astronomy – How Light Travels		
Scientific knowledge and understanding		**Vocabulary**
Revision Light sources, reflectors and shadows in year 3	**Year 6** • **Recognise that light appears to travel in straight lines.**	Light source, reflection and shadow. Periscope. Rainbows, colours on soap bubbles. Opaque, transparent and translucent.

Science in KS2

	• **Explain how objects are seen because they give out or reflect light into the eye. Light travels from light sources to the eyes or from light sources to objects and then to our eyes.** • **Light travels in straight lines thus explaining how shadows are the shape of the object that cats them.** Scientist: Alhazan Profession: Opportunities for science capital:	

Scientific Enquiry

Questioning and Research
• I can ask some relevant questions about the world around us.
•I can use some different types of scientific enquiry to answer questions.
• I can set up some simple practical enquiries, including comparative and fair tests.
• I am beginning to carry out simple research on my own.
• I can make systematic and careful observations.
I am beginning to help decide which variables to keep the same and which to change.
• I can begin to decide when research will help in my enquiry.

Planning and Recording
• I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units.
I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them.
• I can begin to see a pattern in my results.
• I can begin to use notes, simple tables and standard units
• I can begin to record results in tables and bar charts.
• I begin to use simple tables and standard units and help to decide how to record and analyse their data.
• I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.

Equipment and Measurement
• I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds.
• I can make systematic and careful observations. • I can begin to choose from a selection of equipment.
• I can use a range of equipment, including thermometers and data loggers.

Communicating and Presenting
• I am beginning to communicate findings using simple scientific language.
• I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions.
• I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
• I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
• I am beginning to describe my observations and my findings.

Considering Evidence and Evaluating
• I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes.
• I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys.
• I can begin to compare and group according to behaviour or properties, based on testing.
• I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena.
I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements

Science in KS2

• I can decide which equipment to use and can use new equipment e.g. data logger	• I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Scientific Enquiry		
Questioning and Research • I can ask some relevant questions about the world around us. •I can use some different types of scientific enquiry to answer questions. • I can set up some simple practical enquiries, including comparative and fair tests. • I am beginning to carry out simple research on my own. • I can make systematic and careful observations. I am beginning to help decide which variables to keep the same and which to change. • I can begin to decide when research will help in my enquiry.	**Planning and Recording** • I can begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units. I can begin to look for naturally occurring patterns and relationships and decide what data to collect ad identify them. • I can begin to see a pattern in my results. • I can begin to use notes, simple tables and standard units • I can begin to record results in tables and bar charts. • I begin to use simple tables and standard units and help to decide how to record and analyse their data. • I am beginning to collect data in a variety of ways, including labelled diagrams, pie charts and tables.	
Equipment and Measurement • I can begin to observe and measure accurately using standard units eg. mm, cm, m including time in minutes and seconds. • I can make systematic and careful observations. • I can begin to choose from a selection of equipment. • I can use a range of equipment, including thermometers and data loggers. • I can decide which equipment to use and can use new equipment e.g. data logger	**Communicating and Presenting** • I am beginning to communicate findings using simple scientific language. • I can gather, record, and begin to classify and present data in a variety of ways to help in answering questions. • I can begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I am beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I am beginning to describe my observations and my findings. • I am beginning to use comparative and superlative descriptions e.g. longer / shorter than, longest / shortest. • I can begin to describe cause and effect.	**Considering Evidence and Evaluating**. • I am beginning to identify differences, similarities or changes related to simple scientific ideas and processes. • I am beginning to talk about criteria for grouping, sorting and classifying and use simple keys. • I can begin to compare and group according to behaviour or properties, based on testing. • I am beginning to talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I am beginning to answer my questions using the results of my enquiry. • I am beginning sometimes to think of cause and effect

Science in KS2

— Firm Foundations — Ambitious Learning — Flourishing for life —