# Science Policy

Love bears all things, believes all things, hopes all things, endures all things.'

1 Corinthians 13:7

**Review date: January 2027**

## Contents



### Appendices

## Introduction

This policy outlines the purpose, nature and management of science in our school.

The policy reflects the consensus of opinion of the whole teaching staff and has the full agreement of the governing body.

The implementation of this policy is the responsibility of all the teaching staff.

## Intent

At All Saints Primary, we believe that Science is a body of knowledge built up through the experimental testing of ideas and systematic investigation. It is about providing opportunities for pupils to be able to explore and make sense of the world around them, while also equipping them with a wealth of skills-based processes.

This journey begins in the EYFS where the children are encouraged to look closely at the world around them, changes that occur and begin to question 'why?' They will make observations about their experiences of the world, talk about similarities and differences in relation to living things, their environment and materials and begin to make comparisons. In addition to this, they will be taught the importance for exercise, eating healthy food and how to look after themselves and keep safe.

This is then built upon in KS1 and KS2 through the National Curriculum, which aims to ensure that all pupils:

- To develop pupil's enjoyment and engagement in Science and an appreciation of the increasingly scientific and technological world they are growing up in.
- To develop lively, enquiring minds with an ability to question.
- To introduce pupils to the language and vocabulary of Science.
- To enable pupils to develop a knowledge of appropriate scientific facts and to develop basic concepts.
- To develop pupils' practical skills and their ability to make accurate measurements.
- To encourage open mindedness so children interpret their findings critically and do not always expect 'the right answer.'

## Implementation

The teaching of Science at All Saints Primary involves adapting and extending the curriculum to match all pupils' needs. Small steps learning are built into the planning to ensure full coverage and progression for all. Years 1-6 follow the Plymouth Science scheme of work to deliver the curriculum. Due to the mixed year groups in our school structure, Science units are taught on a two-year rolling programme, with the exception of EYFS. This ensures progression between year groups and guarantees all topics are covered.
Activities are planned to allow pupils to develop key knowledge, concepts and skills and to progress according to their ability. Opportunities are planned for open investigations that allow differentiation by outcome. Pupils are presented with a

range of activities. Scientific enquiry skills are covered throughout the units and are progressive. Key scientific symbols are used to make it explicitly clear to the children which key skill they are focusing on in a particular lesson. This begins in EYFS and continues through KS1 and into KS2. This allows the children to be clearer about their own learning and make links between concepts and ideas. Sustainability units are built into the curriculum to develop cultural capital allowing the children to know how they can engage in the world around them making them happy, valued and useful citizens and make them more knowledgeable on how they can make a positive change to their lives and the lives of others. The topics covered are relevant and interesting and link directly the current issues in our world.

## EYFS

Foundation Stage pupils work from Statutory framework – Understanding of the world - detailed as follows:

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension

The planning aims to develop in pupils the crucial knowledge, skills and understanding that help them make sense of the world. Teachers guide the pupils and plan opportunities that allow them to experience and learn through first-hand experiences that observation, problem solving, prediction, critical thinking, decision making and discussion. The skills covered in Early Years provide the foundation for the Science taught in both Key Stage 1 and 2.

Each child is given the opportunity to work with a range of materials and components, to work independently and in teams and to apply skills, knowledge and understanding from other curriculum subjects, where appropriate.

## Key stage 1 and 2

Science is taught as a discrete lesson and as part of cross-curricular themes when appropriate. Science has links with other areas of the curriculum including Geography, English, Numeracy, Art and Design Technology. To ensure full coverage of the National Curriculum while avoiding repetition, our school utilises a **two-year rolling programme (Cycle A and Cycle B)** for Plymouth Science units. This approach guarantees that all pupils in mixed-age cohorts access a broad and balanced science curriculum that is developmentally appropriate and avoids content overlap. While mixed-age classes explore the same thematic units, we ensure **progression in 'Working Scientifically' skills** by tailoring investigative tasks to the specific age-related expectations of each year group. Differentiation is achieved

through scaffolded enquiry, varied recording methods, and high-level questioning to ensure every child is sufficiently challenged. We utilise Plymouth Science Knowledge Organisers to bridge the gap between year groups, identifying 'Sticky Knowledge' that is essential for all learners while providing extended technical vocabulary for the older pupils within the cohort. This 'spiral' approach ensures that foundational concepts are revisited and deepened every two years. They will also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data.

## Recording in Science

The way in which Science is recorded will vary across the school depending on age and ability. Teachers should ensure that a range of appropriate methods are used. These may include:

- Written accounts including: instructions, reports and explanations;
- Diagrams, drawings and pictures;
- Annotated diagrams;
- Spreadsheets (data collection);
- Charts, graphs and tables;
- Model making.

Although most Science will follow a pattern of 'Question, Prediction, Method, Results, Evaluate', it is important to remember that the most valuable time is spent engaging in practical Science which allows children to understand a concept, rather than recording it.

## Impact

The successful approach at All Saints results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first- hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts and local charities, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science and are exposed to a range of different scientists from various backgrounds; all children feel they are scientists and capable of achieving.

## Resources

Resources are available in a central resource area in the hall store cupboard to be accessed by the teacher and on request from children during projects. All staff are responsible for returning equipment, storing it safely and tidily and informing the Science leader when resources run low or become lost or damaged.

## Assessment, recording and reporting

The purpose of assessment, recording and reporting in science is to track progress and identify the next steps in learning for each child.

Assessments are made over a period of time and are based on the evidence of more than one activity.

**Formative assessment**

Class teachers assess science skills, knowledge and understanding based on outcomes from learning intentions. There are "low-stakes" opportunities for teachers to spot misconceptions and adjust teaching in the moment.

- **Pre-Learning Quizzes:** At the start of a new unit, these assess what children remember from previous years
- **Concept Cartoons & "Big Questions":** Used at the start of lessons to spark discussion. Teachers listen to the vocabulary children use to gauge their depth of understanding.
- **Mini-Quizzes:** Short "retrieval" tasks embedded within lesson slides to help move information from short-term to long-term memory.

**Summative assessment**

Assessment of progress is made at the end of each project based on evidence from independent activities and end of unit assessments / quizes. Outcomes are recorded using the unit overview document. This information will be used to complete a child's individual report to parents and for the science leader to determine the impact of the provision in the school.

Standards are assessed against EYFS and National Curriculum descriptors as appropriate. Assessment will be through:

- Observations
- Discussions with learners
- Learners' self-assessment
- Assessments on school assessment ladders at the end of topics.

## Review

This policy will be reviewed in 2026-2027

**Appendices**

1. All Saints Curriculum Driver
2. Whole school overview
3. Whole school progression grids
4. Scientific enquiry skills
5. Sc1 progression grid

Our 6 Christian values underpin everything we do at All Saints. Our knowledge-based curriculum has been specifically designed to fit the locality and context of our school.
To achieve our vision, we have identified five 'drivers' for our curriculum, which are rooted in our Christian values. These drivers will run throughout our curriculum to ensure that children are equipped with the essential knowledge and skills needed for everyone to fulfil their unique potential.

# Science Curriculum Rolling Programme

= includes coverage of sustainability topics

(Y1-6 objectives covered through White Rose Science sustainability units)

# EYFS

| One Year Programme | | | | | |
|---|---|---|---|---|---|
| Aut1 | Aut2 | Spr1 | Spr2 | Sum1 | Sum2 |
| **Autumn**<br>BQ: What colour are the leaves? | **My body**<br>BQ: How **can I look after myself?** | **Compare & contrast environments**<br>BQ: Where is a camel from? | **Spring**<br>BQ: What is best material for the Three Pigs to build a house from | **Growth**<br>BQ: How do things change/ grow over time? | **Recycling**<br>BQ: Is the world changing a bad thing? |

# Years 1 and 2

## Rolling programme - Cycle A 2025/2026

At least one sustainability topic to be covered each year across a two-year cycle

| Aut1 | Aut2 | Spr1 | Spr2 | Sum1 | Sum2 |
|---|---|---|---|---|---|
| **Material world**<br><br>-Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials incl wood, plastic, glass, metal, water and rock.<br>-Describe the simple physical properties of a variety of materials.<br>-Compare and group together a variety of everyday materials on the basis of their simple properties.<br><br>BQ: Can we improve on the way we live our lives today? | **Material world**<br><br>-Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, rock, brick, paper and cardboard for particular uses. | **Looking after plants**<br><br>-Identify and describe the basic structure of a variety of common flowering plants, including trees.<br><br>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.<br><br>BQ: Do I grow in the same way as a tomato?<br><br>**Caring for our planet (y1)** | **Looking after plants**<br><br>Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies | **The Human Body and staying healthy.**<br><br>-Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.<br>- Identify and name a variety of common animals that are carnivores, herbivores and omnivores.<br>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.<br><br>BQ: Should we be part of the food chain? | **The Human Body and staying healthy.**<br><br>-Notice that animals, including humans, have offspring which grow into adults.<br>-Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.<br><br>-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. |

# Rolling Programme – Cycle B 2026/2027

At least one sustainability topic to be covered each year across a two-year cycle

| Aut1 | Aut2 | Spr1 | Spr2 | Sum1 | Sum2 |
|---|---|---|---|---|---|
| **Animal Safari**<br><br>-Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. **Repeat objective for consolidation.**<br>-Identify and name a variety of common animals that are carnivores, herbivores and omnivores . **Repeat objective for consolidation.**<br>-Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)<br>- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) | **Animal Safari**<br><br>-Explore and compare the differences between things that are living, dead, and things that have never been alive.<br>-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,<br>-Identify and name a variety of plants and animals in their habitats, including microhabitats<br><br>Notice that animals, including humans, have offspring which grow into adults. **Repeat objective for consolidation.** | **Changing Materials**<br><br>-Distinguish between an object and the material from which it is made. **Repeated from cycle 1 for consolidation.**<br>-Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.<br>-Describe the simple physical properties of a variety of everyday materials.<br><br>**Plastic (Y2)** | **Changing Materials**<br><br>-Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | **How does your garden grow?**<br><br>Name common plants and describe the basic structure of flowering plants, including deciduous and evergreen.<br>-Identify and describe the basic structure of a variety of common flowering plants, including trees. **Revisit of objective to consolidate.** | **How does your garden grow?**<br><br>Observe and describe how seeds and bulbs grow into mature plants |

# Years 3 and 4

Rolling Programme cycle A – 2025 /2026

At least one sustainability topic to be covered each year across a two-year cycle

| Aut1 | Aut2 | Spr1 | Spr2 | Sum1 | Sum2 |
|---|---|---|---|---|---|
| **Animals, Food Chains and the Digestive System**<br>*BQ: What does it mean to be healthy?*<br><br>Describe the simple functions of the digestive system in humans.<br>Identify different teeth in humans and name their functions.<br>Know how to keep my teeth healthy<br>Identify and compare teeth of carnivores, herbivores and omnivores.<br>Construct and interpret a variety of food chains identifying producers, predators and prey by examining animal faeces (poo).<br>Identify animal habitats in the locality and observe what they eat. | **Sound**<br>*BQ: Does a sound happen if nobody is around to hear it?*<br><br>To identify how sounds are made, associating some of them with something vibrating. (Vibration stations)<br>Recognise that vibrations from sounds travel through a medium to the ear. (String phones)<br>Find patterns between pitch of a sound and features of the object that produced it.<br>Find patterns between the volume of a sound and the strength of the vibrations that produced it.<br>Recognise that sound gets fainter as the distance from the sound source increases | **Materials: Solids, liquids and Gases**<br>*BQ: Where does a puddle go?*<br><br>Compare and group materials together, according to whether they are solids, liquids or gases.<br>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.<br>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | **Plants**<br>*BQ: What do plants need to grow as strong and healthy as possible?*<br><br>Identify and describe the functions of different parts of a flowering plant.<br>Explore the requirements of plant life and growth.<br>Investigate the way in which water is transported within plants.<br>Explore the part that flowers play in the lifecycle of flowering plants including pollination, seed formation and seed dispersal. | **Electricity**<br>*BQ: Why are insulators as important as conductors?*<br><br>Identify common appliances that run on electricity.<br>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.<br>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.<br>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.<br>Recognise some common conductors and insulators, and associate metals with being good conductors. | **Biodiversity (Y3)**<br><br>**Energy (Y4)** |

Rolling Programme Cycle B – 2026/ 2027

At least one sustainability topic to be covered each year across a two-year cycle

| Aut1 | Aut2 | Spr1 | Spr2 | Sum1 | Sum2 |
|---|---|---|---|---|---|
| **Light and Shadow**<br>*BQ: How does the sun make light?*<br><br>To recognise we need light in order to see things and that dark is the absence of light.<br>Light is reflected from surfaces.<br>Recognise that light from the sun can be dangerous and that there are ways to protect your eyes.<br>Recognise that shadows are formed when light from a source is blocked by an opaque object.<br>Find patterns in the way that the shadows change. | **Forces and Magnets**<br>*BQ: How have our ideas about forces changed over time?*<br><br>Compare how things move on different surfaces.<br>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.<br>Observe how magnets attract or repel each other and attract some materials and not others.<br>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.<br>Describe magnets as having two poles.<br>Predict whether two magnets will attract or repel each other, depending on which poles are facing. | **Living Things and Their Habitats**<br>*BQ:*<br><br>Recognise that living things can be grouped in a variety of ways.<br>Explore and use classification keys to help group.<br>Identify and name a variety of living things in the environment.<br>Recognise that environments can change and this can sometimes pose dangers to living things. | **Human Skeleton and Nutrition**<br>*BQ: What makes you, you?*<br><br>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.<br>Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. | **Rocks and Fossils**<br>*BQ: Can learning about the past help us learn about the future?*<br><br>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.<br>Describe in simple terms how fossils are formed when things that have lived are.<br>trapped within rock.<br>Recognise that soils are made from rock and organic matter. | **Food waste (Y3)**<br><br>**Deforestation (Y4)** |

# Years 5 and 6

Rolling Programme - cycle A – 2025/2026

At least one sustainability topic to be covered each year across a two-year cycle

| Aut1 | Aut2 | Spring | Sum1 | Sum2 |
|---|---|---|---|---|
| **Properties and changes of materials**<br>BQ: Is everlasting ice possible?<br>**Plastic Pollution (Y5)**<br>Compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity and response to magnets.<br>Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.<br>Use knowledge of solid, liquid and gas to decide how mixtures might be separated including through filtering, sieving and evaporation.<br>Give reasons based on evidence from comparative tests for the particular uses of everyday materials including metals, wood and plastic.<br>Demonstrate that dissolving, mixing and changes of state are reversible changes.<br>Explain that some changes result in the formation of new materials and this kind of change is not usually reversible including changes associated with burning and the action of acid on bicarbonate of soda. | **Forces**<br>BQ: Can the weak overcome the strong?<br>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. *(The act of gravity on our lives)*<br>Identify the effects of air resistance, water resistance and friction, which act between moving surfaces.<br>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. | **Animals including Humans, life cycles / Living things & their habitats**<br>BQ: What does it mean to lead and happy and fulfilling life?<br>Describe the changes as humans develop from birth to old age.<br>Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird<br>Describe the life process of reproduction in some plants and animals | **Light**<br>BQ: Does light ever stop travelling?<br>Recognise that light appears to travel in straight lines.<br>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye<br>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes<br>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | **Light Pollution (Y6)**<br>What is light pollution and how can we reduce it?<br>Working scientifically – Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. |

Rolling Programme cycle B – 2026 / 2027

At least one sustainability topic to be covered each year across a two-year cycle

| Aut1 | Aut2 | Spr1 | Spr2 | Sum1 | Sum2 |
|---|---|---|---|---|---|
| **Evolution and Inheritance**<br>BQ: Do you always have to agree?<br>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago<br>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents<br>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | **Earth & Space**<br>BQ: Do I have what it takes to be an astronaut?<br>Describe the movement of the Earth and other planets, relative to the sun in the solar system.<br>Describe the movement of the moon relative to the Earth.<br>Describe the Sun, Earth and Moon as approximate spherical bodies.<br>Use Earth rotation to explain day and night due to the apparent movement of the sun across the sky. | **Living things and classification**<br>BQ: Should everything have a label?<br>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<br>Give reasons for classifying plants and animals based on specific characteristics. | **Animal including humans, healthy living**<br>BQ: What does healthy look like?<br>Identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood.<br>Describe the ways in which nutrients and water and transported within animals including humans.<br>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. | **Electricity**<br>BQ: Does electricity improve your life?<br>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.<br>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.<br>Use recognised symbols when representing a simple circuit in a diagram. | **Renewable energy (Y6)**<br>What is renewable energy and how can we use it to generate electricity?<br>**Global Warming (Y6)**<br>What is global warming and how can we help to reduce it? |

**Appendix 3 – progression grids**

# Science Progression of Knowledge, Skills and Enquiry

How this document works:

This is a whole school overview. The accompanying document shows each year group along with suggested activities and links teachers can use to teach each skill, knowledge or enquiry type.

Page 1: demonstrates what a typical scientist will look like at the end of each year, combining the key skills and knowledge they will require.

Page 2: onwards has the National Curriculum objectives for each year group with key vocabulary for that module and also 'key indicators' which demonstrates what the children should know to achieve the objective.

Any text boxes in a different colour with a thick border shows that this skill/knowledge is taught in a different module but builds on from learning in that module e.g.

Recognise that living things can be grouped in a variety of ways.

The red writing in brackets underneath show where this objective was taken from. This is to allow teachers to make the links to prior learning.

This grid shows the types of enquiry suggested for each unit. The additional year group document gives suggested activities linked to each 'scientific enquiry'.

| Scientific Enquiry | |
|---|---|
| Research |  |
| Pattern Seeking |  |
| Observing (Over time) |  |
| Testing |  |
| Identifying and Classifying |  |
| Problem solving |  |

This is the National Curriculum Working Scientifically objectives. These are highlighted through the document in purple. This is to ensure teachers are teaching knowledge alongside skills.

Year 1 / 2 Working Scientifically

Asking simple questions and recognising that they can be answered in different ways ♣ observing closely, using simple equipment ♣ performing simple tests ♣ identifying and classifying ♣ using their observations and ideas to suggest answers to questions ♣ gathering and recording data to help in answering questions.

Year 3 / 4 Working Scientifically

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

Year 5/6 Working Scientifically

Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ♣ taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ♣ recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ♣ using test results to make predictions to set up further comparative and fair tests ♣ reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations ♣ identifying scientific evidence that has been used to support or refute ideas or arguments.

| | Foundation/ EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|
| This is what our scientists can do…. | Children will ask questions about the environment including the weather outside. They will be able to suggest what they might wear. They will develop an understanding of growth, decay and changes over time and show care and concern for living things and the environment. They will use their senses when walking around and investigating. They will develop questioning and curiosity through play and understand the concept of forces and electricity through twisting, pushing, slotting and magnetic toys and seeing the effects of pushing different buttons to make sounds and movements. They can talk about similarities and differences between living things and materials and make simple observations about animals. | Children will be asking questions about the local environment including plants and animals found there including how they can look after them. They will observe and talk about the weather and changes. They will explore different materials using scientific language to describe them. | Children will be asking questions about the local environment including discussing how plants grow, survive, germinate and reproduce. They investigate different habitats (incl. micro) and observe how different animals depend on each other and its life processes. They understand basic needs of animal survival including exercise and nutrition. They can identify properties of materials and state why they are suited to purpose. They can name some scientists who have developed new materials. | Children will be asking questions about the local environment and using their observation skills to identify parts of a flower and know how water transports around the plant. Children will understand the lifecycle of a plant by drawing diagrams and using research to find the function of each part. Children will know that humans and animals have skeletons and understand why. They know how humans get nutrients. They will carry out comparative and fair tests to compare and classify rocks and soils based on their properties. | Children will be asking questions about the local environment and observe how the environment can change along with the dangers this can cause. They will understand the functions of the teeth and the importance of oral hygiene. Children will know about how the digestive system works. Children will be grouping, identifying and classifying living things and materials and using classification keys. Children will understand the water cycle and effect of heat with evaporation and condensation as well as materials changing state. Children will use representations to understand how we hear through vibrations and know how to create simple circuits including a switch. Comparative and fair tests will be used to test conductivity of materials. | Children will understand the changes that occur in humans from birth to old age and understand reproduction in plants and animals. They explore different lifecycles and can understand the similarities and differences between mammals, amphibians, insects and birds. Children will be able to explain the uses of everyday materials and describe some reversible and irreversible changes. They will be able to present their results from fair tests using tables and charts. Children will use diagrams to show the movement of the Earth and the moon and can explain how different time zones occur. They explain day and night. They will have an understanding of forces including gravity, air resistance, water resistance and friction. They will be able to mechanisms such a levers, pulleys and gears to explain forces and making jobs easier. | Children will understand how the circulatory system works and will be able to use this to explain the positive and negative effects of diet, exercise, drugs and lifestyle on the body. They will be able to recall animals from the 5 vertebrate group and some from non-vertebrate groups including their key characteristics. They will understand how plants and animals are suited to their environment and the process of evolution. Children will be able to use classification keys to identify unknown plants. They will know what fossils are and can use research and observations to show that things lived billion years ago. Children will use diagrams to explain how light travels and understand shadows. They will be able to make simple circuits using recognised symbols in their drawings. They can conduct a range of fair tests identifying cause and effect when testing brightness of a bulb or volume of a buzzer. Children will be able to conduct a range of investigations with accuracy using repeat measurements and using a range of equipment. They will use scientific theory to refute or support their arguments. |

| Year Group | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|
| **Plants**<br>  | **Natural world**<br>Explore the world around them making observations and drawings of plants.<br><br>**Natural world**<br>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.<br><br>**Communication and language**- express their ideas and feelings about their experiences using full sentences. | • Name common plants and describe the basic structure of flowering plants, including deciduous and evergreen.<br><br>• Identify and describe the basic structure of a variety of common flowering plants, including trees.<br>  | • Observe and describe how seeds and bulbs grow into mature plants.<br>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.<br>  | • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>• Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.<br>• Investigate the way in which water is transported within plants.<br>• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.<br>  | Recognise that living things can be grouped in a variety of ways.<br><br>(living things and habitats) | Describe the differences in the lifecycles of a mammal, an amphibian, an insect and a bird.<br><br>(Living things and habitats) | 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.<br><br>Give reasons for classifying plants and animals based on specific characteristics<br><br>(Living things and habitats) |
| <u>Key vocabulary</u> | Plant, leaf, stem, flower, grow, rain, sun, water, soil, seed, | Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud.<br>Names of trees in local area, garden and wild flowering plants. | As year 1+ light, shade, sun, warn, cool, water, grow, healthy. | Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal- wind dispersal, animal dispersal, water dispersal, pollen, roots, stem, trunk, leaves, absorb, nutrients, reproduce, germination, stamen, style. | Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.<br><br>(living things and habitats) | Lifecycle, mammal, amphibian, germination, seed formation, insect, bird, pollination, life processes, plants, animals, reproduction, environment, dispersal, growth, living, eggs, and seeds.<br><br>(living things and habitats) | Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering.<br><br>(living things and habitats) |
| <u>Key indicators</u> | • Can plant seeds and care for growing plants.<br>• Understand the basic features of a simple plant lifecycle.<br>• Can name basic parts of a plant e.g. leaf, petal. | • Can name trees and other plants they see regularly.<br>• Can describe key features of the trees and plants e.g. shapes of leaves/colour of the flower/blossom.<br>• Can point out trees which lost their leaves and those who keep them all year. Can point to and name parts of a plant.<br>• Can use simple charts to sort. Can use photos to talk about how plants change. | • Can describe how plants that have grown from seeds and bulbs have developed over time.<br>• Can identify plants that grew well in different conditions.<br>• Can spot similarities and differences between bulbs and seeds.<br>• Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants. | • Can explain the function of the parts of a flowering plant.<br>• Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal and germination.<br>• Can give different methods of pollination and seed dispersal, including examples.<br>• Can explain observations made during investigations.<br>• Can look at features of seeds to decide on method of dispersal.<br>• Can draw and label a diagram of their created flowering plant to show its parts and their role and method of pollination and seed dispersal. | See living things and habitats. | See living things and habitats. | See living things and habitats. |

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| **Animals including humans.**<br>  | **The Natural World**<br>Explore the natural world around them, making observations and drawing pictures of animals.<br><br>Begin to make sense of their own life-story and family's history.<br><br>Begin to understand the key features of the lifecycle of a plant and animal.<br><br>**People, culture and communities**<br>Describe their immediate environment using knowledge from observation, discussion, stories and non-fiction texts and maps.<br><br>**Personal, social and emotional development**<br>Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. | Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.<br>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.<br>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)<br>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense | Notice that animals, including humans, have offspring which grow into adults.<br>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)<br>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.<br><br>Identify that humans and some other animals have skeletons and muscles for support, protection and movement. | Describe the simple functions of the basic parts of the digestive system in humans.<br>Identify the different types of teeth in humans and their simple functions.<br>Construct and interpret a variety of food chains, identifying producers, predators and prey. | Describe the differences in the lifecycles of a mammal, an amphibian, an insect and a bird.<br><br>Describe the life processes of reproduction in some plants and animals.<br><br>(living things and habitats)<br><br>Describe the changes as humans develop from birth to old age. | Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.<br><br>Identify and name the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood.<br><br>Describe the ways in which nutrients and water are transported within animals, including humans. |
| <u>Key vocabulary</u> | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, heart, | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, reptile, amphibian, mammal, omnivore, carnivore, herbivore, all senses. | Offspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, survival, exercise. | Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints. | Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, incisor, canine, herbivore, omnivore. | Puberty, vocabulary linked to describe a range of sexual characteristics. | Heart, pulse, rate, pumps, blood, blood vessel, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle. |
| <u>Key indicators</u> | Children can explore the natural world around them.<br>They can describe what the see, feel and hear when outside. | Can name a range of animals which includes animals from each of the vertebrate groups.<br>Can describe the key features of named animals. | Can sequence the stages of a baby. Observe these changes. Can describe how animals change as they get older. Develops understanding of how insects change (more | Can name the nutrients found in food. Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients. Name some bones | Can sequence the main parts of the digestive system. Can draw the main parts of the digestive system onto a human | Can explain the changes that takes place in boys and girls during puberty. Can explain how a baby changes physically as it grows and also what it is able to do. | Can draw a diagram of the circulatory system, label the parts and annotate it to show what the parts do. Can explain the positive and negative |

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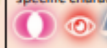
| | They can recognise environments which is different to the one they live in.<br>They can talk about simple similarities and differences between living things. They can make simple observations about animals and explain why some things occur.<br>They can explore basic lifecycles of animals. | Can label key features on a picture/diagram.<br>Can write descriptively about an animal.<br>Can write a 'What am I? riddle about an animal.<br>Can describe what a range of animals eat.<br>Can compare and classify animals. | than a butterfly) through lifecycle diagrams.<br>Can explain what humans and other animals need to survive- this could be through planning a trip to the moon or desert island.<br>Can describe how to keep clean and healthy. Has a good understanding of the food plate and understands 'a healthy balanced diet'. Can create a diet for an athlete.<br>Can adopt a menu to substitute food from the eat well plate. Understands the effect of exercise on the body. | that make up the skeleton giving examples that support, help them move or provide protection. Can describe how muscles and joints help them to move. Classify food groups (high/low nutrients), answer q's about nutrients in food, use data to look for patterns. Give similarities and differences between skeletons. | outline. Can describe what happens in each part of the digestive system. Can point to three different types of teeth in their mouth and talk about what each is used for. Demonstrate journey of food through body. Make a dental record, Can explain teeth in animals and if they are carnivores, herbivores or omnivores. | | effects on diet, exercise, drugs and lifestyle on the body. |
| Living Things<br><br>Evolution and Inheritance | **People, culture and communities**<br>Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and maps.<br><br>**Understanding the world**<br>Begin to understand the need to respect and care for the natural environment and all living things.<br><br>Explore the natural world around them.<br><br>  | • Name common plants and describe the basic structure of flowering plants, including trees.<br><br>(Plants)<br><br>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals<br>Identify and name a variety of common animals that are carnivores, herbivores and omnivores<br>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including<br><br>(Animals including Humans) | 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<br>Identify and name a variety of plants and animals in their habitats, including microhabitats<br>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.<br><br>  | Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br><br>(Plants) | Recognise that living things can be grouped in a variety of ways.<br>Explore and use classification keys to help group, identify and name a variety of living things in their local environment.<br>Recognise that environments can change and that this can sometimes pose dangers to living things.<br><br>  | Describe the differences in the lifecycles of a mammal, an amphibian, an insect and a bird.<br><br>Describe the life processes of reproduction in some plants and animals.<br><br>  | 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.<br>Give reasons for classifying plants and animals based on specific characteristics<br><br>  <br><br><u>Evolution and inheritance</u><br>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.<br>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.<br>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.<br><br>  |
| Key Vocabulary | | See Animals including Humans<br><br>See Plants | Living, dead, never been alive, suited, suitable, basic need, food, food chain, shelter, move, feed, names of local habitats | | Classification, classification keys, environment, habitat, human impact, | Lifecycle, mammal, amphibian, germination, seed formation, insect, bird, pollination, life processes, plants, animals, reproduction, environment, | Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering. |

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| | | | e.g. pond, woodland, names of micro habitats e.g. under logs, in bushes etc. | | positive, negative, migrate, hibernate. | dispersal, growth, living, eggs, and seeds. Can dissect and label parts of flowering plant including male and female structures. Record finding as an annotated illustration of a flowering plant. Research and explain the life cycle and reproduction of a plant using scientific language. | Evolution<br>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils. |
| Key indicators | Children will be able to explore the natural world and make observations.<br>Children will recognise animal habitats.<br><br>Children will understand how to look after animals and the environment including habitats.<br><br>Children will begin to explore where they live and compare to other places in the world e.g. weather, climate. | | Find a range of items which are dead, living. Can name plants/animals which live in different habitats and micro habitat. Can talk about the features of the animal/plant and how they are suited to the habitat. Can talk about what the animal eats. Can construct a food chain. | | Can name living things in a range of habitats, giving key features that helped identify them. Can give examples of how an environment may change both naturally and due to human impact. Can use classification keys to identify unknown plants and animals. | Can describe the lifecycles of mammals, amphibians and insects using diagrams. Can describe similarities and differences between them. | Can give examples of animals in the five vertebrate groups and some of the invertebrate groups. Can give key characteristics of the five vertebrate groups and some invertebrate groups. Can give examples of flowering and non-flowering plants. Can use classification keys to identify unknown plants and animals. Can create classification keys. Can give a number of characteristics that explain why an animal belongs to a particular group.<br><br><u>Evolution</u><br>Can explain the process of evolution. Can give examples of how plants and animals are suited to their environment. Can give examples of how an animal or plant has evolved over time e.g. penguin, peppered moth. Give examples of things that lived millions of years ago and the fossil evidence to support this. |
| **Materials**<br>  | **The Natural World**<br>Understand some important processes and changes in the natural world around them, including changing states of matter.<br><br>**Speaking**<br>Offer explanations for why things happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and | Distinguish between an object and the material from which it is made.<br>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.<br>Describe the simple physical properties of a variety of everyday materials.<br>Compare and group together a variety of everyday materials on the basis of their simple physical properties.<br>  | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.<br>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.<br>  | Notice that some forces need contact between two objects, but magnetic forces can act at a distance.<br><br>(Forces **and** magnetism) | <u>STATES OF MATTER</u><br>Compare and group materials together, according to whether they are solids, liquids or gases (states of matter)<br>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (States of matter) | Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.<br>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.<br>Use knowledge of solids, liquids gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. | |

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| **Rocks and Soils**  | poems where appropriate.<br><br>**Understanding of the world**<br>Use all their senses in hands on exploration of natural materials.<br>Explore collections of materials with similar and/or different properties.<br>Talk about what they see using a wide vocabulary.<br>Explore how things work.<br>Talk about the difference between materials and changes they notice. | | | Rocks and Soils<br>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.<br>Describe in simple terms how fossils are formed when things that have lived are trapped within a rock.<br>Recognise that soils are made from rocks and organic matter | Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (states of matter) | Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals wood and plastic.<br>Demonstrate that dissolving, mixing and changes of state are reversible changes.<br>Explain that some changes result in the formation of new materials and this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. | Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.<br><br>(Evolution and Inheritance) |
| Key Vocabulary | Wet, dry, shiny, dull, bendy, stiff, squashy, hard/soft, lumpy, wrinkly. Smooth, rough. | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through. | Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable/unsuitable, use/useful, hard/soft, stretchy/stiff. Rigid/flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching. | Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil. | Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle | Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/not reversible, change, burning, rusting, new material. | |
| Key indicators | They can talk about simple similarities and differences between two materials and how materials change in terms of shape, size and texture.<br>They can describe materials using basic scientific words.<br>They can explore how things work. | Can label a picture/diagram of an object made from different materials.<br>Can describe the properties of materials.<br>Can sort materials using their properties. Can test evidence to answer a question. | Can name an object, say what material it is made from, identify properties and make a link between property and use. Whilst changing a shape of an object can describe the actions used.<br>Can use suitable vocabulary. Simple tests relevant to properties.<br>Describe similarities and differences. | Can name some types of rock and give physical features of each. Can explain how a fossil is formed. Can explain that soils are made from rocks and also contain living/dead matter. Classify rocks in a range of ways using scientific vocabulary. Test properties of rocks. Show understanding of how fossils were formed, can identify plant/animal matter in soil, test water retention of soils. | Can create a concept map, including arrows linking the key vocabulary.<br>Can name properties of solids, liquids and gases.<br>Can give everyday examples of melting and freezing.<br>Can give everyday examples of evaporation and condensation.<br>Can describe the water cycle.<br>Can give reasons to justify why something is a solid liquid or gas.<br>Can give examples of things that melt/freeze and how their melting points vary<br>From their observations, can give the melting points of some materials. | Can explain everyday uses of material e.g. how bricks, wood, glass are used in buildings. Can explain what dissolving is, giving examples. Can name equipment used for filtering and sieving. Can use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions or mixtures by evaporation, filtering or sieving. Can describe simple reversible and non-reversible changes to materials, giving examples. | |

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| | They can group and classify materials using their properties. | | | | Using their data, can explain what affects how quickly a solid melts.<br>Can measure temperatures using a thermometer.<br>Can explain why there is condensation on the inside the hot water cup but on the outside of the icy water cup<br>From their data, can explain how to speed up or slow down evaporation.<br>Can present their learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet. | Can create chart/table grouping materials using properties. Suggest appropriate material for purpose. Can explain results from investigations involving dissolving and non-reversible change. | |
| Seasonal Changes  | **The Natural World** Understand some important processes and changes in the natural world around them, including seasons. | Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. | | Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. | | Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Forces) | Use the idea that light travels in straight lines to explain why shadows have the same shape as the object that casts them. (Light) |
| Earth and Space  | | | | Recognise that light from the sun can be dangerous and that there are ways to protect our eyes.<br>Recognise that shadows are formed when the light source is blocked by a solid object.<br>Find patterns in the way the size of the shadows change (Light) | | Earth and Space<br>Describe the movement of the Earth and other planets, relative to the sun in the solar system.<br>Describe the movement of the moon relative to the Earth.<br>Describe the Sun, Earth and Moon as approximately spherical bodies.<br>Use Earth rotation to explain day and night due to the apparent movement of the sun across the sky. | |
| Key vocabulary | Snow, wind, rain, sun, day, night, stormy, cloudy, hot, cold, foggy. | Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length | | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous. (Light) | | Earth, sun, moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, Pluto (dwarf planet), spherical, solar system, rotates, star, orbit, planets, axis, night, day, season, galaxy. Meteorite. | Year 3 vocabulary- Plus Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous. (Light) |

| Key indicators | Can describe the weather outside and suggest what they might wear and what they might see. Can comment on the environment e.g. the leaves have fallen off the tree, there is a puddle. Children can understand the effect of changing seasons on the natural world around them. | Can name four seasons and identify when in the year they occur. Can observe and describe weather in different seasons. Can describe days being longer in summer and shorter in winter. Present data in tables charts and compare seasons. | | See Light | | Can show using diagrams the movement of the Earth and moon. Can explain the rotation of the Earth and how this causes night and day. Can explain evidence gathered about the position of shadows in terms of movement of the Earth. Can explain how a sundial works. Can explain why we have time zones. | See Light |
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| Light and sound  | **Understanding of the world**<br>Explore materials with different properties. Talk about what they see, using a wide vocabulary.<br><br>**Expressive arts and design**<br>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture form and function.<br><br>Explore colour and colour-mixing.<br><br>Play instruments with increasing control to express their feelings and ideas. | 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.<br>(Materials)<br><br>Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.<br>(Seasonal changes)<br><br>pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense<br>(Animals incl humans) | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.<br>(materials)<br><br>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.<br>(Plants) | Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.<br>(Plants)<br><br>Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect our eyes. Recognise that shadows are formed when the light source is blocked by a solid object. Find patterns in the way the size of the shadows change | Recognise that environments can change and that this can sometimes pose dangers to living things.<br>(living things and habitats)<br><br>SOUND<br>To identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sound gets fainter as the distance from the sound source increases. | Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.<br>(materials)<br><br>Use Earth rotation to explain day and night due to the apparent movement of the sun across the sky.<br>(Earth and Space) | Recognise that light travels in straight lines.<br>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.<br>Use the idea that light travels in straight lines to explain why shadows have the same shape as the object that casts them. |

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| Key vocabulary | Smell, sound, sight, see, look, | See Seasonal Changes<br><br>See Animals Including Humans | | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous. | Sound, source, vibrate, vibration, travel, pitch, volume, faint, loud, insulation. | Earth, sun, moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, Pluto (dwarf planet), spherical, solar system, rotates, star, orbit, planets, axis, night, day, season, galaxy. Meteorite. | Year 3 vocabulary- Plus Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous. |
| Key indicators | Children will be able to identify and name different colours. They can mix colours and explain the changes. They can experiment with sound and making different noises with musical instruments and express using different terms such as loud, quiet, beat, vibrate. | See Seasonal Changes<br><br>See Animals Including Humans | | Can describe how we see objects in lights and can describe dark as the absence of light. Know it is dangerous to look at the sun. Define transparent, translucent and opaque. Can describe how shadows are formed. Predict what materials will be more/less visible. . | Can describe different types of objects producing different sounds and that the sound is produced by vibration in the object. Can describe sounds travelling through different mediums such as air, water, metal. Can find patterns between pitch and volume and the features of the object producing it. Can recognise that sounds get fainter as the distance from the sound source increases. Can explain what happens when you strike a drum or pluck a string- use diagrams to show. Demonstrates how to increase/decrease pitch and volume. | (See Earth and Space) | Can describe with diagrams how light travels in straight lines, either from sources or reflected from other objects into our eyes. Can describe with diagrams how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape. |
| Forces  | **Understanding the World.** Explore and talk about different forces they can feel. Can talk about the differences between materials and changes they notice. | 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.<br><br>(Materials) | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.<br><br>(Materials) | Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. | | Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.<br><br>To describe the movements of the Earth, and other planets, relative to the Sun in the solar system (Earth and Space) | |
| | | | Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable/unsuitable, use/useful, hard/soft, Rigid/flexible, waterproof/absorbent, | | | | |

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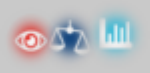
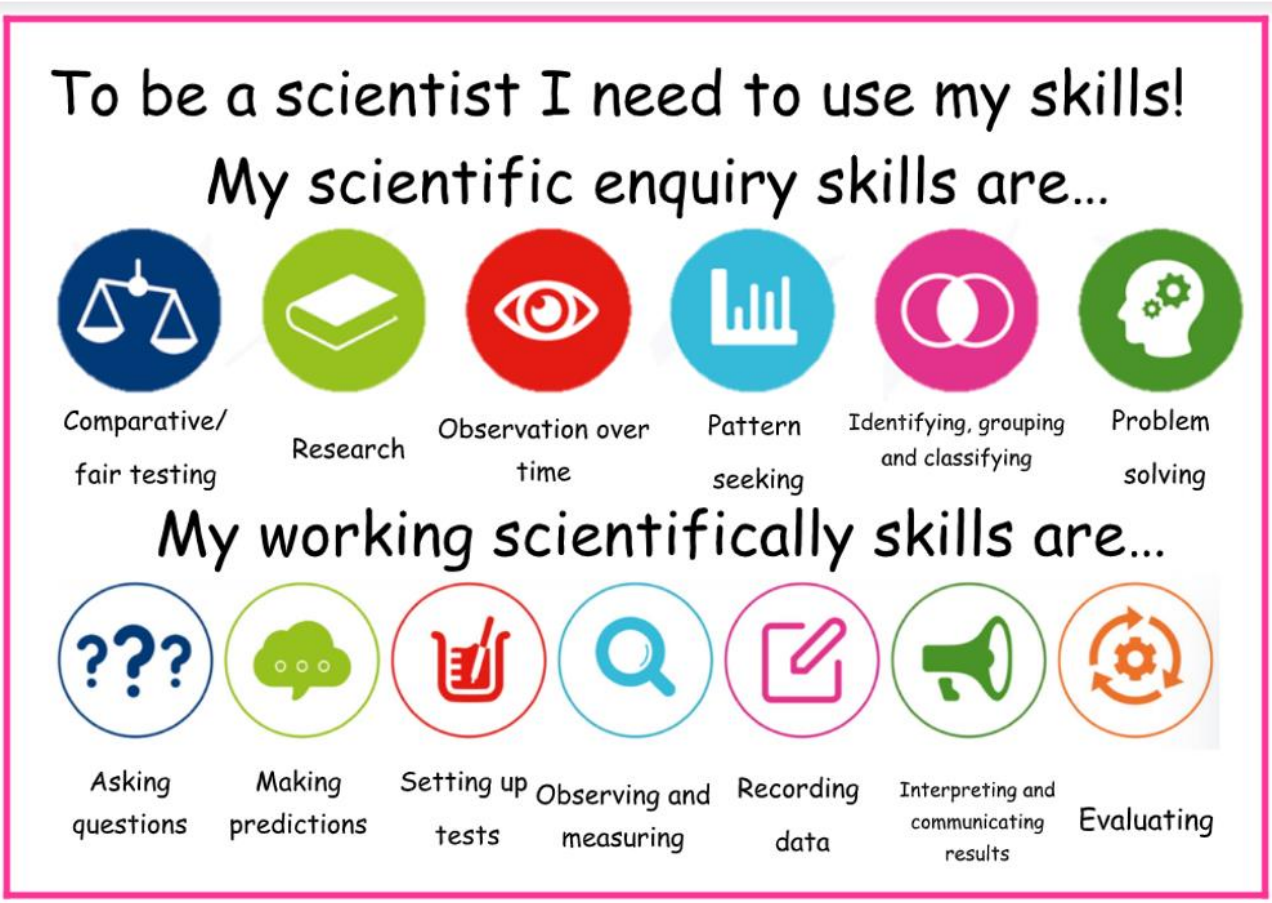
| Key Vocabulary | Push, pull, twist, stretch, turn, open, lift, squeeze, pinch, flick, tap. | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through.<br>(Materials) | (Materials) | Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel. Magnetic material, metal, iron, steel, poles, north pole, south pole. | | Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears. | |
| Key indicators | Children will be able to play with a range of toys of varying sizes made of different materials and fit them together in different ways such as twisting, pushing, slotting or magnetism. Can manipulate playdough in different ways. | (See Materials) | (See Materials) | Give examples of forces in everyday life. Give examples of objects moving differently on different surfaces. Name a range of magnets and show how the poles attract and repel. Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets. Can use results to describe how objects move on different surfaces. Can use results to make predictions. Can use some classification to know some metals are not magnetic. Use test data to rank magnets. | | Can demonstrate the effect of gravity acting on an unsupported object. Can give examples of friction, water resistance and air resistance. Can give examples of when it is beneficial to have high or low friction, water resistance, and air resistance. Can demonstrate how pulleys, levers and gears work. | |
| Electricity | Shows skills in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movement or new images.  | 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.<br>(Materials) | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.<br>(Materials) | | Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.  | Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.<br>(Materials) | Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off potion of switches. Use recognised symbols when representing a simple circuit in a diagram.  |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through.<br>(Materials) | Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable/unsuitable, use/useful, hard/soft, stretchy/stiff, Rigid/flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching.<br>(Materials) | | Can name the components in a circuit.<br>Can make an electric circuit. Can control a circuit using a switch.<br>Can name some metals that are conductors. Can name materials that are insulators.<br>Can communicate structures of circuits using drawings. Can incorporate a switch.<br>Can add a circuit with a switch to a DT project and demonstrate how it works. Can describe how a switch works. | | Explain how a circuit operates to achieve particular operations, such as control the light for a torch with different brightnesses or make a motor go faster or slower<br>Make circuits to solve particular problems such as a quiet and a loud burglar alarm<br>Carry out fair tests exploring changes in circuits<br>Make circuits that can be controlled as part of a D&T project |
| | | | | | Electrical, appliance, mains, plug, circuit, component, cell, battery, positive, negative, connect/connectors, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol. | | Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage<br>NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably |

**Appendix 4 – SC1 skills**



**Appendix 5 – SC1 progression**

# ??? Asking Questions

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| 6 | Can raise questions about local animals and how they are adapted to their environment.<br>Can raise questions about a range of phenomena e.g., rainbows, colours on soap bubbles, objects looking bent in water.<br>Can ask questions about a range of materials in order to support classification.<br>Asks appropriate questions to group and classify.<br>Can use secondary sources to research (e.g., unfamiliar animals and plants from a broad range of habitats).<br>Use ideas from secondary sources to support their ideas.<br>Can raise questions to further prove a scientific enquiry. |
| 5 | Can study and raise questions to answer (including about their local environment throughout the year).<br>Can ask relevant questions and suggest reasons for similarities and differences.<br>Use their scientific experiences to explore ideas and raise different questions.<br>Can create further questions from enquiries to investigate.<br>Independently uses secondary sources to find relevant facts about a topic.<br>Raise further questions from enquiries/research. |
| 4 | Can decide how to gather evidence to answer questions.<br>Raise questions to help identify and group (such as how a habitat changes, animals and living things including plants).<br>Can write a range of questions using the world around them and their own scientific knowledge.<br>They recognise when secondary sources can be used to answer questions and can select appropriate information from sources. |
| 3 | Raise own questions about the world around them and why this happens the way they do (e.g. the role of the roots and stem in nutrition and support, or how rocks are formed)<br>Recognise how and when to use secondary sources to answer questions that cannot be answered in practical science.<br>Can write a range of questions relevant to the topic.<br>Can answer questions posed by the teacher, independently or with support.<br>Identify new questions from data.<br>Can raise questions and carry out tests with support to find things out.<br>Can carry out research using a small range of secondary sources. |
| 2 | Raise questions that help them become familiar with scientific processes (e.g life processes that are common to all living things, their local environment, materials)<br>Can ask simple questions relevant to the topic.<br>Can use a range of question stems. (e.g. Is a flame alive? Is a deciduous tree dead in winter? What makes the best habitat for a minibeast? Where in the school can we find something that is made of wood? Which animal belongs to which offspring? Do seeds grow quicker inside or out?)<br>Know their questions can be answered in different ways.<br>Use more than one secondary source to gather and present information clearly. |
| 1 | Explore the world around them and raise own questions. (e.g growing, animals in their habitat, everyday materials.)<br>Can answer questions supported by the teacher, often through scenarios and recognise questions can be answered in different ways.<br>Can begin to ask simple questions and use simple secondary sources to find answers.<br>Able to ask yes and no questions to sort and classify. |
| F. | Shows curiosity about objects, events and people.<br>Questions why things happen.<br>Asks questions to clarify understanding and aspects of their familiar world e.g. place they live or natural world. |

# Evaluating

| | |
|---|---|
| 6 | Children can describe and evaluate their own and other people's scientific ideas using evidence from a range of sources.<br>Evaluate their choice of method, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources.<br>Children use scientific language and evaluates how their enquiry has answered the question. |
| 5 | Evaluate and decide when further observations, comparative and fair tests might be needed.<br>Evaluate different aspects of their enquiries such as equipment and accuracy of measurements.<br>State how the enquiry improves outcomes from their questions.<br>Children can relate their results to the question and state if their test has enabled them to answer it.<br>Use a range of charts to evaluate such as ranking scales, star diagrams including those with negative numbers.<br>Suggest next steps based on the weakest aspects and state how this will help them or the test progress or give different results. |
| 4 | Evaluate and communicate their methods and findings.<br>Suggest ways to improve what they have already done.<br>Begin to evaluate different aspects of their enquiries such as equipment.<br>Begin to understand how the enquiry improves outcomes from their questions.<br>Use different charts to evaluate such as ranking scales, star diagrams and success ladders.<br>Suggest points for development based on the weakest aspects. |
| 3 | Suggest improvements and raises further questions<br>Uses evidence and subject knowledge to refute statements.<br>Make suggest improvements from enquiries.<br>Make basic statements about what worked well and what they would change.<br>Use success ladders confidently to evaluate their tests or understanding against multiple criteria and suggest simple next steps. |
| 2 | With support can suggest improvements to their enquiries.<br>Suggest some things that could be changed and evaluate why things went wrong.<br>Use success ladders with multiple criteria to evaluate the test or their understanding against the learning objective. |
| 1 | With scaffolding and prompting can suggest improvements to their enquiries.<br>Talk about some changes that could be made.<br>Use simple success ladders to evaluate their tests or understanding against the learning objective. |
| F. | Develop own narrative and explanations by connecting ideas or events.<br>Talk about what I have found and say what worked well.<br>Describe how things work in simple terms and make basic alterations and suggest things that did not work (e.g. this button does not work so press this one)<br>Questions why things happen.<br>Children will come up with alternative ways of doing this through exploration.<br>Children can say or indicate by smiley faces/scale if they have achieved the learning objective. |

# Interpreting and Conclusion

| | |
|---|---|
| 6 | Look for patterns and relationships using a suitable sample.<br>Use oral and written forms such as displays to report conclusions, casual relationships and give an explanation of the degree of trust in their results.<br>Children can pose further questions which can be answered by extending the enquiry.<br>Makes suggestions for ideas that can be explored using pattern seeking.<br>Can spot anomalies and identify results that do not fit the overall pattern.<br>Use data to refute or support ideas or arguments.<br>Focuses on scientific reasons for overall pattern rather than a comparison.<br>Uses labelled diagrams to support their explanation.<br>Use ideas from secondary sources to support their ideas, choosing appropriate websites. |
| 5 | Identify patterns and casual relationships that may be found in the natural environment.<br>Children interpret data to generate simple comparative statements based on evidence.<br>Use results to draw conclusions and can identify external factors that cannot be controlled e.g. temperature inside and outside.<br>Use scientific language and illustrations to discuss, communicate and justify scientific ideas.<br>Use results to make predictions and identify whether further observations, comparative tests, fair tests, pattern seeking, or research might be needed.<br>Can use comparative statements to explain results and how things work.<br>Evaluates how effectively variables were controlled. |
| 4 | Draws simple conclusions from results to answer questions and support their ideas.<br>Look for casual relationships in data and identify evidence that refutes/supports ideas.<br>Report on findings to an audience orally and in writing using appropriate scientific vocabulary for a range of audiences.<br>Children use evidence to suggest values for different items tested using the same method.<br>Draw conclusions based on straightforward evidence and current subject knowledge to support their findings,<br>Suggest improvements and raise further questions. |
| 3 | Begin to look for naturally occurring patterns and relationships from data.<br>Draws conclusions based on observations.<br>Can compare something using results and the conclusion is consistent with the data.<br>Able to adjust opinion and predictions based on results.<br>Can give reasons for results including any anomalies.<br>Uses findings and results to answer questions raised.<br>Use simple scientific language to discuss ideas and communicate their findings in ways appropriate for different audiences orally and written.<br>Apply their knowledge of the topic when evaluating. Explain any amendments and how this impacted the investigation/test. |
| 2 | Communicate findings to an audience using relevant scientific language and illustrations.<br>Can identify casual relationships and patterns in results.<br>Can identify which results do not fit the overall pattern and explain findings.<br>Refers to the table of results when describing what has happened.<br>Draws a basic conclusion (with support from the teacher) using own scientific knowledge, observations and comparisons.<br>Uses results of investigations to answer enquiry questions. |
| 1 | Can use evidence from simple tests when answering questions.<br>With help begin to notice patterns and relationships.<br>Talk about what they have found out and how they found it out.<br>Can make comparisons and recognise biggest/smallest, most effective/least effective from data. |
| F. | Offer explanations for why things happen- making use of some recently introduced scientific vocabulary.<br>Develop own narrative and explain by connecting ideas or events.<br>Develop vocabulary which meets the breadth of their experiences |

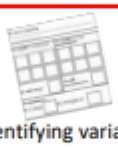
# Making Predictions

| | |
|---|---|
| 6 | Develops predictions not based on results of a scientific enquiry but using own ideas and subject knowledge.<br>Use evidence to support predictions.<br>Gathers evidence through practical science to support predictions.<br>Use test result to make predictions to set up further comparative and fair tests. |
| 5 | Use subject knowledge, observations, or previous learning to make predictions.<br>Can add further detail and explanations for their predictions when prompted.<br>Can base predictions on previous scientific enquiry.<br>Can identify a range of variables which could affect their investigation. |
| 4 | Use subject knowledge or research to make predictions.<br>Raise further predictions from results based on patterns.<br>Make predictions for new values. |
| 3 | Uses evidence and subject knowledge to refute statements.<br>Make predictions from questions posed.<br>Makes further predictions from what is observed or tested. |
| 2 | Draws on knowledge from observations to make a prediction.<br>Can begin to test predictions and later answer questions (predictions can be a guess).<br>Ask questions about what might happen in the future. |
| 1 | Can make basic predictions over things they can see or their own ideas.<br>Can use some scientific vocabulary. |
| F. | Shows curiosity about objects, events and people.<br>Questions why things happen. |

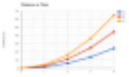
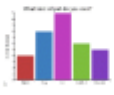
# Observation and Measurement

| | Observation | Measurement |
|---|---|---|
| 6 | Children answer their own and others' questions on observations they have made. Their answers are based on evidence.<br>Observe and raise questions about animals and how they are adapted to their environment.<br>Observe properties of materials to group and classify based on their characteristics and properties. | Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.<br>When collecting measurements, the decide whether they need to increase sample size for validity and reliability.<br>Can record measurements to 3dp.<br>Can use protractors and rulers and force metres to measure accurately choosing correct units. |
| 5 | Observe and compare the life cycles of plants and animals in their local environment with other plants and animals around the world.<br>Observe changes over a period of time. (e.g. animals)<br>Make own decisions about what to observe. | Take repeat measurements where appropriate.<br>Can choose the middle value or finds mean average.<br>Select measuring equipment to give most precise results e.g., ruler, tape measure, trundle wheels, force metres with suitable scales.<br>Can explain advantages and disadvantages of different measuring equipment.<br>Children make quantitative measurements about conductivity and insulation. |
| 4 | Make systematic and careful observations to identify plants and animals in their habitats and how the habitat changes throughout the year.<br>Use observations to ask questions and group objects using classification keys.<br>Observe closely and describe processes such as changes of state.<br>Observe and record evaporation over a period of time.<br>Identify differences, similarities or changes related to simple scientific ideas or processes. | Uses a range of scales.<br>Takes and records accurate measurements using standard units.<br>Can record measurements to 2dp.<br>Use thermometers to explore the effects of temperature on substances.<br>Use data loggers to record sound in decibels and notice patterns.<br>Use volt metres to measure voltage in a circuit to observe patterns and answer questions.<br>Begin to gather repeat readings to increase accuracy. |
| 3 | Make systematic and careful observations.<br>Look for naturally occurring patterns and relationships.<br>Collect data from their own observations and measurements.<br>Closely observe stages of plant lifecycle over a period of time, noting patterns.<br>Observe how water is transported in plants.<br>Observe patterns in the way magnets behave in relation to each other.<br>Can make observations and decide how to record them to answer a question. | Take accurate measurements using standard units, can measure and compare. (e.g., amount of liquid and height of a plant to nearest ½ cm)<br>Use a range of equipment for measuring time, length, capacity and temperature. Begin to use a range of scales.<br>Can read digital measurements from data loggers appropriately. |
| 2 | Observe closely, using simple equipment.<br>Can identify a variety of plants and animals using observations.<br>Observe how different plants grow and record findings including similar plants at different stages of growth and notice similarities and differences.<br>Use their observations and ideas to suggest answers to questions.<br>Observe through video, first-hand observations and measurement how different animals including humans grow and offer explanations.<br>Compare objects based on observable features. | Use standard units to estimate and measure length, height, temperature, and capacity. Can use rulers, scales, thermometers and measuring vessels with some degree of accuracy.<br>Make decisions about what measurements to use and how long to make them for. |
| 1 | Uses appropriate senses aided by equipment such as magnifying glasses and digital microscopes to make observations.<br>With help and prompting, observe changes over time and can describe the changes.<br>Can identify and group, compare and contrast using observations, video and photographs. | Use discrete e.g., counting and continuous data e.g. liquid to manageable common standard units.<br>Can use simple measurements and equipment such as hand lenses and egg timers to gather data.<br>Can use non-standard measures to compare. |
| F. | Explore the natural world making observations (e.g seasons)<br>Explore different equipment and finding out what its uses are.<br>Know similarities and differences between the natural world around them.<br>Observe and describe what they see using everyday language. | Take measurements initially by comparisons then begin to use non-standard units.<br>Make links and notice patterns in their experiences. |

# Planning Enquiries

| | |
|---|---|
| 6 | Children choose the type of enquiry needed to carry out their investigation.<br>Children can pose and answer their own questions, controlling variables where necessary independently.<br>Decide whether they need to increase the sample size for validity.<br>Children understand how to gather data to prove a prediction.<br>Can identify a range of factors which may affect their investigation.  |
| 5 | Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and changed.<br>Can identify independent and dependent variables to identify causal relationships.<br>Understand what type of scientific enquiry is needed to answer and prove/disprove scientific questions or phenomenon.  |
| 4 | Can identify the type of enquiry needed to answer a question.<br>Follow a plan to carry out observations and tests.<br>Can select from a range of resources to gather evidence and answer questions, to classify, compare and perform fair tests.<br>Use post it note planning approach with more independence in identifying variables and what needs measuring. Children choose their method to carry out the investigation.   |
| 3 | Perform a range of scientific investigations including different types of scientific enquiry.<br>Set up practical enquiries: comparative, and fair tests.<br>(post it note approach scaffolded by the teacher).<br>Children investigate and answer own questions linked to shared post it note planning frame<br>Understand there are different variables to be controlled. (Can identify some variables e.g. what was changed and what was kept the same)<br>Follow basic instructions scaffolded by the teacher to conduct investigation.<br>Use a range of equipment using thermometers and data loggers (with support).  |
| 2 | Carry out simple comparative tests using own ideas<br>(May use Discovery Dog model)<br>Experience different types of enquiry including practical activities.<br>Within the planning frame can suggest resources they may need for the test.<br>Can carry out simple tests linked to the types of enquiry: observation, testing, pattern seeking, identifying and classifying and research.  |
| 1 | Begin to recognise different ways they may answer scientific questions.<br>Experience different types of enquiry including practical activities.<br>Use practical resources provided by the teacher and can suggest some resources of their own.<br>Can carry out simple tests to classify, compare or pattern seek.  |
| F. | Find ways to solve problems/find new ways to do things.<br>Test out ideas.<br>Take risks through trial and error.<br>Engage in open ended activities.<br>Choose the resources they need for their chosen activity from their environment.  |

# Recording

| | Recording | Tables | Sorting | Charts and Graphs |
|---|---|---|---|---|
| 6 | Children present the same data in different ways to help answering the question. Record data and results with increasing complexity e.g accuracy of measurements, multiple data sets and different scales.<br>Use scientific diagrams and labels. | They can calculate the mean and range of a set of data. Use multiple data sets. | Can use and produce classification keys independently by posing questions. | Can independently collect data and produce scatter and line graphs using various scales and multiple data.<br>Can create bar charts and pie charts to present data.<br>   |
| 5 | Children decide how to record data from a choice of familiar approaches.<br>Present results in a variety of ways to help in answering questions. | Can produce own results table indicating cause and effect.<br>Records results systematically. | Use and develop classification keys and other information records to identify, classify and describe.<br>Can classify in a number of ways. | Use line or scatter graphs to calculate range in a set of data. (Different scales used) Can produce bar graphs with various increments.<br>   |
| 4 | Record findings using systematic and careful observational drawings and labelled diagrams.<br>Children supported to present the same data in different ways- choice over recording. | Can create own tables with own headings.<br>Can convert between units of measure. | Can record using classification keys.<br>Can use Venn and Carroll diagrams for classification, choosing own criteria. | Can use discrete and continuous data, presenting data in a line/scatter graph.<br>Can construct a pictogram/bar chart independently.<br>   |
| 3 | Record findings using scientifical language, drawings and labelled diagrams. | Can complete a table (with given template) where they add headings and results. | Can use simple classification keys and Venn diagram with 2 sorting criteria and 1 intersecting.<br>Begin to use Carroll diagrams.<br>Can give reasons for their sorting criteria. | Can produce vertical and horizonal bar charts adding own labels and bars.<br>   |
| 2 | The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.<br>Record findings using scientific language.<br>Gather and record data to help in answering questions. | Count results using a tally chart.<br><br>Use prepared tables to record results. | Can identify and classify.<br>Use simple keys based and yes or no questions.<br>Can sort into 2 groups explaining their reasons clearly. | Can record using prepared vertical bar charts. Can use results from tally charts.<br>  |
| 1 | Begin to show accuracy in drawings and simple labels.<br>Use key scientific vocabulary provided by the teacher. | Can complete a simple table of results. (Prepared)<br>Can add marks to a chart to collect data. | Can using sorting rings to classify in more than 2 groups answering yes or no questions.<br>Can sort using a simple 2 criteria Venn diagram. | Can complete a prepared block graph/pictogram.<br>  |
| F | Draw pictures of objects in their own environment.<br>Can take photos of things of interest to them. | Can count results.<br>Start to mark make to record results. | Can order items.<br>Can sort in more than 2 groups using familiar categories. | Can create a class chart using pictures and objects.<br>  |