

(D1 - D9) Primary 1:	(D1 - D9) Primary 2:	(D1 - D9) Junior:
<p>Observing and Exploring:</p> <ul style="list-style-type: none"> Encouraging children to observe the environment around them, notice details in objects and organisms, and ask questions about the world. <p>Engaging with Nature:</p> <ul style="list-style-type: none"> Helping children explore natural settings, such as playing in the dirt, observing weather changes, watching plants grow, and learning about different animals. <p>Identifying and Categorising:</p> <ul style="list-style-type: none"> Teaching children to identify and categorize simple characteristics of plants, animals, and everyday materials. <p>Experimenting:</p> <ul style="list-style-type: none"> Introducing basic experiments, such as mixing water and sand, observing ice melting, or floating and sinking tests with small objects. <p>Predicting Outcomes:</p> <ul style="list-style-type: none"> Encouraging children to make simple predictions about what might happen in an experiment or natural observation, and discussing the outcomes. <p>Understanding Seasons and Weather:</p> <ul style="list-style-type: none"> Helping children recognize seasonal changes, weather patterns, and their effects on the natural world. <p>Physical Processes:</p> <ul style="list-style-type: none"> Exploring simple physical processes like melting, freezing, absorption, and evaporation through playful, practical activities. 	<p>Asking Simple Questions:</p> <ul style="list-style-type: none"> Encouraging curiosity and the ability to ask simple, scientific questions about what they notice. <p>Making Observations:</p> <ul style="list-style-type: none"> Developing the skill to make careful observations of animals, plants, and everyday materials. <p>Identifying and Classifying:</p> <ul style="list-style-type: none"> Classifying objects according to scientifically relevant properties such as materials, living things vs. non-living things, or animal types. <p>Predicting Outcomes:</p> <ul style="list-style-type: none"> Making predictions about the results of simple tests and experiments based on prior knowledge or experiences. <p>Conducting Simple Experiments:</p> <ul style="list-style-type: none"> Participating in simple experiments and understanding that they can be used to answer questions. <p>Recording Data:</p> <ul style="list-style-type: none"> Beginning to record data using simple tools like charts or drawings to represent their findings. <p>Comparing and Contrasting:</p> <ul style="list-style-type: none"> Learning to compare animals, plants, and materials to identify similarities and differences. <p>Exploring the Senses:</p> <ul style="list-style-type: none"> Using their senses to explore materials and the world around them in a structured way. 	<p>Asking Questions:</p> <ul style="list-style-type: none"> Developing the ability to ask more detailed questions based on their observations and experiences. <p>Making Predictions:</p> <ul style="list-style-type: none"> Making informed predictions about the outcomes of simple scientific tests and experiments. <p>Conducting Experiments:</p> <ul style="list-style-type: none"> Carrying out simple experiments independently or with guidance, using basic scientific equipment like magnifying glasses, thermometers, or rulers. <p>Observing Closely:</p> <ul style="list-style-type: none"> Making detailed observations and measurements with increasing accuracy, using standard units where appropriate. <p>Recording and Interpreting Data:</p> <ul style="list-style-type: none"> Recording findings in various ways such as labelled diagrams, bar charts, and simple tables. Beginning to draw conclusions based on their data. <p>Identifying and Classifying:</p> <ul style="list-style-type: none"> Further refining their skills in identifying and classifying things into groups based on specific criteria. <p>Exploring Materials:</p> <ul style="list-style-type: none"> Investigating and testing the properties of materials to find out why some are more suitable for specific purposes than others.

<p>Cause and Effect:</p> <ul style="list-style-type: none"> • Demonstrating simple cause and effect, such as what happens when you water plants or leave ice in the sun. <p>Using Tools:</p> <ul style="list-style-type: none"> • Introducing simple tools like magnifying glasses to explore small details or using a thermometer to measure temperature. <p>Recording Observations:</p> <ul style="list-style-type: none"> • Encouraging early forms of recording observations, such as drawing, dictating observations to an adult, or using photographs. <p>Describing Changes:</p> <ul style="list-style-type: none"> • Observing and describing changes over time in natural phenomena or in simple experiments. <p>Health and Growth:</p> <ul style="list-style-type: none"> • Teaching basic concepts about human and animal growth and basic needs for health and survival. <p>Environmental Awareness:</p> <ul style="list-style-type: none"> • Beginning to discuss the importance of caring for the environment and the role humans play in it. <p>Problem Solving:</p> <ul style="list-style-type: none"> • Encouraging curiosity and problem-solving skills through open-ended questions and explorations. 	<p>Learning About Plants and Animals:</p> <ul style="list-style-type: none"> • Understanding basic characteristics of plants and animals, including basic parts of a plant and animal needs. <p>Exploring Seasonal Changes:</p> <ul style="list-style-type: none"> • Observing and describing weather changes and seasons, and how these affect living things. <p>Understanding Everyday Materials:</p> <ul style="list-style-type: none"> • Identifying and exploring the properties of everyday materials, such as wood, plastic, metal, water, and rock. <p>Describing Simple Physical Processes:</p> <ul style="list-style-type: none"> • Understanding simple physical processes like melting, hardening, sinking, floating, and changing states. <p>Using Scientific Vocabulary:</p> <ul style="list-style-type: none"> • Beginning to use scientific vocabulary to describe their observations and explain what they find. <p>Developing Environmental Awareness:</p> <ul style="list-style-type: none"> • Learning about the importance of the environment and ways to care for it. 	<p>Understanding Living Things:</p> <ul style="list-style-type: none"> • Learning about the basic needs of animals and plants for survival (water, food, air) and how they contribute to growth. <p>Examining Habitats:</p> <ul style="list-style-type: none"> • Exploring different habitats and understanding how they provide the needs of different living things. <p>Understanding Growth:</p> <ul style="list-style-type: none"> • Observing and describing how seeds and bulbs grow into mature plants, and how animals grow and change over time. <p>Seasonal Changes:</p> <ul style="list-style-type: none"> • Observing changes across the four seasons and understanding how these changes affect plants, animals, and human life. <p>Physical Processes:</p> <ul style="list-style-type: none"> • Understanding simple physical processes like motion and force (e.g., pushes and pulls). <p>Using Scientific Vocabulary:</p> <ul style="list-style-type: none"> • Expanding their use of scientific vocabulary to communicate ideas and findings more precisely. <p>Problem Solving:</p> <ul style="list-style-type: none"> • Using simple scientific ideas to solve problems in a practical context, such as figuring out how best to keep something warm or which materials are most absorbent.
--	---	--

(D9 - D11) Key Stage 3:

Developing Scientific Enquiry Skills:

- Practicing and refining skills such as questioning, predicting, planning, conducting, and evaluating investigations.

Making Observations and Measurements:

- Making detailed observations and accurate measurements using appropriate scientific tools and units.

Recording and Presenting Data:

- Recording data systematically, using tables, charts, and diagrams, and presenting findings clearly and logically.

Drawing Conclusions:

- Drawing evidence-based conclusions from data collected during investigations, and explaining findings using scientific language.

Experimentation and Investigation:

- Planning and carrying out more complex experiments and investigations independently or in groups, following fair testing principles.

Hypothesis Testing:

- Formulating hypotheses based on prior knowledge and testing them through systematic experimentation and observation.

Understanding Forces and Motion:

- Exploring the effects of forces on objects and understanding concepts such as friction, gravity, and magnetism.

Exploring Changes in Materials:

- Investigating reversible and irreversible changes in materials through heating, cooling, mixing, and dissolving.

Life Processes:

- Learning about life processes in living organisms, including nutrition, respiration, growth, and reproduction.

Living Things and Habitats:

- Studying different habitats and the interdependence of living organisms within ecosystems.

Adaptation and Evolution:

(D11 - D13) Key Stage 4:

Advanced Scientific Enquiry Skills:

- Demonstrating proficiency in planning, conducting, and evaluating scientific investigations independently, including controlling variables and considering fair testing.

Data Analysis and Interpretation:

- Analysing and interpreting complex data sets using a range of graphical and numerical techniques, and drawing evidence-based conclusions.

Scientific Communication:

- Communicating scientific ideas, findings, and conclusions effectively using scientific language, diagrams, and graphs.

Understanding Forces and Energy:

- Exploring the principles of forces, including balanced and unbalanced forces, and understanding energy transfer in different systems.

Properties and Changes of Materials:

- Investigating the properties of materials at a molecular level and understanding how changes in materials occur through processes such as chemical reactions.

Electricity and Circuits:

- Understanding the properties of electricity and constructing and testing simple electrical circuits, including series and parallel circuits.

Life Processes and Living Things:

- Investigating the life processes of living organisms in more detail, including the functions of organs and organ systems, and exploring adaptation and inheritance.

Earth and Space:

- Exploring Earth and space science topics such as the solar system, Earth's rotation and orbit, and the effects of gravity.

Environmental Science:

- Studying environmental issues and understanding the impact of human activities on the environment, including climate change, pollution, and conservation.

Scientific Models and Theories:

- Understanding and evaluating scientific models and theories, including their limitations and the role of evidence in scientific reasoning.

- Understanding how plants and animals are adapted to suit their environment, and how species can change over time through evolution.

Environmental Awareness:

- Developing an understanding of environmental issues and the importance of conservation and sustainability.

Using ICT in Science:

- Using digital tools and resources to support scientific enquiry, research, and presentation of findings.

Applying Knowledge Across Science:

- Applying scientific knowledge and skills to solve problems, make decisions, and explore real-world contexts across different scientific disciplines.

Science and Society:

- Exploring the social, ethical, and economic implications of scientific discoveries and technological advancements, and considering the responsibilities of scientists and citizens.

Using ICT in Science:

- Using digital tools and technology to collect, analyse, and present scientific data, and accessing scientific information from a range of sources.

Problem Solving and Critical Thinking:

- Applying scientific knowledge and reasoning to solve problems and make informed decisions, and evaluating the reliability and validity of scientific claims.

Preparing for Further Study:

- Developing skills and knowledge necessary for further study in science-related fields and considering potential career pathways in science and technology.

(D13+) GCSE:

Advanced Scientific Inquiry:

- Demonstrating proficiency in planning, conducting, and evaluating scientific investigations independently, including formulating hypotheses, designing controlled experiments, and analysing complex data sets.

Data Interpretation and Analysis:

- Further developing skills in interpreting and analysing scientific data using statistical techniques, graphical representations, and ICT tools, and drawing evidence-based conclusions.

Scientific Communication:

- Communicating scientific ideas, findings, and conclusions effectively using a range of formats, including scientific reports, presentations, and academic writing.

Critical Thinking and Problem-Solving:

- Developing critical thinking skills by evaluating scientific theories, models, and arguments, and applying scientific knowledge and reasoning to solve complex problems and make informed decisions.

Advanced Understanding of Scientific Concepts:

- Building a deep understanding of scientific concepts and principles within specific disciplines, including molecular biology, organic chemistry and thermodynamics.

Laboratory Skills and Techniques:

- Mastering laboratory techniques and equipment to participate in a variety of experiments.

Experimental Design and Methodology:

- Designing and implementing controlled experiments to investigate scientific hypotheses, including identifying variables, controlling for confounding factors, and ensuring the validity and reliability of results.

Research Skills:

- Conducting independent research using scientific literature, databases, and online resources to gather information, critically evaluate sources, and synthesize findings to support scientific arguments.

Ethical Considerations in Science:

- Considering ethical, social, and environmental implications of scientific research and technological developments, and applying ethical principles to guide scientific practice and decision-making.

Teamwork and Collaboration:

- Collaborating effectively with peers in scientific research projects, group investigations, and interdisciplinary collaborations.