Science

At Green Gates Academy, we recognise how science impacts every aspect of daily life, and without science humankind would not have made progress throughout history. As one of the core subjects taught at primary level, we give the teaching and learning of science the prominence it deserves.

Learning science is concerned with increasing pupils' knowledge of our world, and with developing skills associated with science as a process of enquiry. Our science curriculum develops the natural curiosity of each child no matter their demographic, encourages them to have respect for living organisms, and instil in pupils the importance of caring for the natural environment.

Intent

The pupils at Green Gates arrive to us with very different starting points. Our aim at Green Gates Academy is for every child to:

- Develop **scientific knowledge** and **conceptual understanding** of the disciplines of Physics, Chemistry and Biology.
- Formulate their own **questions** about the natural world.
- Foster the **confidence** to 'be wrong' when it comes to making predictions and postulating their own theories.
- Promote an awareness of the importance of **teamwork** in scientific experimentation.
- **Practically investigate** their questions using various methods of **enquiry**.
- Gain competence in the **science skills** of planning scientific investigations, gathering and analysing data and critical evaluation of investigations across the disciplines.
- Use a range of methods to **gather data** from investigations and secondary sources including I.C.T., drawings, diagrams, videos and photographs.
- **Present data** in a variety of methods including tables, bar charts, line graphs, pictograms and pie charts.
- Have care for the **safety** of all individuals in lessons by developing knowledge of the hazards of the materials and equipment they handle, along with mitigating these hazards.
- Develop an **enthusiasm** and **enjoyment** of scientific learning and discovery.
- For pupils to have the opportunity to access science in different **contexts**, including in bee-keeping and Forest School

Implementation

- Science will be taught as set out by the year group requirements of the National Curriculum. This is a strategy to enable the accumulation of knowledge and allows progress in repeated topics through the years.
- Through our planning, we involve problem solving opportunities, allowing children to find out for themselves how to answer questions in a variety of practical means. Children are encouraged to ask their own questions and be given appropriate equipment to use their scientific skills to discover the answers.
- Engaging lessons are created with each lesson having both practical and knowledge elements. Teachers use precise questioning in class to test conceptual knowledge and skills and children are regularly assessed to identify those children with gaps in learning, so that all children keep up.
- We build upon the learning and skill development of previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting and using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.

- Working Scientifically skills are explicit in lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the theme of the lesson.
- As pupils come from very different starting points, pupils are assessed using the Working Scientifically strand, allowing them to access learning appropriate to their needs.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
- Pupils access bee-keeping and Forest School with the links to their scientific knowledge made explicit.

Impact

Pupil Voice

- Pupils speak confidently about their learning and can articulate how teaching supports in their understanding of science and how this impacts the wider world
- Pupils can articulate how they have had hands on experiences in science and how this has supported them to learn
- Pupils are made aware of the possibilities of careers in science through the work with national agencies such as the STEM association
- Pupils are motivated to learn about science

Evidence in Knowledge

- Pupils know how and why science is used in the outside world and in the workplace. They know about different ways that science can be used to support their future potential
- Pupils demonstrate a recall of scientific facts and how these can be applied to the wider world.

Evidence in Skills

- Pupils use acquired vocabulary in science lessons
- Pupils have the skills to use scientific methods independently (or with appropriate support where needed) and show resilience when tackling problems.
- The flexibility and fluidity to move between different science topics and apply their knowledge of working scientifically

Outcomes

- Pupils are able to make good or better progress, relevant to their individual needs.