Our approach to Science at Whitegate End Primary School

Overview of what the subject entails

At Whitegate End Primary School, our vision for science is that it inspires children, encouraging them to be inquisitive about the world around them. All children will have the opportunity to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. We encourage children to be inquisitive throughout their time at Whitegate End and further on in their lives.

Our vision, in all aspects of life at Whitegate End, is that the children nurture, show resilience and integrity.

Why we teach Science

We teach science at Whitegate End to ensure the children have:

1. A sound scientific knowledge and a deeper understanding of the world.
2. Scientific attitudes that foster their curiosity and develop their enquiring minds.
3. Scientific skills which equip them with strategies for finding out independently and solving problems through scientific investigation and enquiry.
4. An understanding that science has, does and will continue to play a major role in our modern society.

Science at Whitegate End Primary School is about giving children the tools to develop their ideas and ways of working that enable them to understand the world through investigation with children acting with determination, resilience and integrity.

Our curriculum provides a wide range of opportunities for Science to be linked to the topic and the wider curriculum. In accordance and with the guidance from National Curriculum, children must be taught a progression in the key scientific knowledge and concepts, from Early Years to Year 6 in the three key areas; Biology, Chemistry and Physics.

At Whitegate End we follow the National Curriculum Objectives to teach science. We use the White Rose Science Scheme and PZAZ to support our teaching of the science curriculum areas, as well as dedicating a science enquiry afternoon each half term which focusses on one specific form of science enquiry. We focus our teaching on the key skills that the children need to know in each area of study, ensuring progression of vocabulary, skills and knowledge.

Our key teaching principles include:

At Whitegate End our key teaching principles of science are to ensure that we teach children the scientific knowledge needed for the wider world. They become confident and are articulate in explaining their reasoning. We believe that it is important that children leave Whitegate End with a sound understanding of science and its implications for today and the future.

Aims:

We aim to:

Enhance the children's understanding of Biology, Chemistry and Physics.
Prepare our children for life in an increasingly scientific and technological world.
Encourage care and respect for the environment and the living things in it.
Encourage co-operative skills as well as a growth mindset.
Encourage development of problem solving strategies in science, and transfer of these skills to other areas of the curriculum.

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Science is taught through 5 out of 6 half terms, with Summer term being the 'driver' term for Science.

We enable each child to:

In Early Years we foster a curiosity to ask questions and observe the world around them. This is embedded into the curriculum through Knowledge and Understanding of the World. In Early Years we use observations and 'Development Matters' statements to guide planning. Assessments are recorded in each child's individual learning journal.

In Key Stage One, we enable each child to be able to observe, explore and ask questions. We teach the children to begin to work together to collect evidence to help them answer questions and to link this to simple scientific ideas and to begin to evaluate evidence and consider whether tests or comparisons are fair. They share ideas and communicate them using scientific language, drawings, charts and tables with the help of ICT where appropriate.

In Key Stage Two, we enable children to learn about a wider range of biology, chemistry and physics. They make links between ideas and explain things using simple models and theories. They apply their knowledge and understanding of Biology, Physics and Chemistry. They carry out more systematic investigations, working on their own and with others.

The development of knowledge and facts

At the start of each unit children are given a knowledge organiser with the key vocabulary and questions children will know by the end of the unit.
It is important that these progressions of skills are taught and used with the children so that children have a clear understanding of progression through each key stage.

The development of skills

At Whitegate End we develop the science skills by:

- Develop the skills of investigation.
- Presenting results by appropriate means, including use of ICT.
- Giving our children an understanding of Biology, Chemistry and Physics.
- Helping our children to acquire practical scientific skills.
- Develop the use of scientific language, recording and techniques.
- Allow children to use scientific skills across the curriculum.

How it is taught

Science is taught in EYFS through Rainbow Challenges. Within a secure and challenging environment with effective support, children can explore, develop and experiment. In EYFS science provision can be either Adult-led, an Enhancement activity or a Challenge. Children have to complete all these challenges every week. An 'Investigation station' has been introduced into the provision which allows children to explore materials and resources. All lessons have clear learning objectives and are shared and reviewed with the pupils. Activities inspire the pupils to experiment and investigate and to help them raise their own questions such as "Why…?", "How…?" and "What happens if…?". Lessons should challenge, motivate and extend pupils learning. Activities should develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, making comparisons and communicating results and findings.

In Key Stage 1 and 2, Science is taught and given dedicated time within the timetable. We follow the scheme where children have a rich introduction of vocabulary, skills and opportunities for children to enquire.

Assessment of the subject and how this is used

Children's understanding of concepts is assessed during a topic of work using informal judgements by teaching staff during lessons. Feedback is delivered to the children in line with the school's marking and feedback policy. At the end of a topic of work, each pupil is assessed in relation to the National Curriculum levels of attainment. An individual record of children's science progress is maintained throughout their time at school through the school's assessment tool.

Links to other areas of the curriculum

Mathematics:

Science offers opportunities for practical application of many mathematical skills from basic computation to the drawing and interpretation of graphs, tables and pie-charts. Through working on investigations children learn to estimate, predict, accurately observe and record events. Science also provides opportunities for practical measurement and comparisons of: time, weight, length, capacity, area, volume and the weather.

English:

The whole range of English skills can be developed through science in a variety of ways.

- Speaking and Listening – Science lends itself to class and group discussions, debate, verbal descriptions and the reporting back of findings from investigations. Scientific vocabulary is developed, broadening children's language.
- Reading – Children must read the instructions from sheets in order to carry them out. Read research from written sources or ICT based sources is also a key skill. Linking the class reading book to a science topic is also possible.
- Writing – Science can provide many opportunities for the development of non-fiction writing, reporting, recording, instructing and describing. It can also provide an exciting source for creative writing and poetry.