



Science Subject Statement

It is our intention to help children develop skills and knowledge that will equip them with the skills and attitudes to prepare them for life in our ever-changing scientific world. We aim to build on children's enthusiasm and natural sense of wonder about the world through practical skills.

Purpose of this statement:

- ◆ To establish an entitlement for all pupils in the subject of *Science*;
- ◆ To establish expectations for teachers and pupils
- ◆ To promote continuity and coherence across the school;
- ◆ To promote a shared understanding of *Science*, within the community;
- ◆ To explain how *Science* is taught in Buckden CE School
- ◆ To give further guidance about Science

Entitlement:

All pupils, appropriate to their ability, have the entitlement to:

- ◆ an awareness of the fascination of science and the world around us;
- ◆ competence and confidence in scientific knowledge, concepts and skills;
- ◆ initiative, an ability to work both independently and in cooperation with others;
- ◆ an ability to communicate science with others using correct scientific language;
- ◆ develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics;
- ◆ develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer specific questions about the world around them;
- ◆ are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future;
- ◆ the ability to record their work in a variety of different ways as appropriate to their age, ability and the task;
- ◆ an ability to apply previously acquired concepts, skills and knowledge to new situations;
- ◆ encourage and enable pupils to offer their own suggestions, be creative in their approach to science and gain enjoyment from their scientific work;
- ◆ encourage children to collect relevant evidence, to question outcome and to persevere;

- ◆ understand that we do not always know the answers and results when carrying out scientific enquiry;
- ◆ assess and engage with their own learning.

Time Allocation

In order to provide the effective teaching of science, every class allocates a specific science focused lesson each week. This enables pupils to be taught science specific skills and allows them adequate time to put these into practice.

The allocated time for science lessons is the same across both key stages, with every class allocating 2 hours a week to science. Reception follow the Foundation Stage Profile which does not contain specific science focuses, however every effort is made to include activities that will help to develop the children's scientific enquiry skills.

Teaching and Learning

The National Curriculum forms the basis of teaching and learning in science for KS1 and KS2, with the Foundation Stage Profile covering the necessary criteria for Reception. Teachers work towards independent learning and plan for different working groups e.g. whole class/small group/paired/individual.

Each year pupils cover the following areas;

Scientific Enquiry Skills

Biology

Chemistry

Physics

Biology

Pupils are taught;

- The difference between things that are living and things that have never been alive
- To relate life processes to animals and plants in their local environment
- Identify human and animal bodies, including how to care and look after them
- Recognise plants and their needs
- Identify similarities and differences between living things and different environments
- Evolution and inheritance
- Sex Education lessons in Year 6 (see separate policy for more information)

Chemistry

Pupils are taught;

- To identify and group a range of different materials
- About how materials change and investigate different types of changes
- About separating mixtures of materials

Physics

Pupils are taught;

- To understand electricity; what needs it, where it comes from
- How forces and motion are present in everyday life
- Where sound comes from, how we hear and how to change sounds
- About the Earth, Sun and Moon and periodic changes

Pupils are taught a range of scientific enquiry skills throughout their science lessons. These are the skills that underpin the teaching and learning of science and are skills that can be developed further in everyday life. Teaching should ensure that scientific enquiry skills are taught through contexts taken from the sections of 'Biology', 'Chemistry' and 'Physics'.

The structure of a good science lesson should:

- establish clear learning intentions for that lesson either expressed as an enquiry question or a formal objective;
- provide the necessary information or instructions at a brisk pace to enable pupils to be practically and purposefully engaged in enquiry, involving pupils in the decision making process as much as possible;
- require children to record only the relevant aspects of their learning in line with the lesson objectives;
- develop pupils' ability to plan their own work to set criteria, carry out the task confidently and with a secure understanding of what is expected, be able to state what they found out and review their results critically, identify the challenges they overcame;
- encourage pupils to discuss ideas and justify responses in terms of prior knowledge, reflect on patterns in data and the potential for further investigative experience;
- provide opportunities for pupils to work both collaboratively and independently;
- through a plenary session acknowledge what pupils have done but particularly emphasises, refines, challenges or confirms what pupils have learnt;
- promotes a pride in the acquisition of scientific knowledge and skills.

Expectations

By the time children leave our school, we expect them to have developed their scientific enquiry skills which can be adapted to use in everyday life. All pupils will also have a solid understanding of Life Processes, Living Things, Materials and their Properties and Physical Processes.

Across the school all pupils are expected to be working within and covering the objectives within the appropriate band (eg, Year 4 working on the objectives set within band 4). By the end of each academic year pupils should have met all of the corresponding objectives for their year group, therefore making 6 steps progress throughout the year. All pupils regardless of their starting point are expected to make these 6 points progress per year.

EYFS

Science is covered in the specific area Understanding the World. The World section in Development Matters and the Early Learning Goal detail what a child is to learn, what adults can do to support this learning and how to enable the environment to achieve this. Characteristics of Effective Learning underpin and support the children's learning with the Creating and Thinking Critically aspect linking closely to Scientific Enquiry skills taught in Key Stages 1 and 2. Additionally, topics taught and continuous provision planning identify opportunities to teach science knowledge directly.

British Values

As with all aspects of our curriculum science links in with many areas of our British values. For example all of our pupils complete scientific investigations, resulting in making conclusions based on the results that have been gathered. These conclusions may not always be the same as those made by others however our pupils know how to respect the thoughts and ideas of their peers, even if they may disagree.

Inclusion

All children receive quality science teaching on a weekly basis and activities are differentiated accordingly.

Teachers will identify any pupils who may require targeted support and ensure that their needs are met when planning their lessons.

More able pupils are planned for in line with our policy for teaching more able, gifted and talented pupils.

Assessment, Recording and Reporting

Assessments are made in line with the school assessment policy.

- Teachers report to parents twice a year at parents' evenings and half termly via 'How is it going?' and an annual written report to parents.
- Ongoing assessment in the form of target tracker is used to aid the half-termly teachers assessment, these are moderated through staff meetings.

Teachers use Assessment for learning to ensure planning is based on prior attainment and that pupils know what they need to do to achieve the next steps. Assessment for learning is a powerful means of helping teachers and practitioners to tailor their teaching to get the best improvement for each child. Key elements include:

- Learning intentions clearly identified and shared with pupils and reviewed at the end of a lesson;
- Learning opportunities and success criteria clearly identified on planning ;
- Evidence of continuous assessment taking place in lessons and informing planning: use of whiteboards, informal checks on learning and discussions with pupils
- Identification of next steps for learning and discussion with children;
- Marking for learning – comments indicating on what pupils need to do next;
- Involving pupils in peer and self assessment;
- Time for evaluation, reflection and discussion of learning strategies;
- 'Talking learning and progress' on a regular basis;
- Child friendly mark schemes;

Marking is in line with the school's quality marking and feedback policy.

Analysis of assessment data is used to track individual progress and set end of year targets. It is also used to identify vulnerable groups.

Resources

- Science resources are kept in a central location which everyone has access to.
- Interactive resources are available on the shared network.
- The resources available enable pupils to experience the required areas of the curriculum and develop their scientific enquiry skills.

Dyslexic Friendly School

We recognise that some pupils, despite intellectual and other abilities, have unexpected difficulty learning to read and/or to spell and write fluently. These pupils may be described as having dyslexia.

We recognise that some of these pupils have special educational needs; that these needs have to be met to the best of our ability and resources; and that these pupils have the same right of access to the curriculum and to all the activities of the school as all other pupils. We will therefore make the following arrangements to try to ensure that their needs are met.

- We will operate an early identification and monitoring programme to try to ensure that all pupils who are experiencing difficulties with reading and spelling are identified as early in their school career as possible.

- Where necessary we will assess and make provision for the pupil's difficulties within the accepted framework for Special Educational Needs. We will prepare an individualised education plan setting out the provision we propose to make for the pupil and the objectives for that provision.

- If, despite our efforts to ameliorate the pupil's difficulties, it is felt that there is still a noticeable mismatch between a pupil's oral skills (talking and listening) and his/her attainment in reading, spelling and general English skills, we will, following consultation with parents, refer the pupil for assessment by an Educational Psychologist. This assessment will address the need for specialist support.

- Following discussion with the Educational Psychologist we will formulate a revised individualised education plan for each pupil.

- The plan will set out the provision which we can make from within our own resources and the strategies which class teachers can adopt to help the pupil access the curriculum. All teachers who teach the pupil will be made aware of his/her difficulties and will be made aware of the agreed plan and the agreed strategies to help give the pupil access to the printed aspects of the curriculum.

- These strategies will include the use of word banks, personal (illustrated) dictionaries, the use of spellcheckers and other spelling aids. We will try, within the limits of our resources, to promote the use of Information and Communication Technology (ICT) where appropriate to support learning (e.g., reinforce basic literacy skills, editing and revising text, etc.).

- We will try to be as sensitive as possible to sources of anxiety and embarrassment e.g. being asked to read aloud in class without adequate preparation, being asked to copy large amounts of written material from the board.

- Teachers will take account of the pupil's difficulties when marking work by, for example, concentrating on content. They will also be aware of the need to find alternative ways of assessing progress rather than always through written tests and examinations.

- We will try, as far as is possible within our resources, to make appropriate arrangements for pupils to undertake tests or examinations. This may involve giving the pupil additional time; allowing the questions to be read to him/her; allowing the pupil to use I.C.T.

- Teachers will take account of the pupil's difficulties when setting homework assignments. They will consult with parents and set homework which can be completed by the pupil within a reasonable period of time. Teachers will also try to ensure that assignments set by different teachers are co-ordinated and do not impose an unfair burden on the pupil.

- We are aware that pupils with dyslexia have experienced "failure" and that often their motivation for reading and written work is low. We are conscious of the need to make these tasks as attractive and stimulating as possible and of the need to find ways of raising the pupil's motivation generally. This is particularly important since the nature of their difficulties means that there will need to be a lot of repetition of basic work to ensure that reading vocabulary, spellings etc. are learned and retained.

- We will try to suggest ways in which parents can help us help their child. We believe that parents can contribute a great deal to an educational programme by, for example, reading to their child on a regular basis; participating in paired-reading schemes; hearing their child read every day, making and illustrating personal dictionaries and word-banks; supporting the child while doing homework etc.

Review

This statement will be reviewed regularly in order to reflect current trends and practice.