



Scholes (Holmfirth) Junior and Infants

Science Curriculum Statement

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Introduction

This document outlines the purpose, nature and management of the teaching and learning of Science in our school. It reflects the views of all the current teaching staff and was drawn up as part of whole-staff INSET training. It has the full agreement of all subject leaders. The implementation of the subject is the responsibility of all staff in school and will be monitored by the SLT and subject leader(s). An action plan is linked to this curriculum area in order to develop the subject within our changing school.

The Nature of Science

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Intent

The national curriculum for science aims to ensure that all pupils:

- 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 scientific 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.

Through our CLEAR intent, we ensure that learning is planned thoroughly around the distinct needs of children at Scholes School.

Communicative

We aspire for our children to be able to articulate their Scientific thinking. In Science, lessons are driven through the development of oracy skills and their expansion and use of Scientific vocabulary. Through this they show scientific knowledge and conceptual understanding.

This is demonstrated through:

- Questioning by teachers and pupils
- Partner and group discussions
- Explaining and evaluating through verbal and written work
- Vocabulary used by teachers and pupils

In Science, we ensure that pupils reflect back on, and have a good understanding of scientific vocabulary, taught in previous year groups within every unit. This ensures that pupils have a solid vocabulary and knowledge base on which to build. Pupils can then progress by learning and applying the new vocabulary from within the unit, whilst using the previously gained knowledge also.

Local

At Scholes, we draw upon the richness of our local area. Where possible, we use the local area for Science visits.

- In Reception, pupils visit a local farm to see animals and where they live.
- In Year 1, our school grounds and local woodlands are accessed to observe leaves in the autumn
- In Year 3, local samples are used when looking at rocks and soils
- In Year 4, pupils visit a stream to see science in action
- In Year 5, pupils take part in science-linked activities at their local residential centre

Enriched

Our Science curriculum provides children with new and exciting opportunities and experiences that they would not necessarily have access to away from school. These opportunities allow the children to deepen and apply their scientific knowledge in real life contexts. For example, Year 5 have access to real Moon rock samples from NASA and complete a sequence of work around these samples and other space material.

We also participate in British Science Week each year during March. This allows for children to find out about new and exciting areas of science, take part in new experiments, speak to real life scientists and also breaks down any stereotypical ideas about science and the people that work in this field.

Ambitious

At Scholes all areas of our science curriculum are ambitious for all children. The science curriculum is adapted, designed and developed to meet the needs of pupils with SEND, developing their knowledge, skills and abilities to apply what they know and can do with increasing fluency and independence. Work is differentiated as appropriate to pupils' needs, and is designed to be challenging for all children, but support is there for them to experience success. British Science Week offers inspiration to pupils, by showing what job roles and opportunities there are within the real world of science.

Through this, we demonstrate the inventions, cures and scientific breakthroughs that ordinary people have managed to complete in the world of Science. Consequently, showing that ordinary people can achieve incredible things if they work hard, explore and expand their scientific knowledge and understanding. Where possible, science units are linked with the wider world for this purpose of inspiration also. We want our pupils to aim high and be aware of the exciting jobs and opportunities that the world of science can offer. Eg: becoming a doctor, nurse, engineer or astronaut, and that there are many opportunities available to them.

Remembered

Science lessons include frequent forwards and backwards referencing to link learning within units and across year groups. For example, we link lesson starters to the previous lessons learning. This allowing for a recap of the knowledge and vocabulary taught previously and also allowing children to connect the learning of each block together. At the end of each unit, pupils take part in an assessment lesson based on the knowledge of the specific science unit as well as scientific enquiry. This allows the teacher to see what has been remembered by pupils. It is useful to reflect back on in the planning of other units. All planning is shared in school, so that subsequent teachers can use this to inform their science planning where necessary.

Key questions on planning are also used throughout lessons, to check what pupils have remembered. Teachers can adapt their teaching input and explanations to ensure that misconceptions are corrected throughout lessons.

Implementation

Organisation and Planning –

Science at Scholes School is taught according to the year group guidance as part of the 2014 National Curriculum. Science is linked to other curriculum areas where appropriate – see cross-curricular section.

Science is taught through a variety of both practical and theoretical activities. The balance should be more towards practical activities enabling children to explore the world around them and make conclusions about their observations.

Where possible, teachers use the environment available around school to support teaching – this is especially useful to the biology content of the curriculum. School has access to a variety of habitats – tarmac playground, field, woodland, etc. which are best selected for the taught content of the science curriculum.

In all year groups, links are made in science with influential British scientists and their impact on the progression of their discipline.

Staff plan using the whole-school medium-term planning format – the requirement of this is that there is an objective for the session along with an outline of the session. The school requires no particular level of short-term planning as this is the responsibility of teaching staff to determine themselves. Staff are free to include the level of detail on their medium-term planning which they find sufficient for themselves to teach (or another member of staff to teach in the event of absence).

See our EYFS policy for information on how our early years curriculum is delivered.

Continuity and Progression

Class teachers plan the subjects for their year group and then, as part of Key Stage teams and the work of subject leaders, ensure that there is progression across the team. The subject leader ensures there is clarity within the curriculum across school. This is then built into the long-term plan for school. The class teacher, with key stage partners, will ensure that the statutory objectives from the National Curriculum have been covered. The subject leader will ensure that all objectives have been taught by the end of each key stage.

Cross Curricular Links

There are many natural links with Science across the curriculum – teachers at Scholes School make these links where necessary and appropriate to focus on the desired learning objective.

Examples of links are as follows:

- Data collection and interpretation links with the maths content of all year groups and is utilised to cover objectives from both Science and Maths curricula
- History links are made with famous figures from Science history – usually to introduce a new topic
- Geographical links are established with Science in physical geography – the water cycle, Earth geography
- Design Technology makes links with the physics element of the Science curriculum – the science of how things work

Teachers have made links between year groups. Science Weeks are also used to enable children from across school to work together to plan and carry out investigations together.

Teachers are free to organise their curriculum timetable and are encouraged to be creative in their delivery to provide:

- appropriate challenge for all abilities;
- a variety of learning tasks;
- opportunities for discovery;
- correction of misconceptions;
- appropriate assessment – predominantly formative activities.

Resources

School has a wide range of resources for Science. These are kept in the following areas:

- Corridor boxes in the Learning Zone
- Objects kept in the 'Alice' storeroom

A full list of resources and their locations can be obtained from the Science lead.

Inclusion

Teachers set high expectations for all pupils. They will use appropriate assessment to plan challenging work for all groups, where appropriate, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEN
- Pupils with English as an additional language (EAL)

Teachers will plan lessons so that pupils with SEN and/or disabilities can study every National Curriculum subject, wherever possible, and ensure that there are no barriers to every pupil achieving.

Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in all subjects.

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

Health and Safety

There is no requirement for every activity to have a formal risk assessment within Science. Staff are trusted to use a common sense approach and highlight risks and potential dangers to children as learning develops. Staff and pupils are encouraged to be 'risk aware', as opposed to 'risk averse' in order to learn effectively.

For activities where there is a risk of a more serious nature – eg. scalds where hot water is needed, etc. teachers are advised to complete a 'Curriculum Risk Assessment' form (template can be found on the Intranet). These need to be seen and signed by a member of SLT or the Science lead. These forms are then kept in the Science Coordinator folder.

Impact

Recording and Assessment –

There is no single defined example of 'best practice' within Science. Staff are trusted to ensure children's work reflects the learning completed at an appropriate level. Examples of this include:

- Pupils record initial conclusions following an exploration of a concept, these are then shared with the group/class and developed into a shared understanding and the teacher records the 'final' conclusion to be added to pupil books.
- Pupils take part in a practical activity linked to an area of the science curriculum, the teacher/ETA takes photos as evidence and then this is presented as a 'write up' from the teacher in books.
- Pupils carry out an investigation and write up their investigation in a standard format (with appropriate scaffolds as necessary)
- Pupils research a figure/specific area from science and record their findings in their books in a way of their own choosing.

Teachers are encouraged to promote exploration and discovery within science and to steer away from 'standard formats' of recording – eg. Twinkl worksheets. Whilst covering all the statutory requirements of the curriculum, they allow less freedom for pupil's ideas.

There is no formal written summative assessment requirement for Science at Scholes School. Teachers plan their science lessons within the objectives from the 2014 National Curriculum. Teachers then record an overall teacher assessment at the end of each term on SONAR. Teachers are encouraged to access SONAR as they see appropriate as so the task does not become too onerous. Teachers then also use this information diagnostically to plan learning appropriately – especially for the 'Working Scientifically' objectives.

Monitoring

Monitoring of Science at Scholes School is carried out in a variety of ways. These include:

- Work scrutiny to explore specific, pre-discussed aspects of teaching – content, scaffolding, quantity of practical vs. theoretical work
- Observations where appropriate – these are usually linked to SIP requirements or Performance Management objectives
- Peer observations are encouraged for staff to explore teaching styles and activities in a less formal way than observation
- Pupil discussions may be used to gain insight to attitudes towards science