



Sheep Dip Lane
Academy



Exceed Learning Partnership
• EVERY CHILD • EVERY CHANCE • EVERY DAY •

Science Policy v2 Sheep Dip Lane Academy



Responsible Governing Board	Local Governing Board
Responsible Persons	Science Subject Leaders
Date of last review	January 2022
Review Date	January 2025

Version Control

Version	Revision Date	Revised by	Section Revised
V1	Sept 20	LB	All sections – revised document – including lockdown procedures for online learning and recovery curriculum
V2	Jan 22	LB/AP	All sections – lockdown and recovery curriculum removed Science progression schemes of learning added

Rationale

At Sheep Dip Lane Academy, we believe that Science is a continuous process which helps our pupils to discover and to develop an understanding of their own environment and which helps to prepare them for adult life. We believe that it is important for our pupils to have a range and breadth of experience and that in order for them to develop a progressively systematic and quantified approach, that specific objectives are taught.

Curriculum Intent

Inclusion is at the heart of our intention and all children are given the support and opportunities they need to thrive in this subject. Our main intention in Science is to provide a sound foundation for the development of the following scientific skills:

- * to develop scientific understanding, knowledge and skills progressively through practical investigations/explorations and research throughout all year groups.
- * to develop the skills of interpreting and evaluating data and working scientifically
- * to develop an awareness of safety
- * to develop the concepts of the following topics; everyday materials, plants, seasonal changes, forces and magnets, light, animals; including humans, rocks, sound, electricity, living things, evolution and inheritance, earth and space

Implementation

In Science, we have a rigorous and well organised Science long term plan in line with the National Curriculum, where teaching and learning will show progression across all key stages within the strands of Science. This also includes practical investigative opportunities within Science lessons.

This long term plan includes a 2 year cycle (cycle A and cycle B) which has been carefully planned by the subject specialists. It identifies key concepts, what we want children to know, key resources and lesson ideas and planned assessment questions that children should be able to answer by the end of a scheme of learning.

Within each Science lesson, children are introduced to and have access to key language and meanings in order to understand and readily apply this to their scientific understanding.

Through each Science topic, children will use and become confident with a range of Scientific resources to develop their knowledge and understanding of how to work scientifically. Using the National Curriculum teachers should plan the 'Working Scientifically' objectives alongside those within the topic planning.

Children will have lots of opportunities to build on prior knowledge throughout a Science topic and across year groups/phases and this is highlighted within each concept of the long term planning. This will enable them to link ideas together, to question each other and become enquiry based learners.

At the beginning of each Science topic an enquiry session should take place to assess what children already know. Attainment will then be assessed formatively throughout the topic, with a summative judgement being made at the end of the scheme of learning.

Impact

As a result, we are developing children as young scientists who are able to successfully demonstrate the following:

- * to encourage pupils to make predictions, test hypotheses and to devise their own solution to a range of problems
- * to value our pupils' own questions and use them as starting points for further investigations / explorations

- * to look for patterns and relationships in appropriate investigations and to systematically record results
- * by the end of Key Stage 2 to draw conclusions that are consistent with evidence and are related to scientific knowledge and understanding, referring back to initial predictions made
- * for pupils to be able to select and appropriately use scientific equipment

POLICY IN PRACTICE

Statutory Requirements

The statutory requirements in the new curriculum 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

Each attainment target is divided into themes. The themes are to assist in the planning of topics and in the understanding of progression through the Key Stages. The programmes of study are divided under the themes and it is important that coverage of them is planned for. Assessments need to be undertaken with reference to the age-related expectations for each year group. It is important to cover all parts of the programmes of study, as planning to the level of descriptions alone may mean that significant areas of the programmes of study will be missed. This would leave gaps in the pupils' scientific understanding and knowledge, which may be vital for later work.

Statutory Programme of Study

The programmes of study for science are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage if appropriate. All schools are also required to set out their academy curriculum for science on a year-by-year basis and make this information available online.

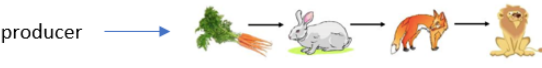
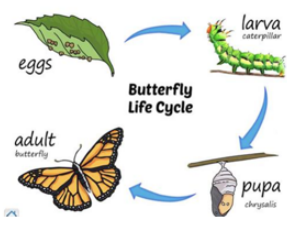
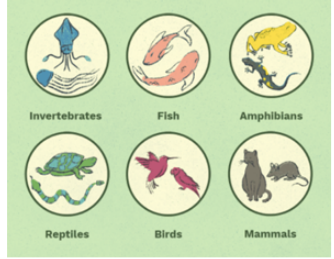
Within our academy teachers will ensure that the following subjects are taught within the following key stages over a long-term plan – this is the whole academy overview for Science across a 2 year rolling programme -

	Autumn Term Identity & Social Justice	Spring Term Power, Leadership & Invasion	Summer Term Sustainability & Impact on Our World
FS1	Harvest / Celebrations Seasonal Changes	See, Hear, Feel Floating & Sinking	Animals, Plants & Habitats
FS2	Seasons Animals & Habitats	Living Things & Plants	Materials Natural World
KS1 cycle A	Seasonal Changes (Y1)	Living Things & Life Cycles (Y2)	Living Things & Habitats (Y2)
KS1 cycle B	Everyday Materials (Y1) Uses of materials (Y2)	Animals including Humans (Y1/2)	Plants (Y1/2)
Lower KS2 cycle A	Rocks & Fossils (Y3)	Plants & Animals (Y3/4)	Solids, Liquids & Gases (Y4)
Lower KS2 cycle B	Living Things & Habitats Animals including Humans	Light, Sound & Electricity (Y3/4)	Forces & Magnets (Y3)
Upper KS2 cycle A	Forces Light	Animals including Humans (Y5/6)	Earth and Space
Upper KS2 cycle B	Living Things & their Habitats	Electricity	Properties and changes of Materials (including changes of solids, liquids and gases)
	Biology	Chemistry	Physics

For all subjects Working Scientifically will be included throughout the curriculum. These objectives are clearly listed in the programme of study and are evident in teachers planning and lesson objectives.

Science subject leaders have created schemes of learning progression of skills document for Science subjects and this includes key concepts that the children must learn throughout the topic based on National Curriculum expectations. The schemes of learning also contain ideas for lessons and resources to support short/medium term planning, assessment activities, experiences to investigate/work scientifically. It also includes prior knowledge so a clear progression of knowledge and skills can be evidenced from one-year group on to the next.

Alongside each scheme of learning is a knowledge organiser which displays key knowledge and vocabulary that the children are expected to become confident using and understanding throughout that Science topic, for example, when learning about living things in KS1 children would use the knowledge organisers to re-cap on the following key concepts. The aim is that children can discuss and share the content of the knowledge organisers, becoming 'experts' in this area of Science.

Key Question: Are all animals totally different?	
Key Knowledge	Key Vocabulary
Most living things live in habitats to which they are suited.	Living thing - For something to be a living thing, it must grow and evolve, feed (use up energy) and reproduce (make more of its own type) and get rid of waste.
Habitats provide for the basic needs of different kinds of animals and plants.	
Animals can be sorted (classified) into mammals, birds, fish, insects, amphibians, reptiles and humans.	Food chain - A food chain shows how energy is passed between plants and animals.
Plants can be sorted into deciduous and evergreen trees, common plants and flowering plants.	<p>producer → </p>
Things that are living have needs to keep them alive.	Habitat / Microhabitat – Habitats / microhabitats are places where animals and plants live.
<p>All living things:</p> <ul style="list-style-type: none"> • move • make more of their own type – humans and other animals have babies, birds will lay eggs • respond to the place they are in – if a plant is in a dark place, it will try to grow towards the light • feed • grow • get rid of waste – like when humans go to the toilet • need oxygen 	<p>Life Cycle - A life cycle is the journey of a living thing from beginning to end.</p>  <p>Animal - Animals are living things. Like plants, animals need food and water to live.</p> 

Aims of Scientific Enquiry

In order for our pupils to achieve the highest standards in science we must enable them to develop specific skills in scientific enquiry, increasing complexity as they progress through academy.

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.

Working Scientifically

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so

that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

Observing and Measuring

In Year 1 we would expect most pupils to observe familiar materials and events at first hand, using their senses and to begin to make comparisons between living and non-living things and natural and made objects. By Year 6 we would expect most pupils to classify into broad groups according to common observable characteristics. Also to quantify their observations by selecting and using appropriate instruments, such as a Newton meter to measure the strength of a force.

Investigating and Manipulating Variables

From being able to explore the effects of magnets in Year 1 we would expect most pupils to be able to identify the variables to be measured, changed or controlled in an investigation in Year 6.

Questioning, Predicting and Hypothesising

From asking questions such as "how?", "why?" and "what will happen if?" In Year 1 we hope that most of our pupils in Year 6 will be able to make predictions based on previous knowledge and understanding and begin to formulate hypotheses.

These include:-

- The use of extended vocabulary
- Demonstrations and sharing of skills, knowledge and techniques

Communicating and Recording

We would expect that pupils would progress from being able to list and describe their observations in Year 1 to being able to systematically list and record data using tables, charts and graphs, where appropriate, by Year 6.

Interpreting and Evaluating

In Year 1 it is reasonable to expect most pupils to begin to associate one fact with another and to compare what they have observed with what they expected. By Year 6 it is reasonable to expect that most pupils will be able to interpret the results of their investigations by linking patterns in their results to the original question, idea or prediction and that they will begin to draw conclusions that are consistent with the evidence.

Attitudes

We believe that pupils' attitudes are very important for effective learning to take place.

We aim to promote the following attitudes in our pupils:-

- an enquiring mind
- co-operation with others
- valuing the opinion of others
- open-mindedness
- perseverance
- originality

Citizenship/Inclusion

All children will have the same opportunity to follow the science curriculum with each child learning at a pace that is appropriate to them. Through work carried out in science children will have the opportunity to:

- extend and develop their social skills
- work as part of a team
- experience moral and cultural issues
- discover the magic of the world around them

Children working at Greater Depth

The curriculum and organisation of the science curriculum allows each child to learn at a rate that is appropriate to them. Opportunities are offered to enable all pupils to develop fully to their abilities. For example, through the use of Basic, Advancing, Deep (BAD) models used through teaching – children working at greater depth of understanding are able to demonstrate this through application of skills.

ICT

In science pupils will be given the opportunity to apply and develop their ICT capability through the use of ICT tools, to support their learning.

Pupils will be given the opportunity to support their work by:

- finding things out from a variety of sources e.g. internet, science apps, online videos/media
- developing their ideas using ICT tools to amend, and refine their work and enhance its quality and accuracy
- exchanging and sharing information both directly and through electronic media
- reviewing, modifying and evaluating their work, reflecting critically on its quality as it progresses.

Health and Safety/Risk Management

When working with tools, equipment and materials in practical activities and in different environments, including those that are unfamiliar, pupils will be taught:

- about hazards, risks and risk control
- to recognise hazards
- to assess risks
- to manage their environment

All of the above will ensure the health and safety of themselves and others.

Home Learning

On occasion home learning activities focus on cross-curricular links between Science and Literacy or Mathematics and are usually short and focused referring to the topic work covered to consolidate skills and understanding. Some homework may be creative home learning projects or linked to British Science Week. Home learning is now sent through our online learning platforms, Seesaw and Tapestry, which encourage children to share home achievements with their teachers.

Assessment, Recording and Reporting

In Science we aim to give a picture of each pupil's attainment by recording the level of skills, knowledge and understanding that have been achieved. At the beginning of each Science topic teachers must ensure a baseline assessment is recorded for each pupil to identify starting points, next steps and targets.

Assessments are on-going throughout each topic and are an integral part of planning. Records are also completed at the end of each science topic to monitor pupil progress. This is completed formative through class track and teacher judgement grids against learning objectives and summatively through O-Track.

At the end of the year annual reports written by each class teacher, are presented to parents and discussed individually at the summer open evening. In all year groups each class teacher uses their on-going assessment records from O-Track to inform their reports to parents. As with Year 2 these reports are presented to parents and discussed individually at the summer open evening.

Pupils are involved in self assessments and peer partner assessment to support the AFL agenda. Success criteria are also generated by the children to meet the objectives set during sessions.

Range and types of Assessment in Science

Assessment tasks in science are often planned as group activities. However, it is also necessary to plan for and assess pupils individually. Appropriate assessment tasks linked to the National Curriculum are an essential part of the planning/assessment cycle.

Assessments can be:-

- i) National assessment tasks
- ii) completed task sheets or word cards linked to the programmes of study
- iii) a practical investigation that is planned, carried out and recorded by the pupil
- iv) a one to one dialogue with the teacher
- v) open-ended tasks which require the skills of prediction, hypothesis and questioning and fair testing
- vi) written tests based on the programmes of study and level descriptions
- vii) self / peer assessment of a task / topic

In Science standardisation within each Key Stage takes place half-termly.

Moderation of work is carried out by subject leaders annually to ensure continuity and progression as well as tracking progress. This also enables strengths to be highlighted as well as indicating areas for future development.

SATS Sampling

Not all children in Year 6 will take science SATs. Pupils at the end of the KS2 programme of study do not routinely sit a science test, as their performance is ordinarily measured using teacher assessment judgements.

Every 2 years however, in order to gauge the overall performance of the national population, a sample of pupils sit tests in science.

Whole cohorts do not take the tests. Instead, a sample of approximately 1,900 schools are selected to participate. In each of the selected schools there are up to 5 pupils selected to take the tests, so that approximately 9,500 pupils participate in the sampling tests. The sample is selected in such a way as to ensure it is representative of the population.

Confidentiality

As a general rule the children's confidentiality is maintained by the teacher or member of staff concerned. If this person believes that the child is at risk or in danger she/he talks to the child protection officer, who may confer with the Principal before any decision is made.

Safeguarding

The safety, health & wellbeing of every child in our academy remains a priority at all times.

All visiting practitioners must have up to date CRB checks before they are able to work in academy. All visitors and practitioners are always supported by Classteachers or members of the Leadership Team.

All academy staff (e.g. Teachers, Curriculum Support Staff, Parents etc) receive training regarding child protection and safeguarding in line with model protocol.

The Provision and Management of Resources

Teachers' reference material is kept in the staff room stock cupboard clearly labelled and organised into subject areas.

Our pupils are encouraged by example and encouragement to care for the academy, its environment and the equipment within it.

The science subject leaders are responsible for these areas.

Managing the Science Curriculum / Staff Development

The role of the subject leaders

- * to advise and support all members of staff in the delivery of the science curriculum
- * to advise and support teachers in planning and implementing science assessment tasks
- * to advise and support new staff to academy and ensure that they understand the science policy statement and guidelines and how to implement them
- * to be responsible for the allocated science budget and to be responsible for the organisation, maintenance and updating of science resources
- * to ensure that staff are made aware of new initiatives and developments in science both at local and national level
- * to attend relevant courses in order to update herself /himself in the subject
- * to review, evaluate and update, where necessary, all documentation governing the implementing of the science curriculum.

Sources –

National Curriculum in England: Science programmes of study

LEA Guidance on Policy Documents – “Policy in Practice”

Date of Policy: January 2022

To be reviewed: January 2025

Signed: Principal



Signed: Governor / Chair of Governors

