



Ashton West End Primary Academy

Science Policy

Vision:

In our multicultural and eco- friendly school, we celebrate differences and encourage mutual respect. We support each other and our community to work together and take pride in the things we do. We demonstrate perseverance, inclusion and respect. Everyone is welcome!

Mission Statement:

‘Today I am proud of my school, tomorrow my school will be proud of me.’

The aim of this policy is to guide teachers and support staff in providing the best possible learning experiences for our children.

Intent

At Ashton West End Primary Academy we undertake to:

- Raise levels of attainment for all pupils, enabling them to achieve their personal best.
- Develop confident, disciplined and enquiring learners, able to make informed choices.
- Foster a love of learning.
- Foster self-esteem and personal responsibility, linked to respect for the needs and feelings of others.
- Facilitate considerate and positive relationships between all members of the academy community.
- Ensure equal opportunities in relation to gender, race, class, special needs and belief.
- Value and respect all cultures.
- Provide a safe and happy work place.
- Promote a thoughtful attitude towards the immediate and wider environment.

Our mission sets out our commitment to ‘aiming high’. Improvements in the quality of teaching and learning are brought about through a process, which involves:

- reflection by individual professionals
- acting on planning feedback and guidance
- use of assessment data
- the target setting process
- sharing in-house expertise through
 - joint/team planning
 - discussion with colleagues, subject coordinators and SLT
 - Staff training at school
 - Team teaching lessons
 - Peer observation and lesson studies
- implementation of recommendations arising from classroom observation
- CPD courses

This policy will be reviewed regularly to enable us to take account of new initiatives, curriculum changes, technological developments and any changes to our pupil cohort profile.
(Next view date: July 2024)

Aims and Objectives:

The National curriculum aims for Science are 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.

Teaching and Learning:

At Ashton West End Primary Academy, we believe a high-quality science education provides the foundation for understanding the world. Our Science Curriculum is knowledge based and we use the P.L.A.N resources as our Scheme of Work. We believe that 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. Our pupils are encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

In science lessons at our school, our principal aim is to develop pupil's knowledge, skills, and understanding. Sometimes, we do this through whole-class teaching, while at other times, we engage the class in an enquiry-based investigative activity (the importance of Working Scientifically is key in the National Curriculum). We encourage pupils to ask, as well as to answer, scientific questions. The subject is well resourced to allow pupils to use a variety of practical equipment to complete investigation and observations and to record their findings using data, such as statistics, graphs, pictures and photographs. Use of ICT in science lessons is used to enhance learning and allows conclusions to be drawn more clearly. Children take part in role-play and discussions, and they present reports to the rest of the class. Frequently, the children take part in real scientific activities, e.g. investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

We are committed to equal opportunities in learning and recognise that in all classes, children have a wide range of scientific abilities. We use a variety of teaching and learning methods to ensure their attainment is not limited by their ability to record by providing different means of sharing understanding.

- We begin each lesson with DNA questions which review prior learning: Last lesson, last week, last topic and last year.
- Teachers highlight which of the 5 inquiry types the lesson will be using eg:
 - comparative / fair testing.
 - research.
 - observation over time.
 - pattern seeking.
 - identifying, grouping and classifying.
 - problem solving.

These are on display in the classroom and on the lesson slides.

- setting tasks which challenge scientific thinking
- Pupils work in 'mixed ability' and there are opportunities to record in different ways with different support structures in place
- using classroom assistants to support the work of individual children or groups of children where possible

Curriculum Planning:

We recognise that Science is a core subject in the National Curriculum. The school uses the National Curriculum scheme of work for Science as the basis for its curriculum planning. This is supported by PLAN resources which outline progression of knowledge and vocabulary. Our long-term school overview shows the coverage of the science units for each year group. Using the national curriculum, the subject lead has created the SOW to ensure coverage and to support teachers when creating medium term plans.

EYFS

The Foundation stage follows the 2021 EYFS Statutory Framework.

Learning is split into four specific areas. The 'Science' aspect of the Statutory Framework is most relevant to 'Understanding The World':

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Science is specifically linked to the Early Learning Goals of:

- Explore the natural world around them, making observations and drawing pictures of animals and plants; 15 - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

KS1 and KS2 follow the National Curriculum for Science 2014.

The school Scheme of Work outlines the Statutory objectives for each year group which the teachers use to plan half termly topics. This allows pupils to progress through the National Curriculum, gaining skills and knowledge appropriate for their age. The School Scheme of Work is arranged in order to build on prior knowledge as they move through school to both gain knowledge and to build skills or inquiry and investigation.

Year 1 and Year 2 (KS1)

The NC for science is weighted towards Biology for Y1 and Y2. There is an expectation that children will be taught technical language and names for part of living things; plants and animals (inc. humans). The statutory objectives require these 'facts' to be revisited throughout the Key Stage in order to reach an understanding. Teachers' planning reflects this. In addition there is a Unit on Materials and their uses which allows the children to work scientifically to test their ideas. The aim is to increase independence when investigating to prepare pupils for KS2 as they reach the end of Y2.

Programmes of Study:

Y1, Seasonal changes, Properties of Materials, Names of trees and plants, Classifications of animals

Y2 Prerequisites of living things (including habitats and food chains), Testing materials for purpose, Growing plants, Lifecycles of animals, Keeping Healthy

Year 3 and Year 4 (Lower KS2)

The NC for science in Y3 and Y4 introduces physics topics. The children are expected to investigate light, sound and forces including magnetism. The teachers plan investigations to further understand difficult concepts. The children extend the knowledge of biology learned in KS1 in their topics on living things, habitats and Plants. The statutory objectives include labelling and naming the process of digestion. Investigations need to be more independent to show the progression of skills. There is an additional geology unit which tests the knowledge and understanding of rocks and soils.

Programmes of Study:

Y3: Reproduction of Flowering Plants, Human Nutrition and the Skeleton, Rocks, Light and Magnetism
Y4: Teeth, Digestion, Sound, Electricity, Changing materials, Animal classification

Year 5 and Y 6 (Upper KS2)

The NC for science in Y5 and Y6 includes topics on biology, physics and chemistry. Investigations into materials expect children to understand chemical changes. Biology units look at the detail of the human circulatory system and the life cycle of humans and other living things. Physics objectives go into greater depths of forces, electricity and light. There is a further unit on Earth and Space which introduces an understanding of the place the Earth takes in the Solar System.

Programmes of Study:

Y5 Earth and Space, Changing materials, Human lifecycle, Animal life cycles, Forces

Y6 Circulatory system, Nutrition, Animal classification, Evolution, Light and Electricity

Contribution to the other curriculum areas:

Our Science curriculum is key in building an enquiring mind and an independent learner and the skills used in this subject contribute to all other areas of learning: Both in Primary and future education. We aim to build confidence in order that pupils learn to question what they see. The ability to work collaboratively and systematically is vital to many other curriculum areas. As they progress through school, methods of recording in Science require the ability to use and apply mathematics skills. Eg. Moving from non-standard to standard measurements or calculating and repeating measurements in a systematic way. In addition, being able to describe observations made, report findings and draw a conclusion allows the use of a variety of writing genre. Presenting findings to the group using oracy skills improves the pupils' Speaking and Listening. Developing understanding of technical vocabulary and scientific phenomenon supports reading comprehension skills. ICT skills are tested when creating graphs, filming investigations and researching real-life scientists. Links are drawn between science of the past and present (historical links) and of science and scientists around the world (geography)

Inclusion:

At Ashton West End Primary Academy teachers set high expectations for all pupils. Teachers use appropriate assessment to set ambitious targets and plan challenging work for all groups, 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 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. At Ashton West End Primary Academy, all children are involved in science lessons, whatever their ability, experiences and individual needs. This is in line with the school's curriculum policy of providing a broad and balanced education to all children. Through a range of teaching and learning approaches, we enable all children to access the science curriculum. We strive to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details see the SEND policy. Where learning takes place outside of the classroom, we will carry out risk assessments to ensure that the activities are safe and appropriate for all pupils.

Legislation and guidance:

This policy reflects the requirements for academies to provide a broad and balanced curriculum as per the [Academies Act 2010](#), and the [National Curriculum programmes of study](#) which we have chosen to follow.

It also reflects requirements for inclusion and equality as set out in the [Special Educational Needs and Disability Code of Practice 2014](#) and [Equality Act 2010](#), and refers to curriculum-related expectations of governing boards set out in the Department for Education's [Governance Handbook](#).

Assessment for learning

Overview:

At Ashton West End Primary Academy, we believe that assessment of pupils' progress in science is necessary if we are to meet our objectives of engaging pupils in programmes of activity which provide progression and continuity of learning.

Ongoing teacher assessment has always been an integral part of good practice and is used to inform future planning.

Types of Assessment

Formative – assessment for learning – allows the teacher to see what the child knows, understands, and can do.

Summative – assessment of learning – records overall achievement of the child.

Diagnostic – identifies areas of strength and weakness.

Evaluative – allows teachers and school leaders to see the effectiveness of teaching in terms of performance.

Formative Assessment

Formative assessment involves:

1. Evaluating pupils' level of knowledge.
2. Setting explicit learning objectives.
3. Sharing learning objectives and success criteria with pupils.
4. Questioning effectively.
5. Pupils evaluating their own and peers' performance against success criteria.
6. Teachers and pupils reflecting and reviewing performance and progress.
7. Effective oral feedback to inform pupils what they should do next.
8. Children responding to feedback.

Self-Assessment and Peer Assessment

Peer and self-assessment are ways of engaging children in understanding their progress in learning and identifying next steps in their learning that can be used in addition, and to support, oral feedback from teachers and Support Staff. The aim is to involve children in the analysis and constructive criticism of their own and others work. Learners use the success criteria given as part of the teaching process to make judgements on their own, and peers, learning and identify areas for development – next steps.

Day to Day Assessment

The main focus involves teachers using their professional skills to observe a child to see if the work provided for them is sufficiently challenging to ensure progress or that misconceptions or 'gaps' are not impacting on progress. The assessments are recorded on the planning sheets and used to inform future planning. This may be achieved through:

- Questioning
- Observing

- Discussing
- Analysing
- Checking children's understanding
- Engaging children in reviewing progress

Assessment for Learning – Formative Assessments

The skill, matter or process objectives are made explicit in all planning. Assessment opportunities (described above) form the basis of the planning for learning for the next lesson. Teachers make brief notes to evaluate and to inform subsequent teaching and learnings. It is best practice to be constantly revising planned learning.

Assessment of Learning – Summative Assessments

Assessment:

There is an assessment at the end of each Term based on the topics covered. This is used alongside Teacher Assessment to inform the Target Tracker progress steps for individual pupils. The Science Lead monitors and analyses Target Tracker data to look for areas of strength and weakness and address accordingly. Assessment in science is used to inform parents in the end of year Reports.

Additional Information Regarding Assessment in Science

At the end of Y6, the cohort complete a formal assessment (non-statutory) to inform the High School of attainment. Science assessment in the form of Teacher Assessment is passed on to DFE

Assessment in Science and the Early Years Foundation Stage:

The assessment of the Early Learning Goals has within it the 'Science' element of 'Understanding The World'. This assessment informs the Y1 teacher of attainment on transition. Please also see our Early Years Foundation Stage policy for detailed information on assessment at this stage of learning.

Resources:

Resources are purchased following an annual audit of need. The majority are stored in a series of cupboards along the KS2 corridor. Resources are organised mainly by subject and there are lists of resources. Some age-specific equipment is help in the EYFS unit. The subject is well resourced with 'consumables' replaced as necessary. As Ashton West End Primary Academy is a two form entry school, it is essential that there is enough equipment for whole-class teaching/investigations to take place. The Subject Lead has a system in place to replace consumables after the Programme of Study has been taught to ensure there are enough resources for the following academic year. Good science teaching and learning often requires learning outside the classroom and there is a budget available for science trips which are arranged yearly. Support staff are timetabled to cover science lessons from Y1 – Y6 where possible. This assists teachers in making their lessons accessible for all pupils.

It is expected that a year group include a Science-based visit for pupils to support learning outside of the classroom. This can be visitors to school as well as visits elsewhere (eg. EYFS and Y1 – farm animals brought to school. Y3 Visit to MOSI re: electricity, pond dipping for Y2 pupils) We have an excellent link with the Oldham Science Learning Centre for upper KS2 pupils who visit several times a year. These resources are supported by the Science learning budget as an essential part of learning.

Roles and responsibilities:

The governing board: The governing board will monitor the effectiveness of this policy and hold the headteacher to account for its implementation.

The governing board will also ensure that:

- A robust framework is in place for setting curriculum priorities and aspirational targets

- The school is complying with its funding agreement and teaching a "broad and balanced curriculum" which includes English, maths, and science, and enough teaching time is provided for pupils to cover the requirements of the funding agreement
- Proper provision is made for pupils with different abilities and needs, including children with special educational needs (SEN)
- The school implements the relevant statutory assessment arrangements
- It participates actively in decision-making about the breadth and balance of the curriculum

The Principal: The principal is responsible for ensuring that this policy is adhered to, and that:

- All required elements of the curriculum, and those subjects which the school chooses to offer, have aims and objectives which reflect the aims of the school and indicate how the needs of individual pupils will be met
- The amount of time provided for teaching the required elements of the curriculum is adequate and is reviewed by the governing board
- They manage requests to withdraw children from curriculum subjects, where appropriate
- The school's procedures for assessment meet all legal requirements
- The governing board is fully involved in decision-making processes that relate to the breadth and balance of the curriculum
- The governing board is advised on whole-school targets in order to make informed decisions
- Proper provision is in place for pupils with different abilities and needs, including children with SEN

The subject leader: The role of the Science Subject Lead, is to ensure the Science curriculum in school is coherently planned and sequenced. To instruct teaching staff to follow the National Curriculum Programmes of Study by following the long term planning and that these teaching staff have the subject knowledge specific to teach to a good standard to ensure that all pupils make progress. To inform teaching staff of available training and provide INSET where appropriate. They have responsibility to resource the subject adequately, auditing and budgeting for these resources. To monitor the attainment in Science by monitoring the Target Tracker, Pupils' books and Assessment folders. To write and deliver an annual Action Plan for the subject and report to Governors when required. To complete a Subject Leader Report annually for the Head and SMT.

Monitoring and review:

Science monitoring will involve informal and formal lesson observations to have a clear picture of what Science teaching and learning looks like in AWEPA. Full book scrutiny 2x annually with feedback to SMT and individual teachers. Teaching and planning support for NQT staff. Monitoring of medium term plans to ensure the statutory requirements of the school/ National Curriculum Programmes of Study are being taught. Interviewing pupils intermittently to gain pupil voice of their experience of the subject.