

Montagu Academy

Science Teaching and Learning Policy

Curriculum Intent

Pupils at Montagu Primary Academy build scientific skills and knowledge from the moment they step into the Foundation Stage. By the time they leave for the next stage of their education, they are confident, knowledgeable scientists.

At Montagu, we aspire to provide opportunities for every child to become a scientist.

What is a Scientist?

- A questioner
- A tester
- A hypothesiser
- A theoriser

We believe that pupils should learn, where-ever possible, through practical, hands-on experiences. We guide pupils; teaching them the substantive knowledge they need, alongside the discipline of being a scientist through the skills of questioning, testing, and concluding.

The Development Matters Framework and National Curriculum objectives underpin science teaching and learning. Within each objective, small-step learning is identified and taught through Delta's Reading Enhanced Curriculum (REC), making exciting and relevant science learning experiences using a range of high-quality practical resources which directly match to the lesson's content. This allows us to bring science alive in the classroom. For example, pupils in Year 4 learn about digestion by making a model of the digestive system and observing the role each part plays. Pupils in Year 6 learn to manipulate electrical components and circuits by making a burglar alarm.

Delta's Reading Enhanced Curriculum is a rich and diverse resource base. Its science sessions contain high quality materials, with sequences building on prior knowledge and skills to create and develop a rich and connected schema. Within this curriculum design, the selected reading enhances the pupils' scientific knowledge, demonstrating the use of terminology in context, whilst the science content enhances the curriculum. For example, pupils in Year six, whilst learning evolution and inheritance, also study the works of Charles Darwin through the book 'On the Origin of Species'.

All staff have access to quality professional development which supports their science teaching. A Trust wide network of support ensures colleagues are well informed and well trained. Teachers are knowledgeable and confident teachers of science.



Teachers' planning

Each class teacher follows the science long term plan which is embedded in the REC. Teachers use the resources available through Delta's REC to deliver sessions which align to the National Curriculum learning objectives in a sequential and logical pathway of learning. The National Curriculum learning objectives are split into smaller steps of learning for each unit, ensuring they are mapped to be both sequential and to build progression within each unit, whilst recapping and building on prior knowledge at all points.

Montagu Primary Academy use Delta's practical resources to enrich its curriculum offer. The use of Delta's REC and practical resources together ensures its ambition to provide every opportunity to develop pupils as well-rounded scientists with the necessary substantive knowledge and disciplinary skills.

Key drivers within science

Teachers and practitioners understand that the development of language and vocabulary are crucial at Montagu Academy, so every opportunity is exploited to develop this within the context of the lessons. This is always modelled by adults working with children and pupils are encouraged to practise and use a wider bank of vocabulary across all their learning experiences and as such, vocabulary is always a key feature of science working walls.

Before each new unit of science, pupils complete a KWL grid. This enables teachers to assess pupils' prior learning and retained knowledge as they demonstrate what they already know about the unit, ensuring any gaps in knowledge are planned for before building upon. It also gives pupils the opportunity to practise forming scientific questions within the context of a science unit.

The lesson structure for science is centred around a 'Big Question'. The 'Big Question' ensure the small steps of learning, which underpin the substantive knowledge, are well sequenced and progressive, with practical opportunities woven through the curriculum to develop the discipline of being a scientist. To demonstrate their understanding, pupils will answer the 'Big Question' at the end of each session.

To support pupils to know more and remember more, Connect Quizzes are completed at the beginning of the next session. This formative assessment ensures misconceptions are addressed, as well as any gaps in knowledge, to ensure pupils have a strong foundation to continue to build on.

EYFS

From the moment children step through our doors, opportunities for investigation, exploration and critical thinking are all around. Provision is carefully planned through key themes such as seasons, physical changes, growing and planting, food preparation and forest schools. These support children with a range of scientific enquiry and in becoming scientific explorers. The 'Understanding the World' focus from the Development Matters framework aims to increase children's knowledge and sense of the world around them. Early Learning Goal (ELG) Descriptor's support Year



1 readiness to ensure children are prepared and equipped for the KS1 aims and objectives.

KS1 and KS2 learning

Planned topics of science are taught following the long-term plan, which is matched to the National Curriculum.

Science is taught sequentially. Pupils build skills and knowledge over time. Wherever possible, pupils engage in practical experiences when learning science. Practical activities develop a scientific skill whilst teachers use these learning experiences to teach key knowledge. The use of specific scientific vocabulary is always promoted.

Development of language and vocabulary are key at Montagu Primary Academy and so teachers and practitioners always model and expect pupils to use technical vocabulary.

Evidence of pupils' learning

Staff at Montagu Primary Academy think very carefully about how science learning is evidenced. A variety of methods are used to capture learning in the best possible way. The way in which evidence of learning is captured is predicated upon, not only how well this exemplifies progress towards the learning objective, but the best way for the child to show their skills and knowledge.

Where evidence captures are paper based, this will be documented in whole class floor books (Y1-Y4)

Where evidence captures are paper based for pupils in Upper Key Stage 2, this will be in individual green exercise books (Y5-6).

Examples of how evidence is captured are

- Thoughtful and specific photographs, annotated and linked to LOs
- Quotes captured as 'incidentals' by staff on post-its or such like, linked to LOs
- Pupil's learning captured by description by the teacher / learning support staff
- Voice recordings accessed by way of a QR code
- Video recordings accessed by way of a QR code
- Working walls with contributions by pupils
- Group or class charts
- Work in pupils' green exercise books
- Pupil voice

Evidence is appropriate for the age and stage of the pupils and prepares pupils for their next stages in education.

Evidence is always dated.

At the beginning of each piece of work, selected 'Takeaways', which demonstrate the small-step progress, are transcribed into a lesson banner.

The 'Takeaways' are assessed at the end of the session.

Each time science is taught, there will be an accompanying piece of evidence (photos, QR code linked to Twitter feed/video, written evidence) in each child's book.



Evidence always exemplifies the high standards promoted at Montagu Primary Academy.

Summative assessments

At the end of a unit, pupils are assessed on the academy's RAG document. Pupils are either assessed as N (at ARE) or B (below ARE)

Pupils are assessed against Working Scientific objectives termly. Pupils are assessed as above.

Marking and feedback

Marking and feedback is in line with the academy's marking and feedback policy

Monitoring and evaluation

The quality of science at Montagu Primary Academy is monitored by way of the academy's school improvement schedule, using Quality Assurance (QA) activities from Delta's QA toolkit.

Quality of education is monitored, evaluated, and improved using a variety of strategies, including

- The performance management cycle
- Lesson visits
- Learning walks
- Environment walks
- Work scrutiny
- Pupil voice
- CPD (National, Trust and school level)
- Feedforward scrutiny
- Assessment information scrutiny

Reporting to Parents

Progress and outcomes are communicated to parents and carers

- Informally through day-to-day discussions
- At regular parents' evenings
- By termly reports
- At the end of year annual report

