



**Villa Real School**  
*together we achieve*

# Science Policy 2023

Responsibility: Laura Beckham Date: June 2023

Signed & Adopted by the Governing Body

Chair of Governors

Date: 29.06.23

Review date: June 2027

## **INTRODUCTION**

The School agrees with the Durham County Policy Statement for Science, fully accepting the designation of Science as a core subject of the National Curriculum.

The development of Science is seen as an important core entitlement for all pupils and students within the School from 2 – 19 years.

## **DEFINITION**

The scientific process and pupils/students' problem-solving activities will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum 2014 and EYFS Learning Goals 2020.

Through science pupils and students at Villa Real School will continue to deepen their respect, care and appreciation for the natural world and all its phenomena. Science is taught throughout all phases of the School. It is taught within the scheduled timetable and cross-curricular.

This teaching aims to develop skills, promote the acquisition of knowledge and understanding and offer opportunities for experiences in the areas of:

- Working Scientifically
- Plants and Animals Including Humans
- Living Things and Their Habitats
- Everyday Materials and their Uses
- Rocks
- Lights
- Forces and Magnets
- Sound
- Electricity
- States of Matter
- Properties and Changes of Materials
- Earth and Space
- Forces
- Evolution and Inheritance
- Environmental science

A crucial element of the teaching is the identification, assessment and development of skills, knowledge and experience which are pre-requisite to those identified in National Curriculum Statutory requirements.

For some pupils/students this requires a multi-sensory curriculum (sensory science) designed to enhance their experience of, and ability to respond to, learning situations and their environment and other people.

At Villa Real School, Science is incorporated into the "Understanding of The World" segment of the EYFS curriculum. For Key Stages 1, 2, and 3, we utilize the Switched on Science program as a basis for our Science Curriculum. While we adapt and customize the units to cater to our students' requirements, this program serves as a strong foundation for their education.

When students reach upper KS3, they begin to work towards achieving accreditation, recognising their progress throughout their Science education. The 14-19 curriculum includes a range of courses that are taught depending on ability and as part of the individual's personalised curriculum and pathway. These include, AQA Entry Level Biology, ASDAN Short Courses, ASDAN Transition Challenge and ASDAN Sensory Programmes.

Off-site visits are a useful learning strategy and schemes such as the Forest Schools programme and Outdoor Education contribute greatly to understanding of subject knowledge and scientific investigation.

### **SCOPE**

This policy applies equally to all students and pupils in the School, with full consideration being given to each individual's specific needs in relation to the learning of Science.

As part of that process, advice and guidance is sought when appropriate from other professionals working in the School in a peripatetic capacity including Speech and Language Therapists, Physiotherapists, Occupational Therapists, Educational Psychologists and teachers of the multi-sensory impaired.

### **RATIONALE**

Science is about testing ideas through experiments to find reliable solutions to environmental questions. At Villa Real School, science helps our students develop intellectual and practical skills. By investigating and using process skills, they can understand their surroundings better. Science also promotes collaboration, where students exchange and explore ideas together. Through practical tasks and teamwork, they develop social skills like respect and cooperation, promoting social unity.

We believe that a broad and balanced Science education is the entitlement of all pupils/students, regardless of ethnic origin, gender, class, aptitude or disability. Our aims in teaching Science include:

- Preparing our pupils/students for life in an increasingly Scientific and technological world
- Fostering concern about, and active care for, our environment
- Helping our pupils/students acquire a growing understanding of Scientific ideas
- Helping develop and extend our pupil/students' Scientific concept of their world

- Developing our pupil/students' understanding of the international and collaborative nature of Science

#### Attitudes

- Encouraging the development of positive attitudes to Science
- Building on our pupil/students' natural curiosity and developing a Scientific approach to problems
- Encouraging open-mindedness, self-assessment, perseverance and responsibility
- Building our pupil/students' self-confidence to enable them to work independently
- Developing our pupil/students' social skills to work cooperatively with others
- Providing our pupils/students with an enjoyable experience of Science, so that they will develop a deep and lasting interest and may be motivated to study Science further

#### Skills

- Giving our pupils/students an understanding of Scientific processes
- Helping our pupils/students to acquire practical Scientific skills
- Developing the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating
- Developing the use of scientific language, recording and techniques.
- Developing the use of ICT in investigating and recording
- Enabling our pupils/students to become effective communicators of Scientific ideas, facts and data

### **ENTITLEMENT at KS1 and KS2**

All Primary pupils at Villa Real are entitled to a Science curriculum which offers opportunities for the development of skills:

#### **Working Scientifically**

- individually and in different groupings
- the skills involved with Scientific Enquiry will enable them to access other areas of Science
- in a range of situations within the School environment and in the wider community
- at a level appropriate to the individual's needs, abilities and ages, from sensory experience, through cause and effect to problem solving

#### **Knowledge, Understanding and Experience of Plants and Animals Including Humans Living Things and Their Habitats**

- using a wide range of resources and materials appropriate to needs, abilities and age

- for a variety of purposes, including for information, stimulating curiosity and pleasure for developing self-awareness
- Identifying differences between the male/ female body – naming external body parts
- Growing and Caring for Ourselves
- changes to the human body as it grows from birth to old age  
puberty

### **Knowledge, Understanding and Experience of Everyday Materials and their Uses & Properties and Changes of Materials**

- using a wide range of resources and materials appropriate to needs, abilities and age
- through play, e.g. sand and water
- for a variety of purposes – information, stimulating curiosity and for pleasure
- for developing self-awareness

### **Knowledge, Understanding and Experience of Light, Sound, Electricity and Magnetism**

Skills will be developed as for Experience of Everyday Materials and their Uses and Properties and Changes of Materials

The achievements of pupils/students with profound and multiple learning difficulties are recognised as having relevance to each of these areas and will be accessing the Engagement Model.

### **ENTITLEMENT at KS3 and KS4**

Students in Key Stage 3 and Key Stage 4 are entitled to a Science curriculum which offers opportunities for the development of skills in the following areas:

- Working Scientifically
- Chemistry
- Physics
- Biology
- reproduction in humans; for example, the structure and function of the male and female reproductive systems, menstrual cycle, gametes, fertilisation, gestation, birth and HIV/AIDS.

### **Environmental science**

#### Intent

At Villa Real School, we provide children with a strong foundation in understanding the environment through our Environmental Science curriculum. The program complements our Science provision and helps develop our pupils' Scientific Knowledge, Skills, and Understanding. Our Environmental Science curriculum includes various science enquiries that enable pupils to answer scientific questions in different contexts, fostering their curiosity about the natural world through hands-on activities. We

organize practical investigations outside the classroom, allowing our children to present their findings in multiple ways and develop their presentation skills. Our curriculum covers topics such as 'Plants,' 'Animals,' 'Living things and their habitats,' and 'Evolution and Inheritance,' all of which link to Environmental Science and lend themselves to practical investigations. We also explore 'Materials' in connection to waste and recycling and use 'Electricity' to teach our pupils about saving energy.

The outdoor provision at our school plays a vital role in teaching Environmental Science. Besides imparting knowledge about ecosystems, it also helps in the holistic development of our students by instilling our School's

### **Curriculum Implementation:**

- Use Environmental Science schemes of work that are aligned with the aims and outcomes of the National Curriculum.
- Year groups use the outdoor provisions for the teaching of Environmental Science giving children a real-life context to apply their Knowledge, Skills and Understanding.
- Elect Eco-warriors for each year group who will be environmental champions ensuring that the school is being environmentally friendly.
- Use cross-curricular links- especially within maths and writing – to increase the visibility of Environmental Science within the curriculum.
- Be part of Green School to ensure that the school protects the environment and prepares the next generation of environmental leaders.
- For some pupils/students this requires a multi-sensory curriculum (sensory science) designed to enhance their experience of, and ability to respond to, learning situations and their environment and other people.

### **Curriculum Impact:**

- Students are able to articulate their knowledge, comprehension, and application of Environmental Science. They confidently utilize relevant vocabulary to discuss their surroundings. Through scientific investigations, they showcase their understanding of the world. Participation in Forest School and Outdoor Education enhances their social skills, which they can then apply in the classroom. Eco-warriors are aware of their classroom's eco-friendliness, including proper use of recycling bins, turning off lights when not in use, and avoiding running taps. They can also discuss the importance of environmental conservation with their peers. Participation in Eco School empowers students, raises environmental awareness, improves the school environment, and results in financial savings for schools while involving the wider local community.

## **AIMS**

The School believes science is a gateway to a wealth of learning opportunities and we aim to enable each pupil to develop to his/her full potential by engaging in learning experiences that provoke enquiry and questioning. We carry this out using carefully planned learning experiences based around:

- an awareness and understanding of themselves, their home, their environment and the world around them
- investigating and solving problems confidently
- joining in investigations, developing their curiosity, observing events and communicating what is happening
- recording in picture form or writing what they have done
- an understanding of cause and effect
- understanding the need for personal safety and for the safety of others
- as great a degree of independence as is achievable
- self-advocacy i.e. the ability to make choices and decisions
- teach Science in ways that are imaginative, purposeful, well managed and enjoyable
- encourage and support pupils/students to ask questions about the world and use Scientific processes to try and answer them
- support pupils/students to make links between Science and other subjects

## **REQUIREMENTS/EXPECTATIONS**

The Science curriculum is taught in different levels based on the needs and abilities of each student, and the age-appropriateness of the content and style. Class teachers will monitor and record individual levels of achievement using systems developed within the school, published scheme materials, and Local Authority systems.

To fully integrate science into the curriculum, it should be incorporated into a topic that covers various subject areas. It is important to prioritize the science concepts that will directly benefit our students' unique needs, whether it be enhancing their overall quality of life or aiding in their social development.

Where appropriate class teachers will liaise with other professionals in developing effective and appropriate teaching/learning situations and monitoring individual progress.

School based inset time will be used to:

- facilitate the standardisation and moderation of assessment and recording procedures
- share and develop teaching strategies and skills
- familiarise staff with available teaching resources

## **MOST ABLE PUPILS**

Pupils who have been identified as Most Able will have specific strategies and interventions appropriately planned by the class manager and overseen by Senior Management to ensure that their specific needs are met.

(Provision for More Able, Subject – Science)

## **CURRICULUM PROVISION AND ORGANISATION**

Planning for Science is a process in which all teaching staff are involved. Delivering a broad and balanced Science education to our pupils/students is a core principle of our school. Science teaching in the School is about excellence and enjoyment. We adapt and extend the curriculum to match the unique circumstances of our school.

At our school, we prioritize a Science curriculum that is well-rounded and fosters a passion for inquiry in our students. Our KS4/5 students receive specialized Science lessons that cater to their curriculum needs. Our Science program aims to develop students' awareness of the world around them, with a focus on vocational and lifelong learning, and independent living. We offer a variety of courses, including AQA Entry levels, ASDAN modules, Adventurous Outdoor Learning, and other modules that broaden the curriculum and hone students' thinking skills. Our 14-19 provision's teachers and class managers hold weekly meetings to discuss all aspects of the curriculum and plan the year ahead together in July.

At Villa Real School, we utilise Philosophy for Children (P4C). This strategy aims to improve children's critical, creative and rigorous thinking. It helps to develop higher-order thinking skills, improve communication skills and helps children learn to cooperate with others. Children learn to reflect before speaking so that they are accurate in what they really want to say. The five E's of Inquiry-Based Learning is used within philosophy for children. The most able pupils in each key stage will work towards a full enquiry.

## **EQUAL OPPORTUNITIES IN SCIENCE**

Science is taught within the guidelines of the School's equal-opportunities policy.

- We ensure that all our pupils/students have the opportunity to gain Science knowledge and understanding regardless of gender, race, class, physical or intellectual ability
- Our expectations do not limit pupil/student achievement and assessment does not involve cultural, social, linguistic or gender bias
- We aim to teach Science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds



- We draw examples from other cultures, recognising that simple technology may be superior to complex solutions
- We value Science as a vehicle for the development of language skills, and we encourage our pupils/students to talk constructively about their Science experiences
- In our teaching, Science is closely linked with literacy and mathematics
- We recognise the particular importance of first-hand experience for motivating pupils/students with learning difficulties
- We exploit Science's special contribution to pupil/students' developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking

### **ASSESSMENT AND RECORDING**

Assessment is carried out continuously, during and after learning to ensure progression for all pupils, using the REAL curriculum. Villa Real focuses on moving pupils forward in their scientific skills to their next stage of learning, between pathways and through their transition from key stage to key stage. This approach progresses their knowledge and develops their confidence as they travel through school and onto future life beyond. Entry level science exams are assessed by AQA and prepare for access to GCSE where appropriate.

Weekly evidence of Science teaching is recorded within exercise books for all pupils/students and regular evidence of practical opportunities are captured on Earwig

### **CONCLUSION**

Villa Real School believes that the learning of Science is fundamentally important to the whole of the curriculum for our pupils/ students. We are committed to providing full opportunities for each individual to achieve the aims as set out above.