



Villa Real School
together we achieve

Science Policy 2020

Responsibility: Laura McMeekin

Date: June 2020

Signed & Adopted by the Governing Body

Chair of Governors

Date: 12.10.2020

Review date: June 2023

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

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 designed to enhance their experience of, and ability to respond to, learning situations and their environment and other people.

In EYFS at Villa Real School, the provision of Science is part of "Understanding of The World". In Key Stages 1, 2 and 3, the Science Curriculum is derived from a package called Switched on Science. The units within this package are adapted and modified to meet the needs of the pupils however, the package gives a solid foundation on which learning is based.

When students reach upper KS3 they begin to work towards achieving accreditation which recognises the progress they have made throughout their Science education.

The 14-19 curriculum includes a range of courses that are taught dependent on ability and as part of the individuals 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 a body of knowledge built up through the experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing pupil/students' ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. Science is also a collaborative activity where ideas and suggestions are shared and investigated together. Through practical activities and team work, pupils/students experience and learn how to work together have mutual respect for one another and value social cohesion.

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.

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 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

Each area of the Science curriculum is taught throughout the School within levels dictated by the needs and abilities of individual pupils/ students, and with regard to the age-appropriateness of content and /or style. Individual levels of attainment in all areas will be monitored and recorded by class teachers using systems developed in school, systems which form part of published scheme materials used in school and systems being developed at Local Authority level.

Science must be seen as an integral part of the whole curriculum and planning through a topic that encompasses most curricular areas allows this. Emphasis will be placed on the aspects of Science which will be most relevant to the special needs of our pupils so that they enhance their quality of life or assist in the pupils' social needs.

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.

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.

The School ensures a broad and balanced Science curriculum is followed in which enquiry is at the heart of our pupil/students' Scientific learning. KS5 have discrete Science lessons appropriate to their curriculum. Science teaching is used to develop the students' awareness of the world around them with particular emphasis on vocational and lifelong learning and independent living. AQA Entry levels, ASDAN modules, Adventurous Outdoor Learning, and other courses explore Scientific knowledge and experience as a means of broadening the curriculum and offering an approach to develop 'thinking skills'. Teachers and class managers within the 14-19 department meet each week to discuss all aspects of the curriculum and have a joint planning day to plan the year ahead in July each year.

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

This 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.