



# Woolton High School

## Science Policy 2019-20

### 1. Introduction

The purpose of policy is to enhance planning and the delivery of science so improving the quality of learning and focussing teaching activities and strategies.

1.1 Science is a core subject within the National Curriculum. This policy outlines the purpose, nature and management of the science taught and learned in our school.

1.2 The pupils arrive at Woolton High School at various ages between 11 and 16 with various educational backgrounds and levels of development. As with all other areas of the curriculum, the teachers at Woolton High will exercise their best judgement in modifying this policy in the light of each student's abilities and specific needs.

### 2. The Nature of Science

2.1 Science is about students developing a sense of enquiry and extending their knowledge and understanding of the world round them. It includes knowledge about Organisms, behaviour and health, Chemical and material behaviour, Energy, electricity and forces, the environment, Earth and the universe.

2.2 Throughout the school, students will be developing their scientific skills and knowledge.

2.3 Science is an essential part of the education of all pupils. It helps to equip and inform them for life in the society of today whilst also giving an insight into scientific and technological developments to date. It will develop the enquiring mind, scientific method and provide future generations with the knowledge and understanding needed for survival.

2.4 Pupils need to become flexible users of technology so that they readily take up new ideas and inventions without the nervousness that many adults display today.

2.5 To do this, science must play its part in providing a hi-tech environment which presents a number of technologies to support learning, for example, the use of a range of tools, machines and processes to prove scientific theories through experimentation. Technology is used flexibly to make and record measurements.

2.6 Scientific education is the right of all pupils, irrespective of race, gender, creed, culture or disability and should equip them with immediate and long term skills. All opportunities should be taken to promote females in a positive light.

2.7 The department will endeavour to integrate all pupils within the science curriculum regardless of their disability

### 3. Overall Aim

3.1 To deliver a Curriculum for Science in a stimulating, exciting and educationally sound manner using a variety of teaching and learning strategies.

- To develop pupils' ability to think scientifically and to use this knowledge in new ways.
- To provide a caring structure that facilitates a well-balanced and differentiated curriculum so that pupils begin to see the place of Science in the technological, environmental, commercial, social and industrial context, both locally and nationally.
- To develop an appreciation of Science as a body of knowledge within the broad spectrum of human endeavour and advancement, rather than a definitive and absolute provider of solutions to problems. (Science does not have all the answers and is potentially dangerous.)
- To monitor, assess and record pupil progress in such a way to encourage a positive attitude about their abilities and progress and an evaluation of their behaviour.

3.2 To enable students to develop skills of systematic enquiry in their investigation of science.

- To give them the opportunity to consider the nature of scientific ideas and the application of science in every day life. Students will produce practical outcomes linked to science. This will give students both a greater understanding of how science and the world around us link together and will allow for new practical skills to be developed.
- To enable them to communicate their knowledge and understanding of science in a variety of appropriate forms.
- To give them an awareness of health and safety in their science work.

### 4. Curriculum

4.1 The school Science curriculum consists of Physics, Biology and Chemistry. Lessons are structured to link Science with the world around us. This enables our students to understand the scientific principles and concepts whilst engaging in associated practical lessons.

**The following topics are covered:**

Physics	Energy and energy transfer
Using energy	Generating energy
Generating electricity	Biology
Keeping healthy	Coordination and control
Medicine and drugs	Adaption for survival
Energy in biomass	Variation, reproduction and new technology
Evolution	Chemistry

Rocks and building materials	Metals and their uses
Crude oil and fuels	Products from oil
Plant oils	Our changing planet

## 5. Implementation

- 5.1 The curriculum will be covered in both key stages. The Programmes of Study for Key stage 3 are taken from the renewed Framework.
- 5.1.1 Contexts derived from the framework will be used to teach pupils both in key stages.
- 5.1.2 The pupils will undertake appropriate investigative work where applicable.
- 5.2.1 At both key stages, Science is taught as a separate subject, but cross-curricular links will be used as appropriate.
- 5.2.2 At key stage 4, pupils will be prepared for the AQA ELC Science Award. Science 5960.
- 5.3. Pupils will be taught in their usual class groups, by the science teacher.
- 5.4 Activities are planned in such a way as to encourage full participation by all pupils irrespective of ability, race or gender. L.S.O.s will be used to assist pupils with extra problems to allow them to participate according to their ability.
- 5.5 Wherever applicable students will be encouraged to use ICT to support their work in Science. Use of interactive whiteboard will be used to enhance the teaching, learning and assessment in class groups.
- 5.6 All pupils will be made aware of the relevance of health and safety when undertaking work in science. The CLEAPSS shorter laboratory handbook will be used to check for hazards in experimental work. A risk assessment of each practical will be undertaken for groups and individual pupils to assess its suitability. General warnings on hand washing and use of safety goggles will be displayed around the practical room.
- 5.7 For individual pupils who need the provision material will be selected from earlier key stages where this is necessary to enable them to progress and demonstrate achievement. Such material will be presented in contexts suitable to the pupils' age.
- 5.8 Variety of approaches available

Teaching methods employed at Key Stages Three and Four will include: **exposition, explanation, demonstration, discussion, practical activity, investigation, testing, problem solving,**

All the above methods can be effective in science teaching. The test of their effectiveness is the extent to which they extend or deepen pupils' knowledge and understanding and develop their skills.

Good science teaching will employ different organisational strategies to pursue different curricular objectives. A variety of teaching methods is employed as appropriate and to ensure differentiation.

Exposition should be informative and lively questioning should be effective practical activity should be purposeful opportunities should exist to apply and extend learning through investigation and problem solving appropriate use of whole class / small group and individual work positive and effective interaction of teacher and pupil.

Science offers the opportunity to use a diverse range of methods in formal and informal situations. Whole class, small group and individual work are all appropriate.

Whole class teaching must involve management of explanation, questioning and discussion so that all pupils are involved and stimulated.

Group and individual work must involve positive and effective interaction of teacher with pupils in order to challenge their thinking and keep the work focused and moving at pace.

The effectiveness of the methods employed will also depend on strategies for supporting pupils with Social, Emotional and Mental Health difficulties.

## **6. ASSESSMENT**

- 6.1. KS3 assessment will be based on questioning, discussion, observation of experimental work, practical results, written answers, in each lesson where appropriate as per school's Teaching, Learning and Assessment policy.
- 6.2. KS4 students will be undertake six units of work. Each piece of coursework includes one experiment, a write up and a formal exam. AQA Entry level Science 5960 will be used to assess all work. Students can attain a level 1, 2 or 3 single or double award providing a solid foundation for further studies in science at local colleges.
- 6.3. Medium term plans will identify intended learning outcomes
- 6.4. The following methods of assessment will be used during science lessons: objective led lessons, oral feedback, written feedback, peer and self-assessment, curricular target setting, questioning and dialogue.
- 6.5. An increased level of peer and self-assessment will be incorporated into lessons. This will be marked in schemes of work as they are updated. Pupils will be encouraged to mark their own tests

**This policy was reviewed in Sept 2019.**

**The next review of this policy will be in Sept 2020.**