Science at Norbury High

Overview

The Science Faculty is committed to ensuring that all students reach their full potential through a rigorous, broad, challenging, enjoyable, adaptable and culturally diverse curriculum. We aspire to nurture students who are skilled critical thinkers, open-minded, problem solvers, and innovators, team players, kind, caring, resilient and tenacious. We develop the minds of students by providing access to a variety of courses that will support their curiosity, creativity, communication and critical thinking. We empower our students to become confident informed citizens who are capable of comprehending, analysing and making well-reasoned judgement on global issues. We work with parents, carers and other stakeholders to achieve the best outcomes for our students. At the conclusion of their secondary education, our students will be capable of applying their scientific knowledge to current issues, making connections between scientific disciplines and pursuing post-secondary education or careers in the fields of science and engineering.

KS3

Our KS3 science curriculum is adapted from the Kerboodle package of resources matching the AQA KS3 Science Syllabus and Big Ideas principle. All resources have been designed to support our 3-year KS3 programme and help prepare students for AQA GCSE 9-1. Complemented by online learning, this furbishes students everything they need to introduce and explore the Big Ideas further. This includes access to Kerboodle Online Books, mathematics and literacy activities, and regular auto-marked assessments to help all students to make progress.

Year 7 Science

Science in year 7 prepares all students for understanding scientific techniques, safe practice and development of experimental skills which underpins the understanding of theoretical constructs.

BIOLOGY – Cells, Structure & function of body systems, Reproduction

CHEMISTRY – Particles & their behaviour, Elements, atoms & compounds, Reactions, Acids & alkalis

PHYSICS – Forces, Sound, Light, Space

Year 8 Science

In year we build on students' knowledge from year 7 and focus on deeper understanding of key scientific ideas and analysis.

BIOLOGY – Health & lifestyle, Biological processes, Ecosystems & adaptation, Inheritance

CHEMISTRY – Periodic table, Separation techniques, Metals & other materials, The Earth

PHYSICS – Electricity, Magnetism & Circuits, Energy, Motion & pressure

Year 9 Science

In year 9 we further build on students' knowledge from years 7 and 8 to focus on deeper understanding of key scientific ideas and analysis.

BIOLOGY – Cells, Cell systems, Fertilisation & implantation, Variation & natural selection

CHEMISTRY – Particle model & state change, Atoms & the periodic table,

PHYSICS – Forces & Motion, Energy, Waves, Sound & Light, Electricity & Magnetism

KS4 Science

There are three pathways in science. Some students will sit AQA GCSE Separate (Single) Science leading to the triple award and some will also sit AQA GCSE Combined (Trilogy) Science leading to a double award at the end of year 11.

Students who may not be able to access the contents of GSCE Science and/or find it challenging are not left out. They follow the Edexcel Entry Level Certificate in Science course leading to the award of Entry Level Certificates.

The GCSE courses provide students with the opportunity to explore the world around them through inquiry based teaching and learning. Students are mandated to complete compulsory required practicals which constitute a huge component of the course. They are assessed on the knowledge of 'How Science Works' through required practicals during the GCSE.

AQA GCSE SINGLE (TRIPLE) SCIENCE CONTENTS

YEAR 10

BIOLOGY
B1: Cell structure and transport
B2: Cell division
B3: Organisation and the digestive system
B4: Organising animals and plants
B5: Communicable diseases
B6: Preventing and treating disease

B8: Photosynthesis
B9: Respiration

CHEMISTRY

C1: Atomic structure
C2: The periodic table
C3: Structure and bonding
C4: Chemical calculations
C5: Chemical changes
C6: Electrolysis
C7: Energy changes
C8: Rates and dynamic reactions
C9: Crude oils and fuels
C10: Organic reactions
C11: Polymers

PHYSICS

P1: Conservation and dissipation of energy
P2: Energy transfer by heating
P3: Energy resources
P4: Electric currents
P5: Electricity in the home
P6: Molecules and matter
P7: Radioactivity
P12: Wave properties
P13: Electromagnetic waves
P14: Light

YEAR 11

BIOLOGY PAPER 2 UNITS

Homeostasis and Response
Inheritance, Variation and Evolution
Ecology

CHEMISTRY PAPER 2 UNITS

Energy Changes
The Rate and Extent of Chemical Change
Organic Chemistry
Chemical Analysis
Chemistry of the Atmosphere
Using Resources

PHYSICS PAPER 2 UNITS
Forces
Magnetism and Electromagnetism
Space Physics

AQA GCSE SINGLE (TRIPLE) SCIENCE REQUIRED PRACTICAL
Students need to complete 28 required practicals: 10 biology practicals, eight chemistry and 10 physics. Any aspect from the practicals may be assessed in the final exams.

AQA GCSE COMBINED (TRILOGY) SCIENCE CONTENTS YEAR 11 ONLY

YEAR 11

BIOLOGY PAPER 2 UNITS
Homeostasis and Response
Inheritance, Variation and Evolution
Ecology

CHEMISTRY PAPER 2 UNITS
The Rate and Extent of Chemical Change
Organic Chemistry
Chemical Analysis
Chemistry of the Atmosphere
Using Resources

PHYSICS PAPER 2 UNITS
Forces
Waves
Magnetism and Electromagnetism

AQA GCSE COMBINED (TRILOGY) SCIENCE REQUIRED PRACTICAL
Students need to complete 21 required practicals: seven biology practicals, six chemistry and eight physics. Any aspect from the practicals may be assessed in the final exams.

PEARSON EDEXCEL ENTRY LEVEL CERTIFICATE IN SCIENCE
Each qualification is broken into six manageable units; two biology, two chemistry and two physics. Below, you can see how the subject areas are broken up into units relating to each qualification. The method of assessment consists of short unit tests which students can sit when they are ready to and at any time during the course.

PEARSON EDEXCEL ENTRY LEVEL CERTIFICATE IN SCIENCE CONTENTS YEAR 11

B1A – Cell genetics, inheritance and modification
C1A – Atoms, compounds and states of matter
P1A – Forces, movement and energy

B1B – Health and disease and medicines
C1B – Separating mixtures, breaking down substances, acids and metals
P1B – Waves and radiation

USEFUL RESOURCES

There are excellent resources available to help your revision. Please visit and use the websites below and also download the apps.

WEBSITES

AQA: For copies of the syllabuses, past paper questions and more information from AQA, go to: http://www.aqa.org.uk/subjects/science/gcse and follow the links to specific subjects.

BBC Bitesize: https://www.bbc.co.uk/education/levels/z98jmp3

Free Science Lessons: https://www.freesciencelessons.co.uk/

Physics and Maths Tutor: https://www.physicsandmathstutor.com/

Seneca: https://senecalearning.com/en-GB/

Pearson Edexcel: https://qualifications.pearson.com/en/qualifications/edexcel-entry-level-certificate/science-2016.html

APPS

There are several good apps available for you to download including:
Revision Buddies – Large selection of multiple choice questions to choose from
Gojimo – Excellent question based activities
GCSE 9-1 Scholastic Revision – Excellent revision planning and questions, just choose your subject and you are good to go
Brainscape Smart Flashcards – Excellent revision flashcards