

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 Biology

Our KS3 Biology curriculum is adapted from the Kerboodle package of resources matching the AQA KS3 Biology 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 furberishes 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 Biology

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.

TOPICS

Cells

Structure and function of body systems

Reproduction

Year 8 Biology

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

TOPICS

Health & lifestyle

Biological processes

Ecosystems and adaptation

Inheritance

Year 9 Biology

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.

TOPICS

Cells

Cell systems

Fertilisation and implantation

Variation and natural selection

USEFUL WEBSITES RESOURCES

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

Website Name	Description	Website address
BBC Bitesize – KS3 Biology	Excellent topic summaries, videos, and quizzes for all KS3 biology topics. Aligned well with national curriculum.	https://www.bbc.co.uk/bitesize/subjects/z4882hv
KS3 Biology Revision Monkey	Free videos	https://www.youtube.com/results?search_query=ks3+revision+monkey+biology
Seneca Learning	Free interactive revision platform with courses tailored to	https://www.senecalearning.com

	KS3 science and AQA GCSE.	
Twig Science	Short, high-quality science videos with questions. Some free content suitable for KS3.	https://www.twigeducation.com
KS3 Science by CGP	Free resources and paid revision guides; the site includes quizzes and revision tips.	https://www.cgpbooks.co.uk
Education Quizzes – KS3 Science	Fun and quick quizzes to reinforce knowledge and test understanding.	https://www.educationquizzes.com/ks3/science/
STEM Learning	Free resources and worksheets for teachers and students based on curriculum science topics.	https://www.stem.org.uk

KS4 Biology

This AQA GCSE Biology course, delivered through Oxford Kerboodle, provides a comprehensive and engaging approach to learning key biological concepts. Covering topics from cell biology to ecology, the course supports students with interactive resources, animations, quizzes, and assessments. It is designed to build strong scientific knowledge and practical skills, aligned with the AQA specification. The GCSE Biology course also provides 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 SEPARATE (TRIPLE) BIOLOGY CONTENTS

Year 10 Biology Triple

BIOLOGY PAPER 1

B1: Cell structure and transport

B2: Cell division

B3: The human digestive system

B4: Organisation in animals and plants

B5: Communicable diseases

B6: Preventing and treating diseases
 B7: Non-communicable diseases
 B8: Photosynthesis
 B9: Respiration
 B10: The human nervous system

Year 11 Biology Triple

BIOLOGY PAPER 2 UNITS

B11: Hormonal coordination
 B12: Maintaining balance in the body
 B13: Reproduction and genetic inheritance
 B14: Variation and selection
 B15: Evolution and classification
 B16: Adaptations, interdependence and competition
 B17: Organising an ecosystem
 B18: Biodiversity and ecosystems

AQA GCSE SEPARATE (TRIPLE) BIOLOGY REQUIRED PRACTICAL

Students will complete 10 required practicals over the course of the two years. Any aspect from the practicals may be assessed in the final exams. Below is a table highlighting information about the 10 required practicals.

Number	Required Practical	Description	Topic
1	Microscopy	Use a light microscope to observe, draw, and label a selection of plant and animal cells and include a scale magnification.	B1.2
2	Microbiology B	Use agar plates and measure the zones of inhibition produced around colonies.	B5.4
3	Osmosis	Investigate osmosis by measuring how the mass of plant tissue changes in a range of concentrations of salt or sugar solutions.	B1.8
4	Food tests	Detect sugars, starch, and proteins in food by using Benedict's test, the iodine test, and Biuret reagent.	B3.3
5	Enzymes	Use a continuous sampling technique to determine the time taken to completely digest a starch solution at a range of pH values.	B3.7
6	Photosynthesis	Use an aquatic plant to observe the effect light intensity has on the rate of photosynthesis.	B8.2

7	Reaction time	Plan and carry out an investigation, choosing appropriate ways to measure reaction time and considering the risks and ethics of the investigation.	B10.2
8	Plant responses B	Record results both as length measurements and as accurate, labelled biological drawings to show the effects.	B11.9
9	Field investigations	Use sampling techniques to investigate the effect of a factor on the distribution of species.	B16.3
10	Decay B	Measure the pH change of milk to investigate how temperature affects its rate of decay.	B17.4

AQA GCSE TRILOGY (COMBINED) BIOLOGY CONTENTS

Year 10 Biology Combined

BIOLOGY PAPER 1

- B1: Cell structure and transport
- B2: Cell division
- B3: The human digestive system
- B4: Organisation in animals and plants
- B5: Communicable diseases
- B6: Preventing and treating diseases
- B7: Non-communicable diseases
- B8: Photosynthesis
- B9: Respiration
- B10: The human nervous system

Year 11 Biology Combined

BIOLOGY PAPER 2 UNITS

- B11: Hormonal coordination
- B12: Maintaining balance in the body
- B13: Reproduction and genetic inheritance
- B14: Variation and selection
- B15: Evolution and classification
- B16: Adaptations, interdependence and competition
- B17: Organising an ecosystem
- B18: Biodiversity and ecosystems

AQA GCSE TRILOGY (COMBINED) BIOLOGY REQUIRED PRACTICAL

Students will complete 7 required practicals over the course of the two years. Any aspect from the practicals may be assessed in the final exams. Below is a table highlighting information about the 7 required practicals.

Number	Required Practical	Description	Topic
1	Microscopy	Use a light microscope to observe, draw, and label a selection of plant and animal cells and include a scale magnification.	B1.2
2	Osmosis	Investigate osmosis by measuring how the mass of plant tissue changes in a range of concentrations of salt or sugar solutions.	B1.8
3	Food tests	Detect sugars, starch, and proteins in food by using Benedict's test, the iodine test, and Biuret reagent.	B3.3
4	Enzymes	Use a continuous sampling technique to determine the time taken to completely digest a starch solution at a range of pH values.	B3.7
5	Photosynthesis	Use an aquatic plant to observe the effect light intensity has on the rate of photosynthesis.	B8.2
6	Reaction time	Plan and carry out an investigation, choosing appropriate ways to measure reaction time and considering the risks and ethics of the investigation.	B10.2
7	Field investigations	Use sampling techniques to investigate the effect of a factor on the distribution of species.	B16.3

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/>

Cognito: <https://cognitoedu.org/home>

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

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

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