



KS4 Science at Nobel

By following the AQA GCSE science qualifications, we are building on the hard work our students have completed during their key stage 3 studies. Students follow either AQA Combined Science: Trilogy or AQA Separate Sciences. This allows us to ensure the students follow the best path for them.

	Foci	Assessment	Knowledge Organiser
Unit 1 (Year 9)	<p>Cell Biology The principles of microscopes and an understanding of the basic microscopic world.</p> <ul style="list-style-type: none"> • Cell Types • Use and functions of microscopes • Specialisation • Stem Cells • Mitosis • Transport Types 	<ul style="list-style-type: none"> • Continuous assessment via knowledge recall • Required practical – Onion Cell or Cheek Cell Observations and Use of Light Microscopes • Required practical – Osmosis in plant material • End of unit test via past paper examination questions 	<p>Knowledge organisers are included in student's booklet (at the back) with black copies to practice recall.</p>
Unit 2 (Year 10)	<p>Organisation The hierarchy of biological organisation within organisms</p> <ul style="list-style-type: none"> • Principles of Organisation • Digestive System • Heart and Lung Structure • Blood and Circulatory System • Plant Organs and Tissue • Plant Transport Systems 	<ul style="list-style-type: none"> • Continuous assessment via knowledge recall • Required practical – <ul style="list-style-type: none"> ○ Food Tests ○ Effect of pH on Amylase Reaction Rates • End of unit test via past paper examination questions 	<p>Knowledge organisers are included in student's booklet (at the back) with black copies to practice recall.</p>
Unit 3 (Year 10)	<p>Infection and Response Communicable Diseases caused by Pathogens and the natural defences of organisms</p> <ul style="list-style-type: none"> • Communicable Diseases • Viral and Fungal diseases • Bacterial and Protist Diseases • Human Defence Systems • Vaccines and Antibiotics • Discovery and Development of Drugs and Treatments 	<ul style="list-style-type: none"> • Continuous assessment via knowledge recall • End of unit test via past paper examination questions 	<p>Knowledge organisers are included in student's booklet (at the back) with black copies to practice recall.</p>



Unit 4 (Year 10)	<p>Bioenergetics Cellular transformation of energy and biochemical processes essential to cellular metabolism.</p> <ul style="list-style-type: none"> • Photosynthesis • Limiting Factors of Photosynthesis • Uses of Glucose • Aerobic and Anaerobic Respiration • Effect of Exercise on Respiration • Metabolism 	<ul style="list-style-type: none"> • Continuous assessment via knowledge recall • Required Practical: Effect of Light Intensity on the Rate of Photosynthesis • End of unit test via past paper examination questions 	<p>Knowledge organisers are included in student's booklet (at the back) with black copies to practice recall.</p>
Unit 5 (Year 11)	<p>Homeostasis Ability to maintain stable internal environments despite external and internal stimuli</p> <ul style="list-style-type: none"> • Homeostasis • Human Nervous System • Reflex Actions / Reflex Arc • Hormonal Coordination • Control of Blood Glucose Levels • Diabetes • Reproductive Hormones 	<ul style="list-style-type: none"> • Continuous assessment via knowledge recall • Required Practical – Effects of a Factor on Reaction Time • End of unit test via past paper examination questions 	<p>Knowledge organisers are included in student's booklet (at the back) with black copies to practice recall.</p>
Unit 6 (Year 11)	<p>Inheritance, Variation and Evolution Inheritance of genetic information and characteristics and the evolution of a species through natural selection</p> <ul style="list-style-type: none"> • Asexual and Sexual Reproduction • Inheritance and Inherited Disorders • Sex Determination • Natural Selection and Evolution • Genetic Engineering and Selective Breeding • Antibiotic Resistance • Extinction • Classification 	<ul style="list-style-type: none"> • Continuous assessment via knowledge recall • End of unit test via past paper examination questions 	<p>Knowledge organisers are included in student's booklet (at the back) with black copies to practice recall.</p>



Unit 7 (Year 10)

Ecology

Relationships between living creatures and their environment.

- Communities
- Abiotic vs Biotic Factors
- Adaptations
- Levels of Organisation
- Cycling Materials
- Distribution and Abundance of Populations
- Biodiversity
- Waste Management
- Deforestation and Global Warming

- Continuous assessment via knowledge recall
- Required Practical: Estimate Plant Population Sizes
- End of unit test via past paper examination questions

Knowledge organisers are included in student's booklet (at the back) with black copies to practice recall.