



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 1 – Onion Cell or Cheek Cell Observations and Use of Light Microscopes • Required practical 2 – 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 blank 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"> ○ 3 - Food Tests ○ 4 - 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 blank 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 blank copies to practice recall.</p>



Unit 4 (Year 10)	Bioenergetics Cellular transformation of energy and biochemical processes essential to cellular metabolism. <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 5: Effect of Light Intensity on the Rate of Photosynthesis• End of unit test via past paper examination questions	Knowledge organisers are included in student's booklet (at the back) with blank copies to practice recall.
Unit 5 (Year 11)	Homeostasis Ability to maintain stable internal environments despite external and internal stimuli <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 6 – Effects of a Factor on Reaction Time• End of unit test via past paper examination questions	Knowledge organisers are included in student's booklet (at the back) with blank copies to practice recall.
Unit 6 (Year 11)	Inheritance, Variation and Evolution Inheritance of genetic information and characteristics and the evolution of a species through natural selection <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	Knowledge organisers are included in student's booklet (at the back) with blank copies to practice recall.



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 7: 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 blank copies to practice recall.