GCE BIOLOGY

Why choose WJEC GCE Biology?

Biology is the study of life. It will enable you to develop a vast array of skills and acquire knowledge about the natural world and all the living things within it.

Gaining an A-level in this subject opens up a vast range of opportunities for both university degrees and career options.

What will I study?

In **AS Biology** there are two themed units, which are normally assessed at the end of the first year of study.

Unit 1: Basic Biochemistry and Cell Organisation. This unit covers the topics of biological molecules, cells, enzymes and cell division.

Unit 2: Biodiversity and Physiology of Body Systems. This unit covers the biodiversity of organisms, adaptations that organisms have for gas exchange, transport and nutrition.

In **A level Biology**, there are a further two themed units which are assessed at the end of the second year of study.

Unit 3: Energy, Homeostasis and the Environment for Life. This unit covers the topics of photosynthesis, respiration, microbiology, homeostasis, the nervous system, ecosystems and human impact on the environment.

Unit 4: Variation, Inheritance and Options. This unit covers reproduction in animals and plants, inheritance, variation and evolution and the application of reproduction and genetics. There is also a choice of one option topic from the following: Immunology and Disease, Human Musculoskeletal Anatomy or Neurobiology and Behaviour.

GCE BIOLOGY

What skills will I develop?

- A level Biology will enable you to develop an understanding of different areas of biology and how they relate to each other.
- Competency in a variety of investigative and practical techniques. These would include using a microscope, recording quantitative measurements in a variety of contexts, microbiology, fieldwork and dissection
- The ability to apply appropriate mathematical skills in biological contexts.
- The confidence to apply biological knowledge to unfamiliar contexts
- You will be able to analyse, interpret and evaluate scientific information

How will I be assessed?

AS Biology: Two written examinations

Unit 1: Basic Biochemistry and Cell Organisation Written examination 80 marks (1 hour 30 minutes)

Unit 2: Biodiversity and Physiology of Body Systems Written examination 80 marks (1 hour 30 minutes)

A level Biology: The above plus a further three units.

Unit 3: Energy, Homeostasis and the Environment for Life Written examination 90 marks (2 hours)

Unit 4: Variation, Inheritance and Options Written examination 90 marks (2 hours)
Section A: 70 marks compulsory questions
Section B: 20 marks from a choice of 1 out of 3 options

Unit 5: Practical examination

This unit will assess your practical skills developed over the duration of the course.
It comprises two tasks which will be completed on set dates in the Spring term of the second year of study.

- **Experimental task 20 marks (2 hours)**
  You will be given a set of apparatus and examination paper containing a method to follow. You will then carry out the investigation and analyse and evaluate the data.
- **Practical Analysis Task 30 marks (1 hour)**
  You will be provided with experimental data to analyse. The task will also include the theoretical assessment of microscope skills.

Careers with Biology

An A level in Biology can open up a wealth of career paths. These include jobs within the following fields: Medicine and healthcare, Science and research, Agriculture, Sport and Fitness and Education.

YOUR JOURNEY

TO BECOMING EXAM READY

WELCOME TO AS/A LEVEL CHEMISTRY

wjec cbac

Studying GCE Chemistry provides the next step in understanding the interactions between materials. Most topic areas, such as atomic structure, bonding, the Periodic Table, energy, rates of reaction and organic chemistry, will be familiar from GCSE but explored in greater detail throughout the course.

PLANNING AHEAD...

You will cover a wide range of topics in GCE Chemistry. There are five units in total. Units 1 and 2 can be cashed-in to give an AS qualification. Units 3, 4 and 5 are completed in the second year of study and combined with scores from the first two units for the A level qualification.

Unit 1: The Language of Chemistry, Structure of Matter and Simple Reactions

- Formulae and equations
- Basic ideas about atoms
- Chemical calculations
- Bonding
- Solid structures
- The Periodic Table
- Simple equilibria and acid-base reactions

Unit 2: Energy, Rate and Chemistry of Carbon Compounds

- Thermochemistry
- Rates of reaction
- The wider impact of chemistry
- Organic compounds
- Hydrocarbons
- Halogenoalkanes
- Alcohols and carboxylic acids
- Instrumental analysis

Unit 3: Physical and Inorganic Chemistry

- Redox and standard electrode potential
- Redox reactions
- Chemistry of the p-block
- Chemistry of the d-block transition metals
- Chemical kinetics
- Enthalpy changes for solids and solutions
- Entropy and feasibility of reactions
- Equilibrium constants
- Acid-base equilibria

Unit 4: Organic Chemistry and Analysis

- Stereoisomerism
- Aromaticity
- Alcohols and phenols
- Aldehydes and ketones
- Carboxylic acids and their derivatives
- Amines
- Amino acids, peptides and proteins
- Organic synthesis and analysis

Unit 5: Practical Examination

This is made up of the Experimental Task and the Practical Methods and Analysis task. In the Experimental Task you will be given a set of apparatus and an exam paper containing a method to follow to solve a problem. The second task assesses your knowledge, understanding and skills linked to practical work from across the specification.

Find out more at **www.wjec.co.uk/qualifications/chemistry-as-a-level**

GIVE IT YOUR ALL!

TOP TIPS

If you don't understand a topic, remember that you're probably not alone! Have a look at whatever textbooks you have access to and check what you can find online. Make sure that you ask your teacher for help if things still don't quite fallen into place.

Make sure you keep key information at the tip of your fingers throughout the year as this will often be needed to understand subsequent topics. It'll also make the end-of-year revision much more manageable. Try producing flash cards e.g. for key definitions or reactions of Group 2 cations. Brightly coloured reaction pathway diagrams with reagents and conditions for organic reactions and mind maps, e.g. showing reactions of p-block elements, would also be helpful.

There are specified practical tasks in many topics. These are designed to help you understand the theory but also to develop your practical skills. Try to understand exactly what's going on in each step when you carry out experiments or watch demonstrations. Keep a record of your practical work in your lab book. This will be an important reference for revision as questions based on practical work will be set on all papers.

WELLBEING GUIDANCE

Take baby steps.
Remember this is a journey and you will pick skills and knowledge up along the way.

Take regular breaks from studying.
Exercise, meet friends, spend time with family.

Look after yourself.
Make sure you are getting a balanced diet and get enough sleep.

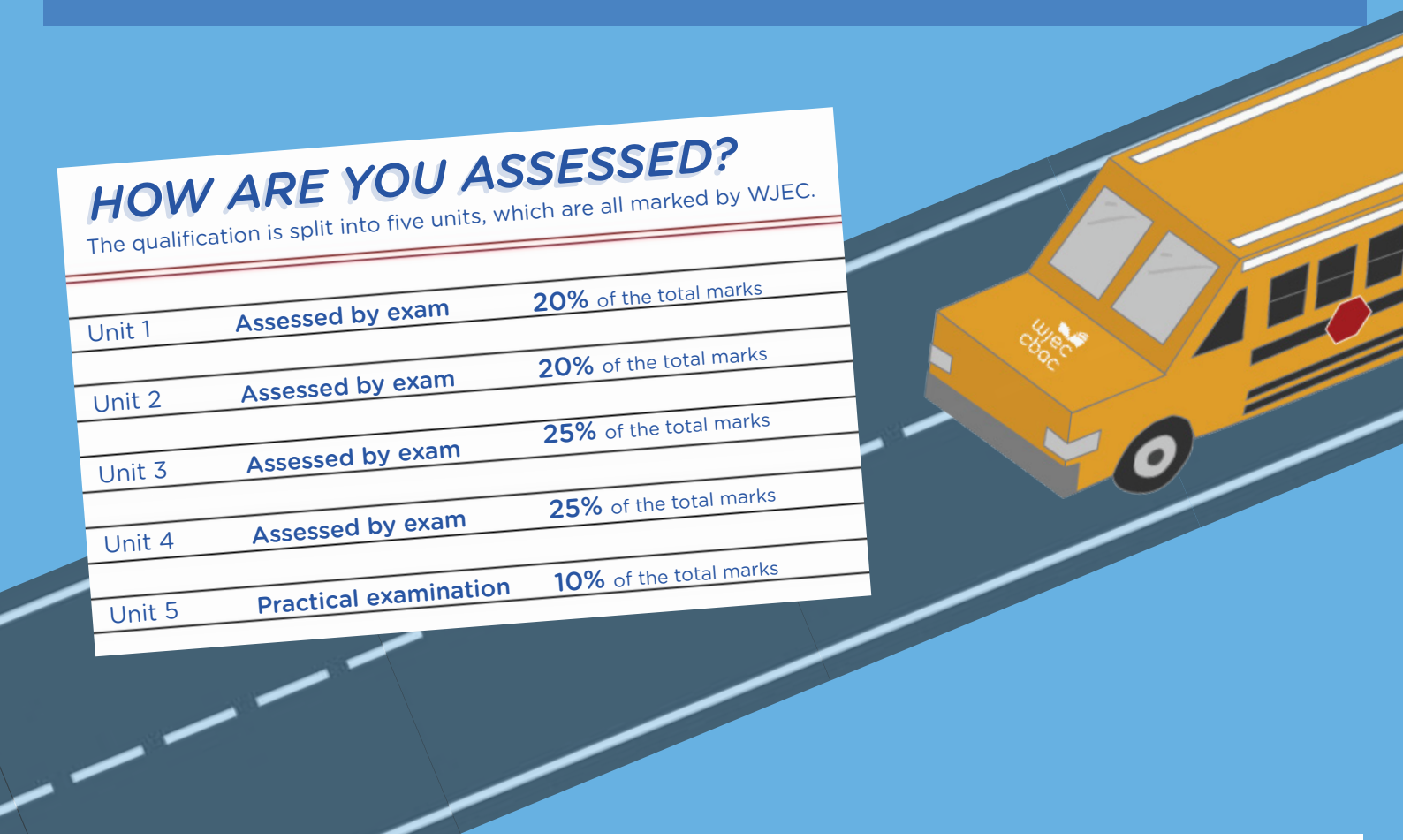
Try to stay positive.
Even if you don't feel like it, a positive attitude will help you.

Remember that everyone's different.
Try not to compare yourself to others.

HOW ARE YOU ASSESSED?

The qualification is split into five units, which are all marked by WJEC.

Unit 1	Assessed by exam	**20%** of the total marks
Unit 2	Assessed by exam	**20%** of the total marks
Unit 3	Assessed by exam	**25%** of the total marks
Unit 4	Assessed by exam	**25%** of the total marks
Unit 5	Practical examination	**10%** of the total marks



Find out more at **www.wjec.co.uk/qualifications/chemistry-as-a-level**

WJEC GCE PHYSICS

Why choose WJEC GCE Physics?

Physics provides the foundations for understanding the material world. Scientific understanding is changing our lives and is vital to the world's future prosperity. Gaining an A-level in this subject opens up a vast range of opportunities for both university degrees and career options.

What will I study?

In **AS Physics** there are two themed units, which are normally assessed at the end of the first year of study.

Unit 1: Motion, Energy and Matter.
This unit covers the topics of basic physics, kinematics, dynamics, energy concepts, solids under stress, using radiation to investigate stars and particles and nuclear structure.

Unit 2: Electricity and Light.
This unit covers conduction of electricity, resistance, D.C. circuits, the nature of waves, wave properties, refraction of light, photons and lasers.

In **A level Physics** there are a further two themed units which are assessed at the end of the second year of study.

Unit 3: Oscillations and Nuclei.
This unit covers the topics of circular motion, vibrations, kinetic theory, thermal physics, nuclear decay and nuclear energy.

Unit 4: Fields and Options.
This unit covers capacitance, electrostatic and gravitational fields of force, orbits and the wider universe, magnetic fields and electromagnetic induction. There is also a choice of one option topic from the following: Alternating Currents, Medical Physics, The Physics of Sports or Energy and the Environment.

GCE PHYSICS

What skills will I develop?

- A level physics will enable you to develop an understanding of different areas of physics and how they relate to each other.
- Competency in a variety of investigative and practical techniques.
- The ability to apply appropriate mathematical skills in physics contexts.
- The confidence to apply physics knowledge to unfamiliar contexts.
- You will be able to analyse, interpret and evaluate scientific information.
- A level physics also develops your problem solving and reasoning skills which are skills that are highly valued by employers.

How will I be assessed?

AS Physics: Two written examinations

Unit 1: Motion, Energy and Matter Written examination 80 marks (1 hour 30 minutes)
Unit 2: Electricity and Light Written examination 80 marks (1 hour 30 minutes)

A level Physics. The above plus a further three units. In these units there is a requirement for synoptic questions to be present, so some content from the units other than the one being assessed will be present.

Unit 3: Oscillations and Nuclei Written examination 100 marks (2 hours 15 minutes)
Section A: 80 marks compulsory questions
Section B: 20 marks compulsory comprehension question

Unit 4: Fields and Options Written examination 100 marks (2 hours)
Section A: 80 marks compulsory questions
Section B: 20 marks from a choice of 1 out of 4 options

Unit 5: Practical examination
This unit will assess your practical skills developed over the duration of the course. It comprises two tasks which will be completed on set dates in the Spring term of the second year of study.

- **Experimental task 25 marks (1 hour 30 minutes)**
  You will be given a set of apparatus and an experimental problem to investigate.
  You will carry out the investigation and analyse and evaluate the data.
- **Practical Analysis Task 25 marks (1 hour)**
  You will be provided with experimental data to analyse.

Careers with Physics

An A level in Physics can open up a wealth of career paths. These include jobs within the following fields: Medicine and healthcare, Science and research, Aerospace and defence, Engineering, Energy and renewable energy, Meterology and climate change, Telecommunications and Education.