



Year 12 Curriculum Booklet 2022-2023

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Key of Qualification Title

Extended Certificate	- 1 A' Level Equivalent
Diploma	- 2 A' Level Equivalent
Extended Diploma	- 3 A' Level Equivalent

INTRODUCTION

We look forward to welcoming you to the WMG Academy for Young Engineers in September 2021. As you begin your Post 16 studies you will be developing new skills, knowledge and exploring the world of engineering through your programmes.

Please read carefully through all of the information about the courses that will be on offer in September, along with the support and guidance programme, to help you make a final decision on your programme of study with us. We will guide you to a programme which takes into consideration your future career, aspirations and interests. Where possible we will accommodate your chosen options however, due to group sizes being either too small or too large, this may be reviewed. We reserve the right not to run courses which are not viable. If this is the case we will talk to you as soon as possible to advise you of this.

Choosing your Post 16 programme of study is an important decision to make. We recommend that you carry out research into your choice of potential careers, talk to your parents/carers and contact universities and companies about apprenticeships to ensure that you are as informed as possible before making your final decisions.

In addition to your programme of study, all Y12 learners are expected to participate fully in the pastoral programme and enrichment. In line with Government regulations, any Post 16 student who has not achieved a grade 4 in Maths or English will be expected to re-sit this during their time at WMG Academy until they have achieved this level.

GUIDANCE ON PROGRAMME OF STUDY

The WMG Academy for Young Engineers understands the complexity of choosing your Post 16 programme of study and has prepared the following support to assist you:

STEP 1: RESEARCH

Please read through all of the course information within this booklet. Think about where you want to be in two, five and ten years' time and find out what you need to do to achieve your aspirations and aims. Contact universities, further education colleges and companies that offer apprenticeships and then think about your strengths and weaknesses. Do they match up?

STEP 2: GUIDANCE MEETING

Once you accept your place in Y12 you will be invited to attend a guidance meeting to discuss your option choices and pathways. This will be with you, your parents and a member of the guidance team from the academy. Please make sure that you bring with you your research from Step 1.

STEP 3: COMPLETION OF THE OPTION FORM

In your guidance meeting, you will need to complete your options form. Where possible we will accommodate your chosen options, however, due to group sizes being either too small or too large, this may be reviewed. We reserve the right not to run courses which are not viable. If this is the case we will talk to you as soon as possible to advise you of this. Please note that this meeting is currently likely to be remote via a video link.

STEP 4: POST GCSE RESULTS

On the day of your GCSE results, we ask that you come to the academy, bringing a copy of your GCSE results so we can confirm your programme of study. Your programme of study can be adjusted at this stage if you have performed differently to as you expected in your GCSE. Please note that all events are subject to the ongoing situation surrounding COVID-19.

STEP 5: JOINING THE ACADEMY

You will have an induction when you join the academy, to familiarise you with the academy. For us, this induction starts as soon as you are offered a place. There are events coming up in the summer term and a secure login is provided for students joining Y10 and Y12 to keep up with all our latest news.

A-LEVEL BIOLOGY

Awarding Body: OCR Biology A

Course Code: H420

QAN: 601/4260/1

OVERVIEW OF THE COURSE

Biology A-level will give you the skills to make connections and associations with all living things around you. Biology literally means the study of life and if that is not important, what is? Being such a broad topic, you are bound to find a specific area of interest, and it opens the door to a fantastic range of interesting careers. This qualification is linear. Linear means that students will sit all their exams at the end of the course.

CONTENT AND ASSESSMENT

Paper 1 – 2 hour 15minutes exam worth 37% of the final grade.

- Development of practical skills in biology
- Foundations in biology
- Exchange and transport
- Communication and homeostasis

Paper 2 – 2 hour 15 minutes exam worth 37% of the final grade.

- Development of practical skills in biology
- Foundations in biology
- Biodiversity, evolution and disease
- Genetics, evolution and ecosystems

Paper 3 – 1 hour and 30 minutes exam worth 26% of the final grade.

Any content from the 2-year course can be assessed from any unit and any practical
(Units 1-6)

There is no coursework on this A-Level. However, your performance during practicals will be assessed. At least 15% of the marks for A-Level Biology are based on what you learned in your practicals.

ENTRY REQUIREMENTS GCSE Biology at grade 6 or GCSE Combined Science at grade 6 (with grade 6 in the Biology unit exams) is required.

A-LEVEL CHEMISTRY

Awarding Body: AQA

Course Code: 7405

QAN: 601/5731/8

OVERVIEW OF THE COURSE

A-Level Chemistry attempts to answer the big question ‘what is the world made of’ and it is the search for this answer that makes this subject so fascinating. From investigating how one substance can be changed drastically into another, to researching a new wonder drug to save millions of lives, the opportunities that chemistry provides are endless.

CONTENT AND ASSESSMENT

Paper 1 – 2 hour exam worth 35% of the final grade.

Physical Chemistry: Atomic structure, amount of substance, bonding, energetics, chemical equilibria, Le Chatelier’s principle and K_c , Oxidation, Reduction and Redox equations, Thermodynamics, Equilibrium constant K_p for homogenous systems, Electrode potentials and Electrochemical cells, Acids and bases.

Inorganic Chemistry: Periodicity, Group 2, Group 7, Properties of Period 3 elements and their oxides, Transition metals, reactions of ions in aqueous solution.

Paper 2 – 2 hour exam worth 35% of the final grade.

Physical Chemistry: Amount of substance, Bonding, Energetics, Kinetics, Chemical equilibria, Le Chatelier’s principle and K_c , rate equations.

Organic Chemistry: Introduction to organic chemistry, alkanes, halogenoalkanes, alkenes, alcohols, organic analysis, optical isomerism, aldehydes and ketones, carboxylic acids and derivatives, aromatic chemistry, amines, polymers, amino acids, proteins and DNA, organic synthesis, NMR, chromatography.

Paper 3 – 2 hour exam worth 30% of the final grade.

Any content from the 2-year course can be assessed from any unit and any practical.

There is no coursework on this A-Level. However, your performance during practicals will be assessed. At least 15% of the marks for A-Level Chemistry are based on required practicals.

ENTRY REQUIREMENTS

GCSE Chemistry at grade 6 or GCSE Combined Science at grade 6 (with grade 6 in the Chemistry unit exams) is required.

A-LEVEL COMPUTER SCIENCE

Awarding Body: OCR

Course Code: H446

QAN: 601/4911/5

OVERVIEW OF THE COURSE

This course helps students understand the core academic principles of computer science. Classroom learning is transferred into creating real-world systems through the creation of an independent programming project. This A-Level will develop the student's technical understanding and their ability to analyse and solve problems using computational thinking.

CONTENT AND ASSESSMENT

Paper 1 – Systems [40% of A-Level]

The internal workings of the (CPU), data exchange, software development, data types and legal and ethical issues.

Assessment: Written exam, 2 hours and 30 minutes.

Paper 2 – Algorithms and programming [40% of A-Level]

This builds on component 01 to include computational thinking and problem solving. Using computational thinking to solve problems.

Assessment: Written exam, 2 hours and 30 minutes.

Paper 3 – Programming project [20% of A-Level]

Students are expected to apply the principles of computational thinking to a practical programming project. They will analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The project is designed to be independently chosen by the student and provides them with the flexibility to investigate projects within the diverse field of computer science.

Assessment: Written exam, 2 hours and 30 minutes.

ENTRY REQUIREMENTS

Grade 6 in GCSE Maths and Grade 6 or above in GCSE Computer Science or relevant ICT course.

A-LEVEL FURTHER MATHEMATICS

Awarding Body: Pearson

Course Code: 9FM0

QAN: 603/1499/0

In this course you will complete more units from the GCE (A-Level) in Mathematics, leading to an additional A-Level qualification in Further Maths. The course is designed to be taught alongside A-Level Mathematics and consists of two compulsory Core Pure Maths units (CP1 & CP2) and two more optional units. There is a degree of flexibility with the optional units to be studied, and this is to be decided in conjunction with teachers. This year we are teaching the FS1 (Further Statistics) and FM1 (Further Mechanics) units.

Many students who take a qualification in Further Maths go on to read Mathematics at university and some then go into mathematics research. This isn't the only path for our Further Mathematics students however: their work on complex numbers will serve them well in many fields, such as electronic engineering; and studying matrices is a great introduction to some of the concepts found in structural engineering, and even quantum mechanics.

CONTENT AND ASSESSMENT

The Advanced GCE in Further Mathematics consists of distinct pure and applied topics:

- Pure (CP1 and CP2) – Proof, Complex numbers, Matrices, Algebra and functions, Calculus, Vectors, Polar coordinates, Hyperbolic functions & Differential equations.
- Statistics (FS1) – Probability distributions and functions, Statistical distributions, Hypothesis testing, Statistical testing.
- Mechanics (FM1) – Momentum and impulse, Work, energy and power, Elastic collisions in one and two dimensions.

Assessment is in the form of externally assessed written examinations, which are taken at the end of the two year programme.

- Four written papers: each contributes 25% of the final grade.
- Each paper lasts 1 hour 30 minutes.
- 75 marks on each paper.

ENTRY REQUIREMENTS

Grade 8 or above in GCSE Mathematics.

A-LEVEL GEOGRAPHY

Awarding Body: AQA

Course Code: 7037

QAN: 601/8940/X

OVERVIEW OF THE COURSE

Studying Geography gives students the opportunity to travel the world via the classroom, learning about both natural and social sciences along the way. This qualification is linear meaning that students will sit all their exams and submit all their non-exam assessment at the end of the course.

CONTENT AND ASSESSMENT

There are 3 components to A-Level Geography:

1. **Physical Geography [40% of A-Level]**

Section A: Water and carbon cycles.

Section B: Either hot desert systems and landscapes or coastal systems and landscapes or glacial systems and landscapes.

Section C: Either hazards or ecosystems under stress.

Assessment: Written exam: 2 hours and 30 minutes.

2. **Human Geography [40% of A-Level]**

Section A: Global systems and global governance.

Section B: Changing places.

Section C: Either Contemporary urban environments or population and the environment or resource security.

Assessment: Written exam: 2 hours and 30 minutes.

3. **Geography fieldwork investigation [20% of A-Level]**

Students complete an individual investigation which must include data collected in the field. The individual investigation must be based on a question or issue defined and developed by the student relating to any part of the specification content.

Assessment: 3,000 - 4,000 words.

ENTRY REQUIREMENTS

Grade 6 or above in GCSE Geography if studied at GCSE.

A-LEVEL MATHEMATICS

Awarding Body: Pearson

Course Code: 9MA0

QAN: 603/1333/X

OVERVIEW OF THE COURSE

In this course you will build on the knowledge, skills and understanding learnt during your GCSE Maths studies, as well as develop confidence in applications of mathematics, such as statistics and mechanics. A-Level Maths encourages students to develop confidence in mathematics and to recognise its importance in society and in their own lives. This qualification prepares students to make informed decisions about the use of technology, further learning opportunities and career choices.

A-level maths will also support your leaning in other subjects, such as physics, chemistry, and engineering.

CONTENT AND ASSESSMENT

This A-Level consists of distinct pure and applied topics:

- Pure – Proof, Algebra and functions, Coordinate geometry in the (x, y) plane, Sequences and series, Trigonometry, Exponentials and logarithms, Differentiation, Integration, Numerical methods, and Vectors.
- Statistics – Statistical sampling, Data presentation and interpretation, Probability, Statistical distributions, Statistical hypothesis testing.
- Mechanics – Quantities and units in mechanics, Kinematics, Forces and Newton's laws, Moments.

Assessment is in the form of externally assessed written examinations, which are taken at the end of the two-year programme.

- Three written papers: each contributing 33.3% of the final grade.
- Each paper lasts 2 hours.
- 100 marks on each paper.

ENTRY REQUIREMENTS

Grade 7 or above in GCSE Mathematics.

A-LEVEL PHYSICS

Awarding Body: OCR

Course Code: H556

QAN: 601/4743/X

OVERVIEW OF THE COURSE

Studying Physics gives students the opportunity to expand upon their understanding from GCSE science and is a common prerequisite for further study of engineering or sciences. This qualification is linear meaning that students will sit all their exams at the end of the course. Practical experiments are essential throughout the course and lead to a “Practical Endorsement” separate from the A level grade.

CONTENT AND ASSESSMENT

1. Practical skills
2. Measurement and units
3. Forces, motion and materials
4. Electrons, waves and Quantum physics
5. Newtonian world and astrophysics
6. Particles and medical physics

Paper 1 – Written exam “Modelling Physics” worth 37% of the final grade.

Paper 2 – Written exam “Exploring Physics” worth 37% of the final grade.

Paper 3 – Written exam “Unified Physics” worth 26% of the final grade.

Practical Endorsement in Physics – Reported separately from the A level grade.

ENTRY REQUIREMENTS

GCSE Physics at grade 7 or GCSE Combined Science at grade 7 (with grade 6 in the Physics unit exams) is required. GCSE Maths at grade 6 is also required.

Studying A-Level Mathematics is highly recommended.

A-LEVEL PRODUCT DESIGN

Awarding Body: AQA

Course Code: 7552

QAN: 603/1133/2

OVERVIEW OF THE COURSE

This creative and thought-provoking qualification gives students the practical skills, theoretical knowledge and confidence to succeed in a number of careers. Especially those in the creative industries. They will investigate historical, social, cultural, environmental and economic influences on design and technology, whilst enjoying opportunities to put their learning in to practice by producing products of their choice. Students will gain a real understanding of what it means to be a designer, alongside the knowledge and skills sought by higher education and employers.

CONTENT AND ASSESSMENT

Paper 1: Technical principles – Written exam: 2 hours and 30 minutes worth 30% of the A-Level.

Students are expected to be able to name specific materials for a wide range of applications. They must also be able to provide detailed and justified explanations of why specific materials and combinations of materials are suitable for given applications, with reference to: physical and mechanical properties (working characteristics), product function, aesthetics, cost, manufacture and disposal.

Paper 2: Designing and making principles – Written exam: 1 hour and 30 minutes worth 20% of the A-Level.

Students should be aware of, and able to explain, different approaches to user centred design. That in approaching a design challenge there is not a single process, but that good design always addresses many issues, including: designing to meet needs, wants or values, investigations to inform the use of primary and secondary data, the development of a design proposal, the planning and manufacture of a prototype solution and the evaluation of a prototype solution to inform further development.

Non-exam assessment (NEA) – Practical application of technical principles, designing and making principles

A substantial design and make project worth 50% of the A-Level. Evidence can be written or digital design portfolio and photographic evidence of final prototype.

ENTRY REQUIREMENTS

Grade 6 or above in GCSE Product Design or an equivalent design subject and GCSE Maths at Grade 5 is recommended.

LEVEL 3 BTEC IN BUSINESS (EXTENDED CERTIFICATE – 1 A' LEVEL)

Awarding Body: Pearson
QAN: 601/7159/5

OVERVIEW OF THE COURSE

The BTEC Business course will enable students to gain knowledge and understanding of the business sector with an emphasis on developing skills relevant to the workplace. Varied teaching methods are used throughout the course and assessment is based upon authentic business situations. Approximately 50 % of the course is exam assessed, while the remaining units are all coursework assessed. Students will have the opportunity to attend a work experience placement of their choice, which will also contribute to their qualification.

Students will study three mandatory units (Unit 1, 2 and 3) and one optional unit- Unit 8.

CONTENT AND ASSESSMENT

- **Unit 1 Exploring Business (Internal Assessed)**
- In this introductory unit, learners study the purposes of different businesses, their structure, the effect of the external environment, and how they need to be dynamic and innovative to survive.
- **Unit 2 Developing a Marketing Campaign (External Assessed)**
- Learners will gain skills relating to, and an understanding of, how a marketing campaign is developed. This unit will give learner an insight into how important marketing is to business.
- **Unit 3 Personal and Business Finance (External Assessed)**
- In this unit, learners will study the purpose and importance of personal and business finance. They will also develop the skills and knowledge needed to understand, analyse and prepare financial information. Learners will have a 2-hour written exam; the paper will be marked out of 100 and split into two sections, section A Personal finance, and section B Business finance.
- **Unit 8 Recruitment and Selection process. (Internal Assessed)**
- The aim of this unit is to introduce learners to recruitment and the importance of ensuring that the most suitable people are selected to work in organisations. Learners will study selection and recruitment techniques and will set up, and take part in, a selection interview.

ENTRY REQUIREMENTS Students will need a grade 4 in GCSE English and Maths as well as another 3 GCSE or equivalent qualifications at grade 4 or above.

LEVEL 3 BTEC ART AND DESIGN (EXTENDED CERTIFICATE – 1 A' LEVEL)

Awarding Body: Pearson
QAN: 601/7228/9

OVERVIEW OF THE COURSE

The qualification gives a coherent introduction to the study of art and design. Learners develop art and design projects and gain an understanding of the creative process. The qualification is designed for post-16 learners who aim to progress to higher education and ultimately to employment, possibly in the creative industries, as part of a programme of study alongside other BTEC Nationals or A Levels.

CONTENT AND ASSESSMENT

There are three mandatory units (one internal and two external) and one optional unit.

Unit 1: Visual Recording and Communication (External) – In this unit, you will develop your visual recording and communication skills through exploration and experimentation with materials and methods, gaining confidence in your ability to create work and express and communicate ideas. You will extend your skills through exploring the work of others, ongoing personal reflection and the refinement of your own work. You will demonstrate your practice by applying these skills to a set task.

Unit 2: Critical and Contextual Studies in Art and Design (External) – In this unit, you will develop contextual research and critical analysis skills. You will investigate the contextual influences on practitioners that drive and underpin their work. You will learn how to critically analyse pieces of art and design work, deconstructing images and thinking critically about what you see. You will develop these skills through investigation by selecting and sourcing relevant information in order to gain a full understanding of the work of artists and designers.

Unit 3: The Creative Process (Internal) – In this unit, you will explore the activities within the creative process. You will experiment with ideas generation techniques and contextual research activities. You will develop ideas through use of materials, techniques and processes, refining your ideas and reviewing your working practices. You will explore ways to present your work and understand the importance of self-reflection and evaluation as an ongoing process. You will also explore how these activities can relate and support each other, looking at alternative and innovative approaches. You will then apply your own creative process to a piece of art and design work, reflecting on what you have learned to help inform your future practice.

ENTRY REQUIREMENTS

GCSE Art or Design at Grade 6 or Level 2 Merit.

LEVEL 3 BTEC ENGINEERING (EXTENDED CERTIFICATE - 1 A' LEVEL/DIPLOMA – 2 A' LEVELS/EXTENDED DIPLOMA - 3 A' LEVELS)

Awarding Body: Pearson

QAN: 601/7584/9, 601/7580/1, 601/7588/6

OVERVIEW OF THE COURSE

The BTEC Level 3 in Engineering has been designed to give new entrants to the engineering sector the underpinning knowledge and specific skills needed to meet the needs of modern mechanical engineering industries. This qualification is designed both for those students who wish to enter employment, apprenticeships or those who plan to progress into Higher Education, for example to BTEC Higher Nationals and undergraduate engineering degree qualifications.

The course has the option of studying the equivalent to either a 1, 2 or 3 A levels. This gives the student the option of studying other A levels alongside an engineering subject.

CONTENT AND ASSESSMENT

Students completing the Extended Certificate (1 A-Level equivalent) will complete 4 units. Those students completing the Diploma (2 A-Level equivalent) will complete 10 units. Those on the full Extended Diploma (3 A-Level equivalent) will complete all 15 units.

*Unit 1-3 are compulsory for the Extended Certificate

**Units 1-5 are compulsory for the Diploma.

*** Units 1-7 are compulsory for the Extended Diploma.

Unit	Unit Name	Internal / External
Unit 1	Engineering principles*	External
Unit 2	Delivery of engineering processes safely as a team*	Internal
Unit 3	Engineering product design and manufacture*	External
Unit 4	Applied commercial and quality principles in engineering**	Internal
Unit 5	A specialist engineering project**	Internal
Unit 6	Microcontroller systems for engineers***	External
Unit 7	Calculus to solve engineering problems***	Internal
Unit 8	Further Engineering Mathematics	Internal
Unit 10	Computer aided design in engineering	Internal
Unit 18	Electrical power distribution and transmission	Internal
Unit 22	Electronic printed circuit board design and manufacture	Internal
Unit 24	Maintenance of mechanical systems	Internal
Unit 25	Mechanical behaviour of metallic materials	Internal
Unit 41	Manufacturing Secondary Machining Processes	Internal

Unit 44	Fabrication manufacturing processes	Internal
Unit 45	Additive manufacturing processes	Internal

ENTRY REQUIREMENTS

Grade 5 in GCSE Maths and English, however a Grade 6 in Maths is preferable.

LEVEL 3 CAMBRIDGE TECHNICALS IN INFORMATION TECHNOLOGY (EXTENDED CERTIFICATE – 1 A' LEVEL)

Awarding Body: OCR

Course Code: 05839

QAN: 601/7098/0

OVERVIEW OF THE COURSE

Cambridge Technicals in IT allows students to gain an insight into IT and cybersecurity. Through practical and project-based work, students will develop knowledge and skills in areas such as infrastructure, cyber security, information and project management.

CONTENT AND ASSESSMENT

Unit 1: Fundamentals of IT – A sound understanding of IT technologies and practices is essential for IT professionals. Information learnt in this unit will provide a solid foundation in the fundamentals of hardware, networks, software, the ethical use of computers and how business uses IT.

Unit 2: Global Information – The purpose of this unit is to demonstrate the uses of information in the public domain, globally, in the cloud and across the internet, by individuals and organisations. You will discover that good management of both data and information is essential, and that it can give any organisation a competitive edge.

Unit 3: Cyber Security– We rely on computerised systems in all walks of life. However, some people have found ways to exploit them and this poses a threat to our safety and security. To deal with this problem the cyber security industry is expanding at a rapid rate. This unit has been designed to enable you to gain knowledge and understanding of the range of threats, vulnerabilities and risks that impact on both individuals and organisations.

Unit 8: Project Management – This unit will provide you with the opportunity to understand and use various project planning skills and techniques, thereby enabling you to become more effective in the workplace. Project management skills are essential transferrable skills that can be used for all IT related projects whether it's traditional methodologies or more recently adapted agile approaches within the IT development environment.

Unit 17: Internet of Everything – This unit is about the use of the internet and how it is impacting people and society. You will learn about the Internet of Everything (IoE) and how it is used.

ENTRY REQUIREMENTS

GCSE English and Maths at grade 5 or above and a grade 5 or above in IT GCSE if studied.

LEVEL 3 BTEC INFORMATION TECHNOLOGY (EXTENDED CERTIFICATE)

Awarding Body: Pearson
QAN: 601/7575/8

OVERVIEW OF THE COURSE

The objective of this qualification is to give learners the opportunity to develop their knowledge and skills in IT systems, systems management and social media in business. This will enable learners to progress to further study in the IT sector or other sectors. Learners will develop a common core of IT knowledge and study areas such as the relationship between hardware and software that form an IT system, managing and processing data to support business and using IT to communicate and share information.

CONTENT AND ASSESSMENT

Learners will study three mandatory units (1, 2, and 3) and one optional unit (from 5 and 6):

Unit 1: Information Technology Systems – Learners study the role of computer systems and the implications of their use in personal and professional situations. This unit is a 2 hour externally assessed written paper.

Unit 2: Creating Systems to Manage Information – Learners study the design, creation, testing and evaluation of a relational database system to manage information. This unit is assessed through a controlled assessment under supervised conditions.

Unit 3: Using Social Media in Business – Learners explore how businesses use social media to promote their products and services. Learners also implement social media activities in a business to meet requirements.

Unit 5: Data Modelling – Learners study how data modelling can be used to solve problems. They will design and implement a data model to meet client requirements.

Unit 6: Website Development – Learners investigate website development principles. They will design and develop a website using scripting languages.

ENTRY REQUIREMENTS

GCSE English and Maths at grade 5 or above and a grade 5 or above in IT GCSE if studied.

LEVEL 3 BTEC APPLIED SCIENCE (EXTENDED CERTIFICATE – 1 A' LEVEL)

Awarding Body: Pearson
QAN: 601/7436/5

OVERVIEW OF THE COURSE

This BTEC Science course aims to give students a solid foundation in all three sciences, extending their knowledge from GCSE and providing them with the practical skills needed to progress in a career in science or engineering, both in employment and in Higher Education. This course is designed for students who want to continue with science, but for whom A-Levels are not the chosen pathway. This course is made up of 4 or 8 modules, depending on whether students are entering for the single or double A-Level equivalent. Around 25% of the course is exam assessed, while the remaining units are coursework or controlled assessments.

CONTENT AND ASSESSMENT

The following units are mandatory units:

- 1. Principles and Applications of Science** - Externally assessed exam.
- 2. Practical Scientific Procedures and Techniques** - Coursework.
- 3. Science Investigation Skills** - Controlled assessment.
- 4. Laboratory Techniques and their Application (Diploma)** - Coursework.
- 5. Principles and Applications of Science II (Diploma/Extended Diploma)** - Externally assessed exam.
- 6. Investigative Project (Diploma)**.

In addition to those above, optional units will also be completed in order to bring up the total number of units to those needed for the chosen qualification.

Optional units: Microbiology and Microbiological Techniques, Forensic Evidence, Collection and Analysis, Physiology and Human Body Systems, Human Regulation and Reproduction.

ENTRY REQUIREMENTS

Students should be aiming to achieve a grade 5-5 in combined science.

EXTENDED PROJECT QUALIFICATION

Awarding Body: AQA

Course Code: 7993

QAN: 600/953/49

OVERVIEW OF THE COURSE

The Extended Project is a stand-alone task and the topic is chosen by the learner. It can relate to any aspect of engineering or manufacturing and will be assessed via an internal assessment which can be in the form of a dissertation, report, design portfolio, design-and-make or manufactured artefact. Learners will develop and extend research; identifying, designing, planning and completing an individual project as well as applying a range of organisational skills. They will need to select information from a range of sources, analyse data, and solve problems to complete their final project outcome. Learners will be allocated a supervisor to oversee and guide them through the project.

CONTENT AND ASSESSMENT

Learners must complete:

A project log which details how they have planned, researched and evaluated their project.

A Project which can be presented as:

- a 5000 word dissertation
- an artefact, model or construction
- a CD/video/DVD of performances or activities
- an audiotape/multimedia presentation
- a journal of activities or events
- a slide or PowerPoint presentation
- a photographic record of the project

Project products must include a written report of between 1000 and 5000 words and a presentation on the process followed and the outcomes produced.

ENTRY REQUIREMENTS

There are no specific entry criteria for this course.

CORE MATHS

Awarding Body: AQA

Course Code: 1350

QAN: 601/4945/0

OVERVIEW OF THE COURSE

Level 3 Mathematical Studies is our accredited Core Maths qualification. Brought in by the Government, Core Maths is designed for students with a grade 4 or above in GCSE maths who want to take the subject further, but aren't moving forward with another post-GCSE maths course. The use of real-life scenarios will appeal to students who prefer a less academic approach and appreciate the value of everyday maths and problem-solving skills. It will also support them through further/higher education and the learned skills will be useful in future employment. At 180 guided learning hours and with three options to choose from, Level 3 Mathematical Studies is a valuable addition to any student's personal learning plan.

It helps to develop students' mathematical skills and thinking and supports courses such as A-level Psychology, Sciences and Geography as well as technical and vocational qualifications.

CONTENT AND ASSESSMENT

Paper 1 (compulsory content, taken by all students) assesses:

- Analysis of data
- Maths for personal finance
- Estimation.

Paper 2 (optional content – students take one paper only)

- Either paper 2A assesses:
 - Critical analysis of given data and models including spreadsheets and tabular data
 - Statistical techniques.
- Or paper 2B assesses:
 - Critical analysis of given data and models including spreadsheets and tabular data
 - Critical path and risk analysis.
- Or paper 2C assesses:
 - Critical analysis of given data and models including spreadsheets and tabular data
 - Graphical techniques.

ENTRY REQUIREMENTS

A Grade 4 or above in GCSE English Language. GCSE Maths must be at Grade 5 or above.

GCSE ENGLISH LANGUAGE & MATHEMATICS (RETAKE)

Awarding Body: AQA

Course Code: 8700 (English Language) & 8300 (Mathematics)

QAN: 601/4292/3 (English Language) & 601/4608/4 (Mathematics)

OVERVIEW OF THE COURSE

Students who have not achieved a grade 4 in their English or Mathematics GCSEs are required to continue studying the course as part of their Sixth Form programme until they achieve that grade.

CONTENT AND ASSESSMENT

Students retaking either English or Maths GCSE will have the opportunity to retake their exams in November. If they are not successful at achieving a grade 4 or above, they will then continue studying the subject and sit the summer examinations.

ENTRY REQUIREMENTS

This option is only for students who have not achieved a grade 4 in their English or Mathematics GCSE. Students can only be offered a place in the Sixth Form where one retake subject is required. Students needing to retake both English and Mathematics will unfortunately not be able to attend the WMG Academy Sixth Form.