St Bede's

GCSE EXAM INFORMATION

PART A: CORE SUBJECTS

Believe all things are possible

GCSE REVISION

This booklet contains exam information for the different subjects you are studying. It is important to start revising early so you have time to repeat your revision of each topic. Remember what you discussed during prep time about your working memory and your long term memory. That each time you revisit something it is more likely to move into your long term memory.

You have discussed revision strategies in prep and your class teachers will discuss subject specific ideas for revising individual subjects.

Here are a few general tips for revision:

1. Start revising early (months, not days)

2. Plan your revision. Create a revision timetable

3. Don't waste time making your notes look pretty! It's not productive.

4. Think about where you are revising. Avoid distractions.

5. Make notes on revision cards or sticky notes

6. Summarise/highlight, don't just copy your notes.

7. Quiz yourself or get friends/family to quiz you

8. Complete past papers. Remember, if there is something you struggle on, don't ignore it, revise it.

9. Make the most of the class time you have left – arrive on time so you can complete any retrieval starters, stay focussed in class and complete all classwork, asking for help if you need it.

10. Complete the homework you are set – Your teacher will set homework aimed at helping you to revise various parts of the subject.

"By failing to prepare, you are preparing to fail."
– Benjamin Franklin

RE GCSE OVERVIEW

Paper 1: Catholic Christianity	1 hour 45 mins	50%
Paper 2: Judaism	50 mins	25%
Paper 3: Philosophy and Ethics	50 min	25%

Paper 1: Catholic Christianity
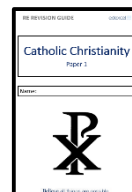
Section 1: Beliefs			
	1.1	**The Trinity**	
	1.2	**Creation**	
	1.3	**Creation and humanity**	
	1.4	**The incarnation**	
	1.5	**The Paschal Mystery**	
	1.6	**Salvation and Grace**	
	1.7	**Eschatology**	
Section 2: Practices			
	2.1	**The sacraments**	
	2.2	**Liturgical worship**	
	2.3	**The funeral rite**	
	2.4	**Prayer**	
	2.5	**Forms of popular piety**	
	2.6	**Pilgrimage**	
	2.7	**Catholic Social Teaching**	
	2.8	**Mission and evangelisation**	
Section 3: Sources of Wisdom			
	3.1	**The Bible**	
	3.2	**Magisterium**	
	3.3	**The Second Vatican Council**	
	3.4	**The Church as the Body of Christ**	
	3.5	**The four marks of the Church**	
	3.6	**Mary as a model of the Church**	
	3.7	**Making moral decisions**	
Section 4: Forms of expression			
	4.1	**Architecture and design**	
	4.2	**Features of Catholic churches**	
	4.3	**Sacred objects**	
	4.4	**Paintings, drawings and frescos**	
	4.5	**Sculptures and statues**	
	4.6	**Symbolism and imagery in religious art**	
	4.7	**Mystery plays and passion plays**	
	4.8	**Music**	

Paper 2: Judaism

Section 1: Beliefs			
	1.1	**The Almighty**	
	1.2	**The Shekinah**	
	1.3	**The Messiah**	
	1.4	**The Covenant with Abraham**	
	1.5	**The Covenant at Sinai**	
	1.6	**Moral Principles and Mitzvot**	
	1.7	**Sanctity of Life**	
	1.8	**Life after Death**	
Section 2: Practices			
	2.1	**Public acts of worship**	
	2.2	**Tanakh, Talmud and Kosher**	
	2.3	**Prayer**	
	2.4	**Rituals and ceremonies**	
	2.5	**Shabbat**	
	2.6	**Festivals**	
	2.7	**Features of the synagogue**	

Paper 3: Philosophy & Ethics
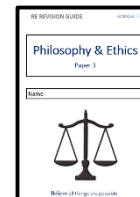
Section 1: Arguments for the Existence of God			
	1.1	**Revelation**	
	1.2	**Visions**	
	1.3	**Miracles**	
	1.4	**Religious Experiences**	
	1.5	**The Design Argument**	
	1.6	**The Cosmological Argument**	
	1.7	**The existence of suffering**	
	1.8	**Solutions to the problem of suffering**	
Section 2: Religious teachings on Relationships and Families in the 21st Century			
	2.1	**Marriage**	
	2.2	**Sexual Relationships**	
	2.3	**Family Planning**	
	2.4	**The Family**	
	2.5	**Support for the Family**	
	2.6	**Divorce, annulment and marriage**	
	2.7	**Equality of men and women in the family**	
	2.8	**Gender prejudice and discrimination**	

GCSE MATHEMATICS

EXAM INFORMATION – FOUNDATION & HIGHER

EXAM	LENGTH	MARKS
Paper 1: Non-Calculator	**1 hour 30 mins**	**80 marks**
Paper 2: Calculator	**1 hour 30 mins**	**80 marks**
Paper 3: Calculator	**1 hour 30 mins**	**80 marks**

REVISION TIPS

Be organised and start early. Take advantage of the support around you. Your teacher, Mathswatch, friends and family and the various revision sites available online such as Corbett Maths and Maths Genie.

There are many ways to revise, it is good to vary the way you revise. You might watch videos on Mathswatch, make revision cards, test yourself while revising with friends or work on your own completing past papers or topic sheets such as those on Corbett Maths or Maths Genie.

You could start by highlighting the topics on the advanced information list that you feel you need to revise the most. Remember, the best way to revise maths is to do maths! Complete all practice exam papers that you are given. Do not be content to leave a question if you don't know how to do it, use the resources below to try and work it out. If you still can't do it, get help from a friend or your maths teacher.

Complete all the revision tasks that are assigned to you from your teacher. Do additional tasks to address any areas of weakness.

Complete and refer to your revision notes/cards. Write the facts/formulae you need to remember on post it notes and put them in places where you will see them regularly.

Finally, use your lesson time wisely. You might spend a few hours a week revising at home, but remember you have 4 hours a week in school. Keep 100% focussed and avoid distractions.

REVISION RESOURCES

- www.sparxmaths.com (see your maths teacher for your login details) – identify weaker areas and click on the independent learning tab to find appropriate videos/lessons/exercises.
- www.vle.mathswatch.com (see your maths teacher for your login details) – lots of lessons, identify weaker areas and find appropriate videos/lessons/exercises.
- www.onmaths.com – no login details required, plenty of past paper practice and marked immediately.
- www.mrbartonmaths.com – go to "Students section" for, amongst other things past papers and worked solution.
- www.mathsgenie.co.uk go to 'Edexcel GCSE Papers' to practice past papers or 'GCSE revision' for practice on individual topics.
- www.mrbartonmaths.com/gcse.htm go to 'GCSE Maths' for a variety of resources such as videos and past papers.

EXAM SKILLS

Make sure you bring your calculator to every lesson; you need to get used to using your own make of calculator.

Read all the question carefully and underline anything you think is important.

METHOD MARKS Make sure you write down all your **working out**, you'd be surprised how many marks you can lose by not doing so.

If you need to cross anything out, just put a single line through it. You might also be surprised that in the past pupils have managed to pick up marks for working out they crossed out. There is a possibility of crossed work gaining marks. But only if the examiner can read it.

Think about whether your answer is **realistic**, for example, gas bills don't tend to run into thousands of pounds, no-one walks 400 miles in a day and people are not 10 metres tall. Have you given an angle as a value more than 90^0 when on the diagram it is an acute angle?

FOUNDATION TOPICS

ANY OF THE TOPICS BELOW COULD BE TESTED ON EITHER OF THE THREE PAPERS

UNIT	TOPIC	OBJECTIVES
1	Decimals and Estimation	Ordering numbers Negative numbers BIDMAS Rounding and estimating Error intervals
2	Factors, Multiples and Primes	Types of number – square, cube etc HCF and LCM Primes
3	Algebraic Manipulation	Simplifying expressions Expanding brackets and factorising Substitution Expanding and factorising quadratics
4	Fractions	Fractions of amounts Adding, subtracting, multiplying and dividing fractions and mixed numbers Recurring decimals
5	Indices and Standard Form	Laws of indices Fractional and negative powers Standard form and calculations with standard form
6	Angles and Polygons	Basic angle facts Measure and draw angles Identify different shapes, eg isosceles triangles Rotational and line symmetry Angles in parallel lines Angles in polygons
7	Sequences	Identify different types of sequences Find and use the Nth terms Generate a quadratic sequence
8	Collecting Data and Sampling	Types of data Sampling methods Two way tables Frequency trees Use stratified samples
9	Area and Volume	Perimeter and area of 2D shapes (rectangle, triangle, compound, trapezium, parallelograms) Circumference and area of circles Area and perimeter of sectors Volume of 3D objects Surface area of 3D objects Nets

10	Compound measures	Speed, distance and time Density, mass and volume Pressure, force and area Distance-time graphs
11	Averages and Range	Averages from lists Averages from frequency tables Compare two sets of data using averages and range Stem and leaf diagrams
12	Constructions, Loci and Bearings	Constructions using a compass and/or protractor Loci Bearings Plans and elevations
13	Linear Equations	Solving equations Forming equations
14	Percentages	Work out percentages with/without a calculator Write one amount as a percentage of another Problems involving percentages Compound interest Reverse percentages
15	Formulae	Substitution Changing the subject of a formula
16	Coordinates and Graphs	Plot and read coordinates Drawing straight line graphs Finding equations from a graph Find solutions of an equation from a graph Working with y=mx+c Midpoints Sketch and read simple cubic and reciprocal graphs
17	Representing and Interpreting Data	Bar charts including dual composite bar charts Pie charts Frequency polygons Scatter graphs
18	Ratio	Write ratios, simplify, share in an amount, combine ratios Write in the form 1:n, n:1 Direct proportion
19	Transformations	Translation Reflection Rotation Enlargement – with/without a centre of enlargement Invariant points
20	Solving Quadratics	Draw and read a quadratic graph Factorising

21	Pythagoras and Trigonometry in 2D	Find the lengths of the longest and shortest sides in a right-angled triangle Find the lengths of sides and size of angles using Trigonometry in right angled triangles
22	Inequalities	List the numbers that satisfy an inequality Show inequalities on a number line Solve inequalities
23	Simultaneous Equations	Solve simultaneous equations from a graph Solve simultaneous equations
24	Probability and Venn Diagrams	Use a probability scale Writing probabilities as fraction/decimals/% Sample space diagrams Probability trees Venn diagrams including using and recognising set notation
25	Vectors	Writing column vectors Adding and subtracting vectors Vectors between 2 points
26	Similarity and Congruence	Recognise congruent shapes Similar shapes

MATHS GCSE HIGHER TOPICS

ANY OF THE TOPICS BELOW COULD BE TESTED ON EITHER OF THE THREE PAPERS

UNIT	TOPIC	OBJECTIVES
1	Decimals and Estimation	Rounding and estimating Error intervals Bounds
2	Factors, Multiples and Primes	Types of number – square, cube etc HCF and LCM Primes
3	Algebraic Manipulation	Simplifying expressions Expanding brackets and factorising Substitution Expanding and factorising quadratics Expanding 3 brackets
4	Fractions	Adding, subtracting, multiplying and dividing fractions and mixed numbers Recurring decimals
5	Indices and Standard Form	Laws of indices Fractional and negative powers Changing the base to simplify expressions Standard form and calculations with SF
6	Angles and Polygons	Basic angle facts Angles in parallel lines Angles in polygons
7	Sequences	N^{th} terms Quadratic sequences
8	Collecting Data and Sampling	Types of data Sampling methods Capture-recapture
9	Area and Volume	Perimeter and circumference Area of 2D shapes (rectangle, triangle, compound, trapezium, parallelogram, circles) Area and perimeter of sectors Volume of 3D objects Surface area of 3D objects
10	Compound measures	Speed, distance and time Density, mass and volume Pressure, force and area Distance-time graphs
11	Averages and Range	Averages from lists Averages from frequency tables Stem and leaf diagrams
12	Constructions, Loci and Bearings	Constructions using a compass Loci Bearings

13	Linear Equations	Solving equations
		Forming equations
14	Percentages	Problems involving percentages
		Compound interest
		Reverse percentages
15	Formulae	Substitution
		Changing the subject of a formula
		Iterations
16	Coordinates and Graphs	Drawing straight line graphs
		Finding equations
		Working with $y=mx+c$
		Midpoints
17	Representing and Interpreting Data	Barcharts
		Pie charts
		Frequency polygons
		Scatter graphs
18	Ratio	Problems involving ratio
		Proportion
19	Transformations	Translation
		Reflection
		Rotation
		Enlargement – including negative SF
20	Solving Quadratics	Factoring
		Quadratic formula
		Completing the square
21	Pythagoras and Trigonometry in 2D	Pythagoras
		Trigonometry
22	Inequalities	Listing integers
		Representing on a number-line
		Solving inequalities
		Graphing inequalities
		Quadratic inequalities
23	Simultaneous Equations	Solving simultaneous equations
		Solving graphically
		Quadratic simultaneous equations
24	Probability and Venn Diagrams	Probability
		Tree diagrams
		Venn diagrams
		And/Or rule
25	Vectors	Column vectors
		Vectors between points
		Problems involving midpoints and ratios
		Collinear vectors
26	Representing and Interpreting Data	Quartiles and boxplots
		Cumulative frequency diagrams
		Histograms
27	Similarity and Congruence	Similar shapes
		Area and volume of similar shapes

		Proving shapes are congruent
28	Circle Theorems	Circle theorems Alternate segment theorem
29	Algebraic Fractions and Proof	Simplifying algebraic fractions Solving equations involving algebraic fractions Algebraic proof
30	Surds	Simplifying surds Brackets involving surds Rationalising the denominator
31	Proportion	Direct proportion problems - Exchange rates, recipes Direct proportion Inverse proportion
32	Gradients and Areas under Curves	Area under graphs/ curves Gradient of curves Velocity time graphs
33	Further Pythagoras and Trigonometry	3D problems Sine/cosine rule Area of triangle Graphs of trig functions
34	Further Graphs	Cubic graphs Reciprocal graphs Exponential graphs Circular graphs
35	Functions and Transformations of Graphs	Function notation $f(x)$ Inverse functions Composite functions Transforming graphs

ENGLISH LANGUAGE REVISION GUIDE

All that you can do is your best!

We know you can do it!

Team English x

| PAPER 1: EXPLORATIONS IN CREATIVE READING & WRITING |
| PAPER 2: WRITERS' VIEWPOINTS & PERSPECTIVES |

Believe all things are possible

AQA GCSE English Language

Paper 1 50%

Section A:
Reading
1 unseen literature fiction text

Section B:
Writing
Descriptive or narrative writing

Total exam time:
1 hour and 45 minutes

Paper 1:
Explorations in Creative Reading and Writing

Paper 2 50%

Section A:
Reading
1 non-fiction and 1 literary non-fiction text

Section B:
Writing
Writing to present a viewpoint

Total exam time:
1 hour and 45 minutes

Paper 2:
Writers' Viewpoints and Perspectives

I would just like to take this opportunity to reiterate my point. You will be re-sitting your English Language GCSE in the summer.

You need **5** GCSE pass grades **including English Language and Maths** to go to college, get a job or get an apprenticeship.

It may also be worth mentioning now that if you fail, you will have to resit the qualification again and again until the age of 25 or until you pass – whichever comes first. So, you **need** to focus.

PAPER 1: EXPLORATIONS IN CREATIVE READING & WRITING - OVERVIEW

1 HOUR & 45 MINUTES

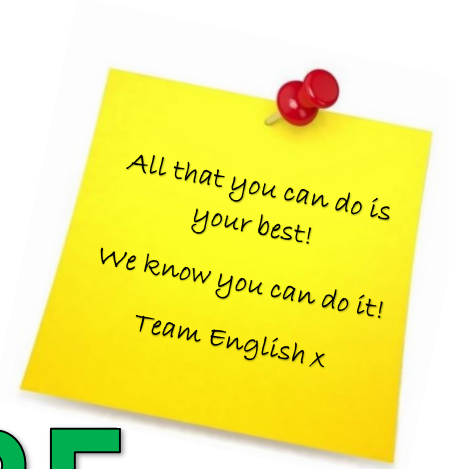| READING - 40 MARKS (25%)	WRITING - 40 MARKS (25%)
- You will read one literature fiction text from the 20th or 21st century. - You will answer 4 questions: **1. COMPREHENSION - LIST FOUR (4 MARKS) - 5 MINUTES** **2. LANGUAGE (8 MARKS) - 10 MINUTES** **3. STRUCTURE (8 MARKS) - 10 MINUTES** **4. EVALUATION (20 MARKS) - 20 MINUTES**	- You will produce one piece of descriptive or narrative piece of writing - The topic will be linked to the reading text in Section A - You will choose between 2 tasks: Description or Narrative - or; 2 Narratives - or; 2 Descriptions - One of the tasks will have a picture to help you think of ideas - Content Marks = 24 - Accuracy Marks = 16 Timings: <table><tr><td>PLANNING</td><td>WRITING</td><td>CHECKING</td></tr><tr><td>5 MINS</td><td>35 MINS</td><td>5 MINS</td></tr></table>

PAPER 2: WRITERS' VIEWPOINTS & PERSPECTIVES - OVERVIEW

1 HOUR & 45 MINUTES

READING - 40 MARKS (25%)	WRITING - 40 MARKS (25%)
- You will read one literature non-fiction text and one literary non-fiction text - One text will be from the 19th century; the other from the 20th or 21st century - You will answer 4 questions: **1. COMPREHENSION - TRUE/FALSE (4 MARKS) - 5 MINUTES** **2. SUMMARY (8 MARKS) - 8 MINUTES** **3. LANGUAGE (12 MARKS) - 12 MINUTES** **4. COMPARISON (CONTENT & METHODS) (20 MARKS) - 20 MINUTES** (PLANNING = 5 MINS & ANSWERING = 15 MINS)	- You will produce one piece of viewpoint writing - The theme will be linked to Section A - You will write for a specific audience, purpose, and in a specific form - Content Marks = 24 - Accuracy Marks = 16 Timings:

Timings:

PLANNING	WRITING	CHECKING
5 MINS	35 MINS	5 MINS

All that you can do is your best!

We know you can do it!

Team English x

ENGLISH LITERATURE REVISION GUIDE

MACBETH

WILLY RUSSELL BLOOD BROTHERS

Power and Conflict Poetry

Poetry

A Christmas Carol Charles Dickens
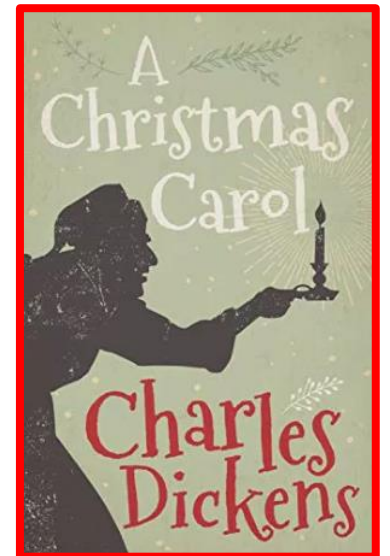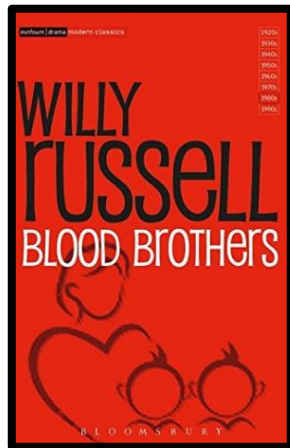
Exam Structure

AQA GCSE English Literature

Paper 1 40%

Paper 2 60%

Section A:
Shakespeare
Macbeth
[34 Marks]

Section B:
19th Century Novel
A Christmas Carol
[30 Marks]

Section A:
Modern Prose/Drama
Blood Brothers
[34 Marks]

Section B:
Poetry
Power and Conflict
Comparison
[30 Marks]

Section C:
Unseen Poetry
Analysis &
Comparison
[32 Marks]

Total exam time:
1 hour and 45 minutes
13th May

Total exam time:
2 hours and 15 minutes
20th May

Revising for English Literature

Revising for English Literature can be done in a number of ways; different methods work for different people and it is important to find the way that works for you.

1) Re-read the texts in your own time to ensure they are fresh in your mind. You are more likely to remember quotations and notice themes/patterns/techniques when re-reading the text.

2) Wider reading. Set your self apart from the crowd by researching and reading around the text. This could be other people's theories and interpretations of texts (use Google), contextual (AO3) information or a different revision guide.

3) Use the internet. Search for videos on YouTube such as those by MrBruff, Mr Salles or StaceyReay. You can watch the videos, make notes on top tips for each question and create your own revision guide. You can even try the activities that are suggests.

4) There are a great number of dedicated English Literature websites: BBC Bitesize, CliffsNotes, SparkNotes, thestudentroom, Revision World, LitCharts, Gojimo. Use these free resources and make notes.

5) Buy a revision guide and work through it in your spare time. Books like the ones below give you tips on each question and examples of great answers. They also allow you to practise answering the questions.

6) Practise. Practice papers can be downloaded from the AQA website along with the mark schemes. Practising answers and understanding what the examiners are looking for are some of the most effective ways of preparing yourself for the exam.

7) And don't forget out Padlet page! It is constantly updated with valuable revision resources: St Bede's English Department (stbedesblackburnenglish) profile | Padlet

GCSE Combined Science: Foundation

Contents for Paper 1 and Paper 2

When revising for each paper, you need to know which content you are focusing on in your revision guide. Please use the content list on the next pages to label in your revision guide what is paper 1 content and paper 2 content.

Tips for using your revision guides:

- ✓ Focus on topics you are weakest on as a priority
- ✓ **Questions, questions, questions** – simply writing notes is an ineffective use of time. Time is better spent answering questions and finding the answers.
    - o **End of topic question** - Every topic in your revision guide has end of topic questions. Answer these, find the answers if necessary
    - o **Mark your answers** - Always mark your answers (answers at the back). Otherwise, you don't know if would gain marks for your answer in the exam. Always add your improvements to know how to gain the marks
    - o **Whole papers** - The back half of the revision guide are whole practice papers. Use these to revise and use the revision guide to find the answers to help you.

Best Ways to Revise in Science		
Practice Questions by topic from the revision guide	**Whole Practice Papers (AQA)**	**Quizlet App for recall questions**
Revision mats (Twinkl)	**Put your phone away**	**Grade Gorilla Website for recall questions**
Seneca Website	**Flash Cards: Question on the front, answer on the back to test yourself**	**AO1 questions (from your teacher)**

FOUNDATION – GCSE COMBINED SCIENCE

Biology Paper 1	1hr 15	70 marks	16.7%
Cell Biology			
	Eukaryotes: Animal and plant cells		
	Prokaryotes: Bacterial cells		
	Specialisation and differentiation of animal and plant cells		
	RP - Microscopes		
	Cell division		
	Stem cells		
	Diffusion		
	Osmosis		
	Active transport		
Organisation			
	Cells, tissues and organs		
	The digestive system		
	RP – food tests		
	The heart and blood vessels		
	Blood		
	Heart diseases and health issues		
	Non-communicable diseases and causes		
	Plant tissues and organs		
Infection and response			
	Communicable diseases		
	Viral, bacterial, fungal and protist diseases		
	Human defences		
	Vaccinations		
	Antibiotics and pain killers		
	Discover and development of drugs		
Bioenergetics			
	Photosynthesis		
	Rate of photosynthesis		
	RP – Light intensity on the rate of photosynthesis		
	Uses of glucose from photosynthesis		
	Aerobic and anaerobic respiration		
	Responses to exercise		
	Metabolism		

Chemistry Paper 1		1hr 15	70 marks	16.7%
Atomic Structure and the Periodic Table				
	Atoms, elements and compounds			
	Mixtures			
	Developing the model of the atom			
	Relative charges of sub-atomic particles			
	Size and mass of atoms			
	Relative atomic mass			
	Electronic structure			
	The periodic table			
	The development of the periodic table			
	Metals and non-metals			
	Properties of group 1, 7 and 0			
Bonding, structure and property of matter				
	Chemical bonds			
	Ionic bonding and ionic compounds			
	Covalent bonding			
	Giant covalent structures (including diamond, graphite, graphene and fullerenes)			
	Metallic bonding			
	States of matter and state symbols			
	Properties of small molecules			
	Polymers			
	Properties of metals and alloys			
Quantitative chemistry				
	Conservation of mass			
	Relative formula mass			
	Mass changes during a reaction			
	Chemical measurements			
	Calculating moles and moles in equations (HT)			
	Amounts of substances in equations (HT)			
	Limiting reactants (HT)			
	Concentrations of solutions			
Chemical Changes				
	Metal oxides			
	The reactivity series			
	Extraction of metals			
	Reactions of acids with metals			
	Neutralisation of acids and salt production			
	RP – making salts from acids & insoluble bases			
	Soluble salts			
	Electrolysis (ionic compounds, extraction of metals, aqueous solutions)			
	RP - Electrolysis of solutions			
Energy Changes				
	Energy transfers in endothermic and exothermic reactions			
	RP – energy changes in chemical reactions			
	Reaction profiles			
	Energy changes of reactions (HT)			

Physics Paper 1	1hr 15	70 marks	16.7%

Energy		
	Energy stores and systems	
	Changes in energy (including in systems)	
	RP – Specific heat capacity	
	Power	
	Energy transfers in a system	
	Efficiency	
	National and global energy resources	

Electricity		
	Circuit diagrams	
	Electrical charge and current	
	Current resistant and potential difference	
	Resistors	
	RP – I-V characteristics of circuit components	
	Series and parallel circuits	
	Direct and alternating potential difference	
	Mains electricity	
	Power ($P = V \times I$; $P = I^2 \times R$)	
	Energy transfers in everyday appliances	
	The national grid	

Particle Model of Matter		
	Density of materials	
	Changes of state	
	Internal energy	
	Temperature changes in a system and specific heat capacity	
	Changes of heat and specific latent heat	
	Particle motion in gases	

Atomic Structure		
	The structure of an atom	
	Mass number, atomic number and isotopes	
	The development of the atomic model (also in chemistry)	
	Radioactive decay and nuclear radiation	
	Nuclear equations	
	Half-lives and random nature of decay	
	Radioactive contamination	

Biology Paper 2	1hr 15	70 marks	16.7%
Homeostasis and response			
	Homeostasis		
	The nervous system		
	Human endocrine system		
	Controlling blood glucose concentration		
	Hormones and human reproduction		
	Contraception		
	Infertility and treatment		
	Negative feedback (HT)		
Inheritance			
	Sexual and asexual reproduction		
	Meiosis		
	DNA and the genome		
	Genetic inheritance		
	Inherited disorders		
	Sex determination		
Variation and Evolution			
	Variation		
	Evolution		
	Selective breeding		
	Genetic engineering		
	Evidence for evolution		
	Fossils		
	Extinction		
	Resistant bacteria		
	Classification of living organisms		
Ecology			
	Communities		
	Abiotic and biotic factors		
	Adaptations		
	Levels of organisation		
	RP – Sampling techniques to measure population sizes		
	Cycling of materials		
	Biodiversity		
	Waste management		
	Land use		
	Deforestation		
	Global warming		
	Maintaining Biodiversity		

Chemistry Paper 2	1hr 15	70 marks	16.7%
The Rate of Chemical Change			
	Calculating rates of reactions		
	Factors affecting rates of reactions (including catalysts)		
	RP – rates of chemical reactions		
	Collision theory and activation energy		
	Reversible reaction and energy changes		
	Equilibrium		
	Changing conditions equilibrium (temp,pressure,conc) (HT)		
Organic Chemistry			
	Crude oil, hydrocarbons and alkanes		
	Fractional distillation and petrochemicals		
	Properties of hydrocarbons		
	Cracking and alkenes		
Chemical Analysis			
	Pure substances		
	Formulations		
	RP - Chromatography		
	Test for hydrogen, oxygen, carbon dioxide and chlorine		
Chemistry of the atmosphere			
	Proportion of gases in the atmosphere		
	Earth's early atmosphere and changes in O_2 and CO_2		
	Greenhouse gases and the effects of human activity		
	Global climate change		
	The carbon footprint		
	Atmospheric pollutants from fuels		
	Properties and effects of atmospheric pollutants		
Using Resources			
	Earth's resources and sustainable development		
	Potable water		
	Waste water treatment		
	Alternative methods of extracting metals (HT)		
	Life cycle assessment		
	Ways of reducing the use of resources		

Physics Paper 2	1hr 15	70 marks	16.7%
Forces			
	Scalar and vector quantities		
	Contact and non-contact forces		
	Gravity		
	Resultant forces		
	Work done and energy transfers		
	Forces and elasticity		
	Distance and displacement		
	Speed and velocity		
	Distance-time relationship		
	Acceleration		
	Newton's 3 laws of motion		
	Stopping distance		
	Reaction time		
	Factors affecting braking distance		
	Momentum (HT)		
	Conservation of momentum (HT)		
Waves			
	Transverse and longitudinal waves		
	Properties of waves		
	Electromagnetic waves (properties and uses)		
	RP – Infrared absorption and emission		
Magnetism and Electromagnetism			
	Poles of a magnet and magnetic fields		
	Electromagnetism		
	Fleming's left-hand rule (HT)		
	Electric motors (HT)		

GCSE Combined Science: Higher

Contents for Paper 1 and Paper 2

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HIGHER – GCSE COMBINED SCIENCE

Biology Paper 1	1hr 15	70 marks	16.7%
Cell Biology			
	Eukaryotes: Animal and plant cells		
	Prokaryotes: Bacterial cells		
	Specialisation and differentiation of animal and plant cells		
	Microscopes		
	Cell division		
	Stem cells		
	Diffusion		
	Osmosis		
	Active transport		
Organisation			
	Cells, tissues and organs		
	The digestive system		
	RP – Food tests		
	RP – Effect of pH on enzyme activity		
	The heart and blood vessels		
	Blood		
	Heart diseases and health issues		
	Non-communicable diseases and causes		
	Plant tissues and organs		
Infection and response			
	Communicable diseases		
	Viral, bacterial, fungal and protist diseases		
	Human defences		
	Vaccinations		
	Antibiotics and pain killers		
	Discover and development of drugs		
Bioenergetics			
	Photosynthesis		
	Rate of photosynthesis		
	RP – Light intensity on rate of photosynthesis		
	Uses of glucose from photosynthesis		
	Aerobic and anaerobic respiration		
	Responses to exercise		
	Metabolism		

Chemistry Paper 1	1hr 15	70 marks	16.7%

Atomic Structure and the Periodic Table

	Atoms, elements and compounds	
	Mixtures	
	Developing the model of the atom	
	Relative charges of sub-atomic particles	
	Size and mass of atoms	
	Relative atomic mass	
	Electronic structure	
	The periodic table	
	The development of the periodic table	
	Metals and non-metals	
	Properties of group 1, 7 and 0	

Bonding, structure and property of matter

	Chemical bonds	
	Ionic bonding and ionic compounds	
	Covalent bonding	
	Giant covalent structures (including diamond, graphite, graphene and fullerenes)	
	Metallic bonding	
	States of matter and state symbols	
	Properties of small molecules	
	Polymers	
	Properties of metals and alloys	

Quantitative chemistry

	Conservation of mass	
	Relative formula mass	
	Mass changes during a reaction	
	Calculating moles and moles in equations (HT)	
	Amounts of substances in equations (HT)	
	Limiting reactants (HT)	
	Concentrations of solutions	

Chemical Changes

	Metal oxides	
	The reactivity series	
	Extraction of metals	
	Oxidation and reduction (electrons) (HT)	
	Reactions of acids with metals	
	Neutralisation of acids and salt production	
	RP – making salts from acids & insoluble base	
	Soluble salts	
	Strong and weak acids (HT)	
	Electrolysis (ionic compounds, extraction of metals, aqueous solutions)	
	Electrolysis: half equations at electrodes (HT)	
	RP – Electrolysis of aqueous solution	

Energy Changes

	Energy transfers in endothermic and exothermic reactions	
	Reaction profiles	
	Energy changes of reactions (HT)	
	RP – energy changes in a chemical reaction	

Physics Paper 1	1hr 15	70 marks	16.7%
Energy			
	Energy stores and systems	
	Changes in energy (including in systems)	
	RP – Specific heat capacity	
	Power	
	Energy transfers in a system	
	Efficiency	
	National and global energy resources	
Electricity			
	Circuit diagrams	
	Electrical charge and current	
	Current resistant and potential difference	
	Resistors	
	RP – I-V characteristics of a lamp, resistor, diode	
	Series and parallel circuits	
	Direct and alternating potential difference	
	Mains electricity	
	Power (P = V x I; P = I^2 x R)	
	Energy transfers in everyday appliances	
	The national grid	
Particle Model of Matter			
	Density of materials	
	Changes of state	
	Internal energy	
	Temperature changes in a system and specific heat capacity	
	Changes of heat and specific latent heat	
	Particle motion in gases	
Atomic Structure			
	The structure of an atom	
	Mass number, atomic number and isotopes	
	The development of the atomic model (also in chemistry)	
	Radioactive decay and nuclear radiation	
	Nuclear equations	
	Half-lives and random nature of decay	
	Radioactive contamination	

Biology Paper 2	1hr 15	70 marks	16.7%
Homeostasis and response			
	Homeostasis		
	The nervous system		
	Human endocrine system		
	Controlling blood glucose concentration		
	Hormones and human reproduction		
	Contraception		
	Infertility and treatment (HT)		
	Negative feedback (HT)		
Inheritance			
	Sexual and asexual reproduction		
	Meiosis		
	DNA and the genome		
	Genetic inheritance		
	Inherited disorders		
	Sex determination		
Variation and Evolution			
	Variation		
	Evolution		
	Selective breeding		
	Genetic engineering		
	Evidence for evolution		
	Fossils		
	Extinction		
	Resistant bacteria		
	Classification of living organisms		
Ecology			
	Communities		
	Abiotic and biotic factors		
	Adaptations		
	Levels of organisation		
	RP – sampling techniques to measure population sizes		
	Cycling of materials		
	Biodiversity		
	Waste management		
	Land use		
	Deforestation		
	Global warming		
	Maintaining Biodiversity		

Chemistry Paper 2	1hr 15	70 marks	16.7%
The Rate of Chemical Change			
	Calculating rates of reactions		
	Factors affecting rates of reactions (including catalysts)		
	RP – Rates of chemical reactions		
	Collision theory and activation energy		
	Reversible reaction and energy changes		
	Equilibrium		
	Changing conditions equilibrium (temp,pressure,conc) (HT)		
Organic Chemistry			
	Crude oil, hydrocarbons and alkanes		
	Fractional distillation and petrochemicals		
	Properties of hydrocarbons		
	Cracking and alkenes		
Chemical Analysis			
	Pure substances		
	Formulations		
	Chromatography		
	RP – Paper chromatography		
	Test for hydrogen, oxygen, carbon dioxide and chlorine		
Chemistry of the atmosphere			
	Proportion of gases in the atmosphere		
	Earth's early atmosphere and changes in O_2 and CO_2		
	Greenhouse gases and the effects of human activity		
	Global climate change		
	The carbon footprint		
	Atmospheric pollutants from fuels		
	Properties and effects of atmospheric pollutants		
Using Resources			
	Earth's resources and sustainable development		
	Potable water		
	Waste water treatment		
	Alternative methods of extracting metals (HT)		
	Life cycle assessment		
	Ways of reducing the use of resources		

Physics Paper 2	1hr 15	70 marks	16.7%
Forces			
	Scalar and vector quantities		
	Contact and non-contact forces		
	Gravity		
	Resultant forces		
	Work done and energy transfers		
	Forces and elasticity		
	Distance and displacement		
	Speed and velocity		
	Distance-time relationship		
	Acceleration		
	Newton's 3 laws of motion		
	Stopping distance		
	Reaction time		
	Factors affecting braking distance		
	Momentum (HT)		
	Conservation of momentum (HT)		
Waves			
	Transverse and longitudinal waves		
	Properties of waves		
	Electromagnetic waves (properties and uses)		
	RP – Absorbers and emitters of infrared radiations		
Magnetism and Electromagnetism			
	Poles of a magnet and magnetic fields		
	Electromagnetism		
	Fleming's left-hand rule		
	Electric motors (HT)		

GCSE Separate Science: Foundation

Contents for Paper 1 and Paper 2

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Seneca Website	**Flash Cards: Question on the front, answer on the back to test yourself**	**AO1 questions (from your teacher)**

FOUNDATION – SEPARATE SCIENCE

Biology Paper 1	1hr 45	100 marks	50% of B

Cell Biology		
	Eukaryotes: Animal and plant cells	
	Prokaryotes: Bacterial cells	
	Specialisation and differentiation of animal and plant cells	
	Microscopes	
	RP – Microscopes	
	Culturing microorganisms (bio only)	
	Cell division	
	Stem cells	
	Diffusion	
	Osmosis	
	RP - Osmosis	
	Active transport	
Organisation		
	Cells, tissues and organs	
	The digestive system	
	RP – Food tests	
	The heart and blood vessels	
	Blood	
	Heart diseases and health issues	
	Non-communicable diseases and causes	
	Cancer	
	Plant tissues and organs	
Infection and response		
	Communicable diseases	
	Viral, bacterial, fungal and protist diseases	
	Human defences	
	Vaccinations	
	Antibiotics and pain killers	
	Discover and development of drugs	
	Production and uses of monoclonal antibodies (Bio only)	
	Plant defence responses	
Bioenergetics		
	Photosynthesis	
	Rate of photosynthesis	
	RP – Light intensity on the rate of photosynthesis	
	Uses of glucose from photosynthesis	
	Aerobic and anaerobic respiration	
	Responses to exercise	
	Metabolism	

Chemistry Paper 1		1hr 45	100 marks	50% of C
Atomic Structure and the Periodic Table				
	Atoms, elements and compounds			
	Mixtures			
	Developing the model of the atom			
	Relative charges of sub-atomic particles			
	Size and mass of atoms			
	Relative atomic mass			
	Electronic structure			
	The periodic table			
	The development of the periodic table			
	Metals and non-metals			
	Properties of group 1, 7 and 0			
	Transition metals properties (Chem only)			
	Transition comparison with group 1 metals (Chem only)			
Bonding, structure and property of matter				
	Chemical bonds			
	Ionic bonding and ionic compounds			
	Covalent bonding			
	Giant covalent structures (including diamond, graphite, graphene and fullerenes)			
	Nanoparticles (size, properties and uses) (Chem only)			
	Metallic bonding			
	States of matter and state symbols			
	Properties of small molecules			
	Polymers			
	Properties of metals and alloys			
Quantitative chemistry				
	Conservation of mass			
	Relative formula mass			
	Mass changes during a reaction			
	Chemical measurements			
	Calculating moles and moles in equations (HT)			
	Amounts of substances in equations (HT)			
	Limiting reactants (HT)			
	Concentrations of solutions			
	Percentage yield (Chem only)			
	Atom economy (Chem only)			
	Using concentrations of solution (Chem only)			
	Amount of substances in relation to volumes of gases (Chem only)			
Chemical Changes				
	Metal oxides			
	The reactivity series			
	Extraction of metals			
	Oxidation and reduction (electrons) (HT)			
	Reactions of acids with metals			
	Neutralisation of acids and salt production			
	RP – making salts from acids and insoluble bases			
	Soluble salts			

	Titrations (Chem only)	
	RP – Determining volumes of acids & alkalis from titrations	
	Strong and weak acids (HT)	
	Electrolysis (ionic compounds, extraction of metals, aqueous solutions)	
	Electrolysis: half equations at electrodes (HT)	
Energy Changes		
	Energy transfers in endothermic and exothermic reactions	
	Reaction profiles	
	Energy changes of reactions (HT)	
	Chemical cells and batteries (Chem only)	
	Fuel cells (Chem only)	

Physics Paper 1	1hr 45	100 marks	50% of P
Energy			
	Energy stores and systems		
	Changes in energy (including in systems)		
	RP – specific heat capacity		
	Power		
	Energy transfers in a system		
	RP – Effectiveness of materials as insulators		
	Efficiency		
	National and global energy resources		
Electricity			
	Circuit diagrams		
	Electrical charge and current		
	Current resistant and potential difference		
	RP – Factors affecting resistance in a circuit		
	Resistors		
	Series and parallel circuits		
	Direct and alternating potential difference		
	Mains electricity		
	Power (P = V x I; P = I^2 x R)		
	Energy transfers in everyday appliances		
	The national grid		
	Static charge (Physics only)		
	Electric fields (Physics only)		
Particle Model of Matter			
	Density of materials		
	RP – measuring density or regular and irregular objects		
	Changes of state		
	Internal energy		
	Temperature changes in a system and specific heat capacity		
	Changes of heat and specific latent heat		
	Particle motion in gases		
	Pressure in gases (Physics only)		
	Increasing the pressure of a gas (Physics only)		
Atomic Structure			
	The structure of an atom		
	Mass number, atomic number and isotopes		
	The development of the atomic model (also in chemistry)		
	Radioactive decay and nuclear radiation		
	Nuclear equations		
	Half-lives and random nature of decay		
	Radioactive contamination		
	Background radiation (Physics only)		
	Different half-lives of radioactive isotopes (Physics only)		
	Uses of nuclear radiation (Physics only)		
	Nuclear fission (Physics only)		
	Nuclear fusion (Physics only)		

Biology Paper 2		1hr 45	100 marks	50% of B
Homeostasis and response				
	Homeostasis			
	The nervous system			
	RP – Human reaction time			
	The brain (Bio only)			
	The eye (Bio only)			
	Control of body temperature			
	Human endocrine system			
	Controlling blood glucose concentration			
	Maintaining water and nitrogen balance (Bio only)			
	Hormones and human reproduction			
	Contraception			
	Plant hormone control and coordination (Bio only)			
	RP – Effect of light on germinating seedlings			
	Uses of plant hormones (Bio only)			
Inheritance				
	Sexual and asexual reproduction			
	Advantages & disadvantages of sexual & asexual reproduction (Bio only)			
	Meiosis			
	DNA and the genome			
	The structure of DNA (Bio only)			
	Genetic inheritance			
	Inherited disorders			
	Sex determination			
Variation and Evolution				
	Variation			
	Evolution			
	Selective breeding			
	Genetic engineering			
	Cloning (Bio only)			
	Theory of evolution (Bio only)			
	Speciation (Bio only)			
	Understanding of genetics (Bio only)			
	Evidence for evolution			
	Fossils			
	Extinction			
	Resistant bacteria			
	Classification of living organisms			
Ecology				
	Communities			
	Abiotic and biotic factors			
	Adaptations			
	Levels of organisation			
	Cycling of materials			
	Decomposition (Bio only)			
	Impact of environmental change (Bio only)			
	Biodiversity			
	Waste management			
	Land use			
	Deforestation			

	Global warming	
	Maintaining biodiversity	
	Trophic levels (Bio only)	
	Pyramids of biomass (Bio only)	
	Transfer or biomass (Bio only)	
	Factors affecting food security (Bio only)	
	Farming techniques (Bio only)	
	Sustainable fisheries (Bio only)	
	Role of biotechnology (Bio only)	

Chemistry Paper 2	1hr 45	100 marks	50% of C
The Rate of Chemical Change			
	Calculating rates of reactions		
	Factors affecting rates of reactions (including catalysts)		
	RP – Rates of chemical reactions		
	Collision theory and activation energy		
	Reversible reaction and energy changes		
	Equilibrium		
	Changing conditions equilibrium (temp,pressure,conc) (HT)		
Organic Chemistry			
	Crude oil, hydrocarbons and alkanes		
	Fractional distillation and petrochemicals		
	Properties of hydrocarbons		
	Cracking and alkenes		
	Structure and formulae of alkenes (Chem only)		
	Reaction of alkenes (Chem only)		
	Alcohols (Chem only)		
	Carboxylic acids (Chem only)		
	Addition polymers (Chem only)		
	Condensation polymerisation (Chem only)		
	Amino acids, DNA and other natural polymers (Chem only)		
Chemical Analysis			
	Pure substances		
	Formulations		
	Chromatography		
	RP – Chromatography		
	Test for hydrogen, oxygen, carbon dioxide and chlorine		
	Flame tests (Chem only)		
	Metal hydroxide, carbonates & sulphates (Chem only)		
	Instrumental methods (Chem only)		
	RP – Chemical analysis to identify ions		
	Flame emission spectroscopy (Chem only)		
Chemistry of the atmosphere			
	Proportion of gases in the atmosphere		
	Earth's early atmosphere and changes in O_2 and CO_2		
	Greenhouse gases and the effects of human activity		
	Global climate change		
	The carbon footprint		
	Atmospheric pollutants from fuels & effects		
Using Resources			
	Earth's resources and sustainable development		
	Potable water		
	RP – Analysing water samples		
	Waste water treatment		
	Alternative methods of extracting metals (HT)		
	Life cycle assessment		
	Ways of reducing the use of resources		
	Corrosion and it's prevention (Chem only)		
	Alloys as useful materials (Chem only)		
	Ceramics, polymers and composites (Chem only)		
	The Haber process (Chem only)		
	Production and uses of NPK fertilisers (Chem only)		

Physics Paper 2		1hr 45	100 marks	50% of P
Forces				
	Scalar and vector quantities			
	Contact and non-contact forces			
	Gravity			
	Resultant forces			
	Work done and energy transfers			
	Forces and elasticity			
	Moments, levers and gears (Physics only)			
	Pressure in fluids (Physics only)			
	Atmospheric pressure (Physics only)			
	Distance and displacement			
	Speed and velocity			
	Distance-time relationship			
	Acceleration			
	Newton's 3 laws of motion			
	Stopping distance			
	Reaction time			
	Factors affecting braking distance			
	Momentum (HT)			
	Conservation of momentum (HT)			
	Changes in momentum (Physics only)			
Waves				
	Transverse and longitudinal waves			
	Properties of waves			
	Reflection of waves (Physics only)			
	RP – reflection & refraction of light			
	Sound waves (Physics only)			
	Waves for detection and exploration (Physics only)			
	Electromagnetic waves (properties and uses)			
	Lenses (Physics only)			
	Visible light (Physics only)			
	Emission and absorption of infrared radiation (Physics only)			
	Perfect black bodies and radiation (Physics only)			
Magnetism and Electromagnetism				
	Poles of a magnet and magnetic fields			
	Electromagnetism			
	Fleming's left-hand rule			
	Electric motors (HT)			
	Loudspeakers (Physics only)			
	Induced potential (Physics only)			
	Uses of the generator effect (Physics only)			
	Microphones (Physics only)			
	Transformers (Physics only)			
Space physics				
	Our solar system (Physics only)			
	The life cycle of stars (Physics only)			
	Orbital motion, natural and artificial satellites (Physics only)			
	Red-shift (Physics only)			

GCSE Separate Science: Higher

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Seneca Website	**Flash Cards: Question on the front, answer on the back to test yourself**	**AO1 questions (from your teacher)**

HIGHER – SEPARATE SCIENCES

Biology Paper 1	1hr 45	100 marks	50% of B

Cell Biology		
	Eukaryotes: Animal and plant cells	
	Prokaryotes: Bacterial cells	
	Specialisation and differentiation of animal and plant cells	
	Microscopes	
	RP – Using a light microscope	
	Culturing microorganisms	
	Cell division	
	Stem cells	
	Diffusion	
	Osmosis	
	RP - Osmosis	
	Active transport	
Organisation		
	Cells, tissues and organs	
	The digestive system	
	RP – Food tests	
	The heart and blood vessels	
	Blood	
	Heart diseases and health issues	
	Non-communicable diseases and causes	
	Cancer	
	Plant tissues and organs	
Infection and response		
	Communicable diseases	
	Viral, bacterial, fungal and protist diseases	
	Human defences	
	Vaccinations	
	Antibiotics and pain killers	
	Discover and development of drugs	
	Production and uses of monoclonal antibodies (Bio only)	
	Plant defence responses	
Bioenergetics		
	Photosynthesis	
	Rate of photosynthesis	
	Uses of glucose from photosynthesis	
	Aerobic and anaerobic respiration	
	Responses to exercise	
	Metabolism	

Chemistry Paper 1	1hr 45	100 marks	50% of C
Atomic Structure and the Periodic Table			
	Atoms, elements and compounds		
	Mixtures		
	Developing the model of the atom		
	Relative charges of sub-atomic particles		
	Size and mass of atoms		
	Relative atomic mass		
	Electronic structure		
	The periodic table		
	The development of the periodic table		
	Metals and non-metals		
	Properties of group 1, 7 and 0		
	Transition metals properties (Chem only)		
	Transition comparison with group 1 metals (Chem only)		
Bonding, structure and property of matter			
	Chemical bonds		
	Ionic bonding and ionic compounds		
	Covalent bonding		
	Giant covalent structures (including diamond, graphite, graphene and fullerenes)		
	Nanoparticles (size, properties and uses) (Chem only)		
	Metallic bonding		
	States of matter and state symbols		
	Properties of small molecules		
	Polymers		
	Properties of metals and alloys		
Quantitative chemistry			
	Conservation of mass		
	Relative formula mass		
	Mass changes during a reaction		
	Chemical measurements		
	Calculating moles and moles in equations (HT)		
	Amounts of substances in equations (HT)		
	Limiting reactants (HT)		
	Concentrations of solutions		
	Percentage yield (Chem only)		
	Atom economy (Chem only)		
	Using concentrations of solution (Chem only)		
	Amount of substances in relation to volumes of gases (Chem only)		
Chemical Changes			
	Metal oxides		
	The reactivity series		
	Extraction of metals		
	Oxidation and reduction (electrons) (HT)		
	Reactions of acids with metals		
	Neutralisation of acids and salt production		
	RP – making a salt from acid and insoluble base		
	Soluble salts		

	Titrations (Chem only)	
	RP – determine reacting volumes of acids & alkalis by titration	
	Strong and weak acids (HT)	
	Electrolysis (ionic compounds, extraction of metals, aqueous solutions)	
	Electrolysis: half equations at electrodes (HT)	
Energy Changes		
	Energy transfers in endothermic and exothermic reactions	
	Reaction profiles	
	Energy changes of reactions (HT)	
	RP – Investigating temperature changes in reactions	
	Chemical cells and batteries (Chem only)	
	Fuel cells (Chem only)	

Physics Paper 1	1hr 45	100 marks	50% of P

Energy		
	Energy stores and systems	
	Changes in energy (including in systems)	
	Power	
	Energy transfers in a system	
	RP – materials as thermal insulators	
	Efficiency	
	National and global energy resources	

Electricity		
	Circuit diagrams	
	Electrical charge and current	
	Current resistant and potential difference	
	Resistors	
	Series and parallel circuits	
	Direct and alternating potential difference	
	Mains electricity	
	Power ($P = V \times I$; $P = I^2 \times R$)	
	Energy transfers in everyday appliances	
	The national grid	
	Static charge (Physics only)	
	Electric fields (Physics only)	

Particle Model of Matter		
	Density of materials	
	RP – measuring the density of regular and irregular objects	
	Changes of state	
	Internal energy	
	Temperature changes in a system and specific heat capacity	
	Changes of heat and specific latent heat	
	Particle motion in gases	
	Pressure in gases (Physics only)	
	Increasing the pressure of a gas (Physics only)	

Atomic Structure		
	The structure of an atom	
	Mass number, atomic number and isotopes	
	The development of the atomic model (also in chemistry)	
	Radioactive decay and nuclear radiation	
	Nuclear equations	
	Half-lives and random nature of decay	
	Radioactive contamination	
	Background radiation (Physics only)	
	Different half-lives of radioactive isotopes (Physics only)	
	Uses of nuclear radiation (Physics only)	
	Nuclear fission (Physics only)	
	Nuclear fusion (Physics only)	

Biology Paper 2		1hr 45	100 marks	50% of B
Homeostasis and response				
	Homeostasis			
	The nervous system			
	The brain (Bio only)			
	The eye (Bio only)			
	Control of body temperature			
	Human endocrine system			
	Controlling blood glucose concentration			
	Maintaining water and nitrogen balance (Bio only)			
	Hormones and human reproduction			
	Contraception			
	Infertility and treatment			
	Negative feedback (HT)			
	Plant hormone control and coordination (Bio only)			
	RP - Effect of light on newly germinating seeds (Bio only)			
	Uses of plant hormones (Bio only)			
Inheritance				
	Sexual and asexual reproduction			
	Advantages & disadvantages of sexual & asexual reproduction (Bio only)			
	Meiosis			
	DNA and the genome			
	The structure of DNA (Bio only)			
	Genetic inheritance			
	Inherited disorders			
	Sex determination			
Variation and Evolution				
	Variation			
	Evolution			
	Selective breeding			
	Genetic engineering			
	Cloning (Bio only)			
	Theory of evolution (Bio only)			
	Speciation (Bio only)			
	Understanding of genetics (Bio only)			
	Evidence for evolution			
	Fossils			
	Extinction			
	Resistant bacteria			
	Classification of living organisms			
Ecology				
	Communities			
	Abiotic and biotic factors			
	Adaptations			
	Levels of organisation			
	RP – Sampling techniques to measure population sizes			
	Cycling of materials			
	Decomposition (Bio only)			
	Impact of environmental change (Bio only)			
	Biodiversity			
	Waste management			
	Land use			
	Deforestation			

	Global warming	
	Maintaining biodiversity	
	Trophic levels (Bio only)	
	Pyramids of biomass (Bio only)	
	Transfer or biomass (Bio only)	
	Factors affecting food security (Bio only)	
	Farming techniques (Bio only)	
	Sustainable fisheries (Bio only)	
	Role of biotechnology (Bio only)	

Chemistry Paper 2		1hr 45	100 marks	50% of C
The Rate of Chemical Change				
	Calculating rates of reactions			
	Factors affecting rates of reactions (including catalysts)			
	RP – Rates of chemical reactions			
	Collision theory and activation energy			
	Reversible reaction and energy changes			
	Equilibrium			
	Changing conditions equilibrium (temp,pressure,conc) (HT)			
Organic Chemistry				
	Crude oil, hydrocarbons and alkanes			
	Fractional distillation and petrochemicals			
	Properties of hydrocarbons			
	Cracking and alkenes			
	Structure and formulae of alkenes (Chem only)			
	Reaction of alkenes (Chem only)			
	Alcohols (Chem only)			
	Carboxylic acids (Chem only)			
	Addition polymers (Chem only)			
	Condensation polymerisation (Chem only)			
	Amino acids (Chem only)			
	DNA and other natural polymers (Chem only)			
Chemical Analysis				
	Pure substances			
	Formulations			
	Chromatography			
	Test for hydrogen, oxygen, carbon dioxide and chlorine			
	Flame tests (Chem only)			
	Metal hydroxides, Carbonates & Sulphates (Chem only			
	RP – Chemical analysis tests			
	Instrumental methods (Chem only)			
	Flame emission spectroscopy (Chem only)			
Chemistry of the atmosphere				
	Proportion of gases in the atmosphere			
	Earth's early atmosphere and changes in O_2 and CO_2			
	Greenhouse gases and the effects of human activity			
	Global climate change			
	The carbon footprint			
	Atmospheric pollutants from fuels & their effects			
Using Resources				
	Earth's resources and sustainable development			
	Potable water			
	Waste water treatment			
	Alternative methods of extracting metals (HT)			
	Life cycle assessment			
	Ways of reducing the use of resources			
	Corrosion and it's prevention (Chem only)			
	Alloys as useful materials (Chem only)			
	Ceramics, polymers and composites (Chem only)			
	The Haber process (Chem only)			
	Production and uses of NPK fertilisers (Chem only)			

Physics Paper 2		1hr 45	100 marks	50% of P
Forces				
	Scalar and vector quantities			
	Contact and non-contact forces			
	Gravity			
	Resultant forces			
	Work done and energy transfers			
	Forces and elasticity			
	Moments, levers and gears (Physics only)			
	Pressure in fluids (Physics only)			
	Atmospheric pressure (Physics only)			
	Distance and displacement			
	Speed and velocity			
	Distance-time relationship			
	Acceleration			
	Newton's 3 laws of motion			
	Stopping distance			
	Reaction time			
	Factors affecting braking distance			
	Momentum (HT)			
	Conservation of momentum (HT)			
	Changes in momentum (Physics only)			
Waves				
	Transverse and longitudinal waves			
	Properties of waves			
	RP – waves investigation (ripple tank and string)			
	Reflection of waves (Physics only)			
	RP – reflection & refraction of light			
	Sound waves (Physics only)			
	Waves for detection and exploration (Physics only)			
	Electromagnetic waves (properties and uses)			
	Lenses (Physics only)			
	Visible light (Physics only)			
	Emission and absorption of infrared radiation (Physics only)			
	Perfect black bodies and radiation (Physics only)			
Magnetism and Electromagnetism				
	Poles of a magnet and magnetic fields			
	Electromagnetism			
	Fleming's left-hand rule			
	Electric motors (HT)			
	Loudspeakers (Physics only)			
	Induced potential (Physics only)			
	Uses of the generator effect (Physics only)			
	Microphones (Physics only)			
	Transformers (Physics only)			
Space physics				
	Our solar system (Physics only)			
	The life cycle of stars (Physics only)			
	Orbital motion, natural and artificial satellites (Physics only)			
	Red-shift (Physics only)			