



Dear parents / carers,

To help Y11 students reach their full potential, we have invested in a 20-week, on-line revision programme for maths, English and science. The company delivering this is called, 'Impress' and their programme is aimed at guiding students to improve their final grade by knowing what is needed, 'to impress the examiner'.

All Y11 students will be given access to this programme but *it will be compulsory* for some classes or individual students, based on how the content fits in with where the students are in their learning. Where this programme *is* compulsory, it will take the place of homework for those students in that subject.

Even if your child's class teacher does not set this revision as compulsory work, **we strongly advise** all students to take advantage of this programme as it will provide them with a highly effective, structured revision plan for maths, English and science. This will save them from having to devise their own revision plan and schedule, and they will learn much more than if they were to just revise in the normal way. This is because the lessons have been created by former principle examiners, published educational authors, and lead practitioners, so the content is highly applicable. Much of the learning in these revision sessions, is also centred around helping students to understand the content and skills that students *typically get wrong* in the final exams.

Timeline:

1. 17/1/22 – students will be given their individual login and password. ALL students need to sign in by the end of Tuesday, 18th January, to check they can access the platform.
2. By the end of Friday, 21st January, ALL students must complete the short, online multiple-choice quiz for each subject. This will help the teachers know what needs to be covered in the sessions.
3. The sessions start on Monday 24th January. The timetable for the sessions is available on the school's website, along with a letter from the company, which gives more details about this revision programme.

If you require any further information, please contact your child's subject teacher in the first instance.

Kind regards,

Mrs Brett
Deputy Headteacher

Dear Parent/Carer,

Impress Online: An Introduction

We are Impress Education and we are excited to be partnering with your child's school in the new year to deliver our innovative, online learning programmes. We are a business started by educators which specialises in offering targeted intervention delivered by outstanding practitioners and examiners.

Over the last 20 months the landscape of teaching has changed dramatically. Students have been forced by circumstances beyond their control to adopt online learning. Schools have been forced to ensure their teaching provision can translate seamlessly to an online offer. Thankfully, Impress since its inception had planned for an online digital suite of products and services. We were therefore uniquely placed to deliver this programme of courses for both Key Stage 3 and 4 and are delighted that your child/ren will have the opportunity to benefit from them.

The English Language, Maths and Science courses for Key stage 4 have been created by published educational authors, Former Principal Examiners, Senior Examiners and Lead Practitioners. They were given a somewhat innovative brief which centred on two key elements. Firstly, it was vital for the courses to be truly differentiated to allow access and significant stretch and challenge for all learners. Impress has succeeded in creating lessons, accompanying assessments and resources for three separate groups of learners each week and your child's school will assign their students to their ability group within the next few weeks. Secondly, we were keen to leverage the expertise of the Examiners in our team to ensure that each lesson truly demystified misunderstandings and misconceptions held by students and provided crystal clarity in regards to what truly impresses the Examiner.

Sessions will be scheduled during weekdays in the late afternoons and evenings for the vast majority of students. However, your child's school will decide which students to invite to remain in school so that they can benefit from use of the school's IT facilities and a teacher's presence to assist if required. You will be issued with a timetable by your child's school in due course.

Your child can expect to engage with a highly intuitive Impress platform which is simple and clear for each student to access and engage with. Each lesson will be 90 minutes in duration and will take place in a webinar format. No child will see or hear other pupils during the course of the sessions. The teacher will share their screen and invite students to take part in three engagement activity polls during the course of the lesson. These engagement activities are both an assessment for learning activity and a means of measuring engagement and focus. There will be an expectation for your child to take part in assessment activities on the Impress platform outside of lessons and these activities will both enrich their learning experience and signal to our teachers the level of understanding of your child every 5 weeks. All of the data collected by our Impress assessment team will



be shared with the school for their teachers to act on any glaring mistakes, miscomprehensions or simply gaps in knowledge and understanding. Please follow the link below to find out more about our KS4 online programme:

<https://impress.education/key-stage-4-online/>. You will also find further information on the experts who are planning and teaching our sessions on our website.

Impress was founded to support children in schools. We will therefore be monitoring the wellbeing of your child throughout this process with a number of short questionnaires. This data will be shared with schools for them to identify if any child needs extra support or care. We believe this package of exemplary intervention will be both groundbreaking and incredibly effective in helping students face their exams less fearful and more in control of their success. Our face to face masterclasses have been extraordinarily successful and a perusal of the testimonials on our website <https://impress.education/case-studies/> will confirm this. A key part of that success stemmed from the founding premise that brilliant teachers, who were also Senior Examiners, could highlight to students where they were most likely to make significant marginal gains. Our online programmes are built on that same premise and we look forward to your children relishing the empowerment that comes from experiencing those cumulative gains and stepping into their exams just a little bit more confident and assured.

We hope that you have a peaceful festive season and we look forward to working with your child in the New Year.

The Impress Team

Frequently Asked Questions for Parents

We set out below some common FAQs regarding our online course content:

How do we monitor attendance?

We will be able to monitor and report attendance using our software via entry and exit polls that will generate weekly reports on attendance that can then be fed back to a designated contact at individual schools, using the student identifier.

How do you monitor engagement?

During both KS3 and KS4 sessions, the teachers will use tools called polls, which allow our teachers to get quick, real time knowledge of collective student understanding. These polls are also data tracked and allow us to report back to schools using a student's unique identifier, as to their engagement and participation in those polls throughout the session. This feedback is collated and monitored by us internally. We will provide a feedback report to schools weekly, as well as at the end of each course

How do Impress ensure student satisfaction?

Feedback is critical to us and we use feedback to ensure our service delivery is exceptional at all times. We will provide a way for each student to provide feedback using questionnaires to gather essential feedback on process, perceived quality, experience and levels of enjoyment, from an individual student's perspective. This feedback is collated and monitored by us internally. We will provide a feedback report to schools weekly, as well as at the end of each course. We will also use questionnaires to gather essential feedback on process experience and levels of enjoyment, from an individual student's perspective.

How do you assess students and their progress?

Assessments include pre-unit and post-unit assessment tests, specifically designed to monitor progress and identify any gaps in learning. This data can be analysed by the school, to improve the precision of their in school intervention

What if a student misses a session?

We will provide all sessions in video format for offline use so students never miss out on any course content. This library of videos can be accessed throughout the session period on an unlimited basis. Students

will be signposted to the video library when they access the online platform.

Do you provide printables or worksheets?

All resources will be shared by the teacher within the lessons, within their powerpoints. There is no need for schools or students to print off worksheets.

Do students require any resources?

Other than access to wifi and a device, they will require a lined and squared notebook. It may be useful for students to have access to headphones, if they do not have a quiet place to study.

What devices can students use to access the online courses?

It is preferable for students to have access to a desktop computer, laptop or chrome book to access the online course. However, students will be able to access the course through Tablets, iPads and phones.

How do we reward student performance?

Schools will be free to reward students in line with their own internal reward systems. We hope that the motivation of achieving the best possible grades at GCSE, is reward enough.

How do you cater for SEN needs?

Lessons have been differentiated and in the case of the KS4 programme we have created 3 different lessons in order to ensure our practitioners have created planned intervention to meet all students' needs. We will ensure that we have activities appropriate for all students and their individual needs.

The Key Stage 4 Online Timetable							
Key	Group (1) Grade 2-4		Group (2) Grade 5-6			Group (3) Grade 7-9	
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 1 24th January – 30th January							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00			Groupings:	Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 2 – 31st January – 6th February							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 3 – 7th February – 13th February							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Half Term - Week 4 – 14th February – 20th February							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		

Week 5 21st February – 27th February							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 6 – 28th February 6th March							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 7 – 7th March – 13th March							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 8 14th March – 20th March							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		

Week 9 21st March – 27th March							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 10 28th March – 3rd April							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 11 – 4th April – 10th April							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 12 – 11th April – 17th April (Easter Sunday)							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		

Week 13 – 18th April – 24th April							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 14 – 25th April – 1st May							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 15 2nd May – 8th May							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 16 – 9th May – 15th May							
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		

Week 17 – 16th May – 22nd May							
Week 17 – Exam Date	16 th May	17 th May Biology	18 th May English P1	19 th	20 th Maths (Non-Calculator)	21 st	22 nd
KS4 Online Session	Biology 15:30-17:00	English P1 15:30-17:00		Maths (non Calc) 15:30-17:00			
	17:15 – 18:45	17:15 – 18:45		17:15 – 18:45			
	19:00-20:30	19:00-20:30		19:00-20:30			
Week 18 – 23rd May – 29th May							
Week 18 – Exam Date	23 rd English (1) 15:30–17:00	24 th	25 th Maths (1) 15:30–17:00	Chemistry 15:30-17:00	27 th Chemistry	28 th	29 th Maths (2) 14:00–15:30
KS4 Online Session		Maths (3) 17:15-18:45		17:15 – 18:45	English (3) 17:15-18:45		
				19:00-20:30			
Week 19 Half Term 30th May 5th May							
Week 19 – Exam Date	30 th	31 st	1 st June	2 nd	3 rd	4 th	5 th
15:30 – 17:00	English (1) 15:30–17:00	Science (1) 15:30-17:00	Maths (1) 15:30–17:00				Maths (2) 14:00–15:30
17:15 – 18:45		Maths (3) 17:15-18:45		English (2) 17:15-18:45	English (3) 17:15-18:45		
19:00 – 20:30			Science (2) 19:00-20:30		Science (3) 19:00-20:30		
Week 20 6th June – 12th June							
Week 20 – Exam Date	6 th	7 th Maths (Calculator)	8 th	9 th Physics	10 th English Lang P2	11 th	12 th
KS 4 Online Session	Maths (Calc) 15:30-17:00		Physics 15:30-17:00	English P2 15:30-17:00			Maths (Calc) 15:30-17:00
	17:15 – 18:45		17:15 – 18:45	17:15 – 18:45			17:15 – 18:45
	19:00-20:30		19:00-20:30	19:00-20:30			19:00-20:30

Week 21 13 th June – 19 th June							
Week 21 Exam Date	13 th Maths Paper 3	14 th	15 th Biology Paper 2	16 th	17 th	18 th	19 th
KS 4 Online Session		15:30 – 17:00					15:30 – 17:00
		17:15 – 18:45					17:15 – 18:45
		19:00 – 20:30					19:00 – 20:30
Week 22 20 th June – 23 rd June							
Week 22 Exam Date	20 th Chemistry Paper 2	21 st	22 nd	23 rd Physics Paper 2			
KS 4 Online Session			15:30 – 17:00				
			17:15 – 18:45				
			19:00 – 20:30				

Online GCSE Courses

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GCSE Maths Course

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Course Overview

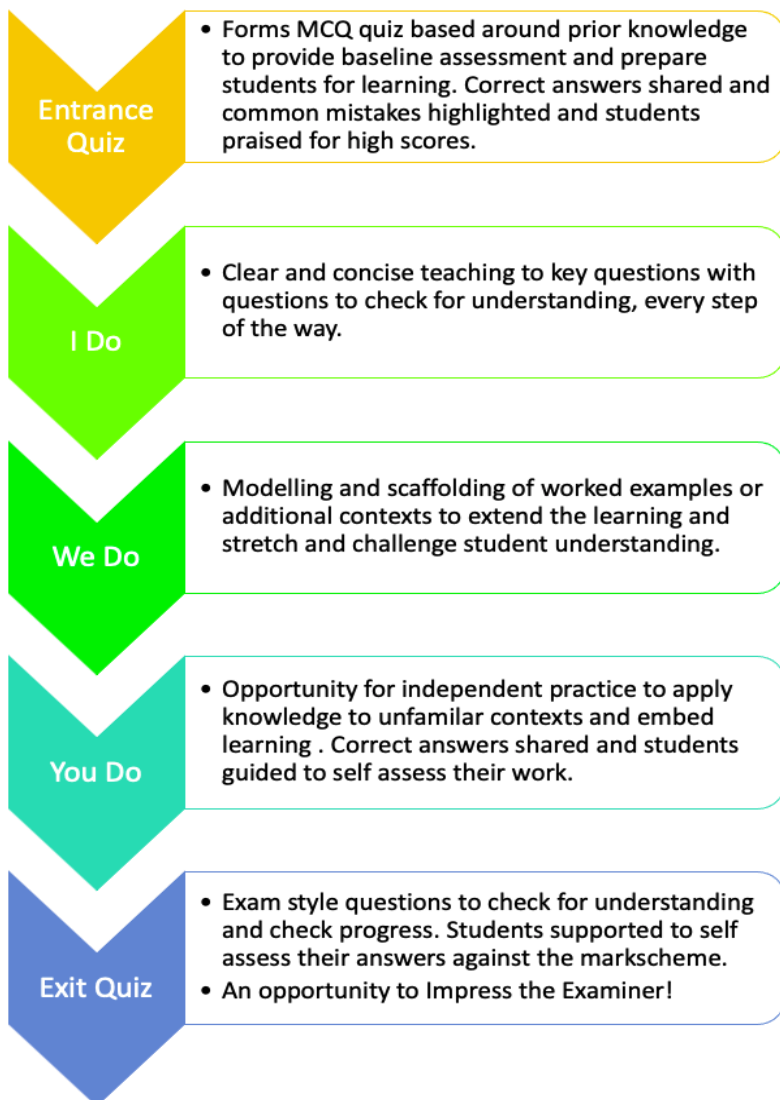
The GCSE Mathematics programme provides a comprehensive programme that aims to prepare students for the high frequency questions which students traditionally struggle with. The programme will build upon what students will have studied already but will further target the key content with a particular focus on how to deal with the topic in an exam situation.

The core concepts planned within this 20 week programme ensure a successful preparation for the GCSE exam and provide students with a rich learning experience. The programme uses mastery learning practices along with targeted exam technique to give students the skills they need to better prepare for the exam.

Lesson Structure

1. MCQ test to check the prior knowledge of the concepts to be studied
2. Teacher Models to explain the fluency of the topic and incorporates variation and representation
3. Students will then complete a fluency task
4. Students self mark
5. 2-3 Teacher Models to explain the multi step or problem solving tasks
6. Students will then complete as multi step problem task
7. Students self mark
8. Lesson Ends with 5 MCQ tests and a reasoning question

There will sometimes be a deviation from the above model depending on the topic but there will always be steps 1-4 and 8.



Assessment

Baseline

- Prior to starting the GCSE Maths programme students will complete a baseline assessment that covers the key content of the next 5 weeks material.
- The test is multiple choice
- The test will assess the small steps in the content testing students ability to provide sufficient working
- The test will be marked instantly and feedback given to pupils and also centres.
- The purpose of the test is to check exactly what students do and do not know prior to starting the 5 week block. It will also help schools identify key areas that are applicable to all students.
- A baseline assessment will be completed every 5 weeks.

In lesson

At the start of every lesson there will be a multiple-choice test with 5 questions checking the baseline knowledge of that particular concept the students will be studying that day. At the end of every lesson there will be a multiple-choice test with 5 questions checking the progress made by students in each lesson. The end of lesson test will be compared with the start of lesson test and progress will be fed-back to schools.



End of Programme

The end of programme assessment will be the GCSE examination that students sit

Programme of Study

Week	Lesson Title	Initial Assessment	Learning outcomes	Exit Assessment
0	-	Baseline assessment	-	-
1	Number 1	MCQ test 1 Types of number x 5	<p><i>Foundation</i></p> <p>Recognise Types of Number, Apply 4 operations, Use Index notation, Brackets, powers and hierarchy</p> <p><i>Cross-over</i></p> <p>Understand the equivalence of FDP, Order values and use equals and inequality signs, Simplify and Collect Like terms</p> <p><i>Higher</i></p> <p>Indices and Roots including Surds</p>	MCQ x5 and reasoning task

2	Primes, fractions and linear equations	MCQ test 1 x5	<p><i>Foundation</i> Prime Factors, HCF and LCM, 4 operations to fractions and decimals, A calculation to find the answer to another</p> <p><i>Cross-over</i> FDP of quantities, Solve simple linear equations, substitute formulae and expressions</p> <p><i>Higher</i> Derive an equation and Simultaneous Equations</p>	MCQ x5 and reasoning task
3	Probability	MCQ test 1 x5	<p><i>Foundation</i> Use probability scale 0-1, Frequency Outcomes, Outcomes of future events</p> <p><i>Cross-over</i> Frequency Outcomes, Outcomes of future events, Systematic Listing Methods</p> <p><i>Higher</i> Tree Diagrams of dependent and Independent events</p>	MCQ x5 and reasoning task

4	Ratio problems	MCQ test 1 x5	<p><i>Foundation</i> Use Ratio Notation, A quantity in two or more parts, Express division of a quantity into ratio</p> <p><i>Cross-over</i> Calculate an unknown part, Relate ratio to fractions</p> <p><i>Higher</i> 3 D shape problems including MDV and FPA</p>	MCQ x5 and reasoning task
5	Units and measures	MCQ test 1 x5	<p><i>Foundation</i> Use standard units, Compound measures, Conversion</p> <p><i>Cross-over</i> Use standard units, Compound measures, Conversion</p> <p><i>Higher</i> Compound measures and Bearings</p>	MCQ x5 and reasoning task
6	Rounding and estimating	MCQ test 1 x5	<p><i>Foundation</i> Rounding, Estimate answers</p>	MCQ x5 and reasoning task

			<p><i>Cross-over</i> Rounding, Estimate answers</p> <p><i>Higher</i> Limits of accuracy and Bounds</p>	
7	Shape1 - representations of shapes and Area	MCQ test 1 x5	<p><i>Foundation</i> Plans and elevations, Perimeter of 2D shapes, Area of different shapes, Volume of Different shapes</p> <p><i>Cross-over</i> Circumference and area of a circle</p> <p><i>Higher</i> Circle Problems including Circle Theorems</p>	MCQ x5 and reasoning task
8	Shape 2 - Proportionality and scale factors	MCQ test 1 x5	<p><i>Foundation</i> Using scale factors, diagrams and maps, Use proportions as equality of ratios</p> <p><i>Cross-over</i> Use proportions as equality of ratios, Direct Proportion</p>	MCQ x5 and reasoning task

			<p><i>Higher</i> Proportion problems and Direct and Inverse Proportion</p>	
9	Expand Brackets	MCQ test 1 x5	<p><i>Foundation</i> Simplify expressions, Expand single brackets, Factorise simple expressions</p> <p><i>Cross-over</i> Factorise simple expressions, Expand binomials</p> <p><i>Higher</i> Expanding Trinomials and Proof</p>	MCQ x5 and reasoning task
10	Sequences and Functions	MCQ test 1 x5	<p><i>Foundation</i> Nth term of linear sequences, Generate a sequence</p> <p><i>Cross-over</i> Rearrange formulae for subject change</p> <p><i>Higher</i> Functions and iteration</p>	MCQ x5 and reasoning task

11	Percentages	MCQ test 1 x5	<p><i>Foundation</i> Compare quantities as a percentage, A quantity as a percentage of another, Percentages greater than 100, Percentage increase and decrease</p> <p><i>Cross-over</i> Percentage to decimal to fraction, Simple compound percentage increase</p> <p><i>Higher</i> Percentage change problems involving reverse percentages</p>	MCQ x5 and reasoning task
12	Angles	MCQ test 1 x5	<p><i>Foundation</i> Sum of angles in triangles, Alternate and corresponding angles, Apply various properties of angles</p> <p><i>Cross-over</i> Sum of angles in triangles, Alternate and corresponding angles, Apply various properties of angles</p> <p><i>Higher</i></p>	MCQ x5 and reasoning task

			Pythagoras, Trigonometry and non-right angles triangles	
13	Charts	MCQ test 1 x5	<p><i>Foundation</i> Use charts and diagrams, Coordinates in the first quadrant,</p> <p><i>Cross-over</i> Use and interpret Scatter Graphs, Recognise and describe correlation</p> <p><i>Higher</i> Histograms and interpreting Data</p>	MCQ x5 and reasoning task
14	Graphs	MCQ test 1 x5	<p><i>Foundation</i> Coordinates in four quadrants, Plot equations to straight line graphs and quadratics</p> <p><i>Cross-over</i> Interpret gradient and intercepts, Graphs in real context, Approximate solutions using a graph, Turning points</p> <p><i>Higher</i></p>	MCQ x5 and reasoning task

			Derive a formula of a graph, real-life graphs and equation of circles	
15	Averages Solve quadratics including with completing the square	MCQ test 1 x5	<p><i>Foundation</i> Analyse distributions of data sets, Median, mean, mode and range</p> <p><i>Cross-over</i> Measures for continuous data</p> <p><i>Higher</i> Solve quadratic equations; factorising, formula and completing the square</p>	MCQ x5 and reasoning task
16	Shape 3 - transformations	MCQ test 1 x5	<p><i>Foundation</i> Rotate, reflect, translate and enlarge, Describe translations as 2D vectors, extend to vector calculations</p> <p><i>Cross-over</i> Identify congruent and similar shapes, Geometrical problems on axes</p>	MCQ x5 and reasoning task

			<i>Higher</i> Transformations with focus on vectors including transformations of graphs	
17-20	Exam skills	MCQ test 1 x5	Exam techniques for all!!! Mixture of Goal free problems, calculator use and walking talking Marks!	MCQ x5 and reasoning task

GCSE Science Course

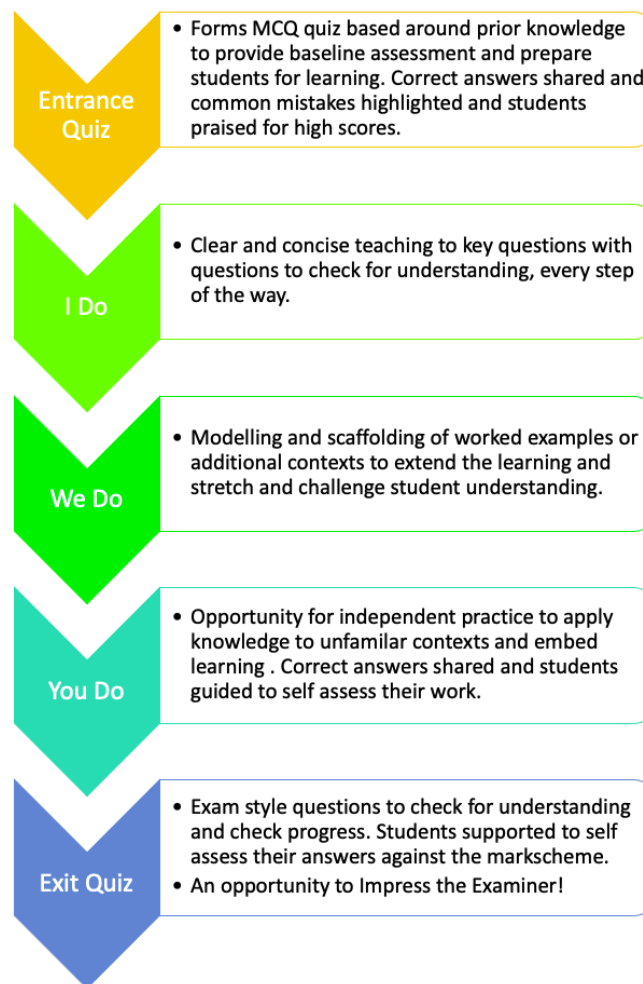
Impress Online

Course Overview

The GCSE science programme is focused on providing students with expert teaching on high leverage topics across biology, chemistry, and physics. Challenging concepts will be broken down into digestible, understandable knowledge which will form the foundation of excellent scientific understanding and ultimately, exam success. The programme will focus on key paper 1 content that students may have initially struggled to learn due to the many challenges of the pandemic and will explicitly show students how these key lessons fit into the wider GCSE content.

Lessons will follow a direct instruction model. Each lesson will begin with an opportunity for retrieval practice of substantive knowledge. This will be followed by a direct instruction sequence preparing students to tackle past paper questions at the end of each lesson. Lessons will provide additional interesting contexts that will leave students exceptionally well prepared for their final exams and with an enhanced curiosity in all three sciences and disciplinary knowledge that binds them.

Lesson Overview



Assessment

Baseline Assessment:

- Prior to starting the GCSE science programme students will complete a baseline assessment that covers the key content of the upcoming science.
- The test is multiple choice.
- The test will assess students' recall of the core questions of each science.
- The test will be marked instantly, and feedback given to pupils and centres.
- The purpose of the test is to check exactly what students do and do not know prior to starting each science.
- A baseline assessment will be completed again before the beginning of each of the other sciences.

Assessment

In lesson: At the start of every lesson there will be a multiple-choice test checking the baseline knowledge of the concept the students will be studying that day. As the course goes on there will be questions from previous lessons to ensure retention of knowledge. At the end of every lesson there will be a multiple-choice test checking the progress made by students in each lesson. The end-of-lesson test will be compared with the start-of-lesson test and progress will be feedback to schools.

End of Programme Assessment: The end of programme assessment will be the GCSE examination that students sit

Programme Overview:

Weeks 1 – 4 – Biology

Weeks 5 – 10 – Chemistry

Weeks 11 – 14 - Physics

Week 15 Day before Biology Paper 1

Week 16 Day before Chemistry Paper 1

Week 17 Day before Physics Paper 1

Week 18 Day before Biology Paper 2

Week 19 Day before Chemistry Paper 1

Week 20 Day before Physics Paper 1

Week	Initial Assessment	Lesson Title	Learning outcomes	Exit Assessment
1	Biology MCQ test 1	<p>Cells</p> <p>Topics Covered:</p> <ul style="list-style-type: none"> ● cell structure/function ● prokaryotic/eukaryotic cells ● specialised cells ● cell transport 	<p>3-5</p> <ul style="list-style-type: none"> ● Be able to label animal and plant cells ● Recall the functions of organelles ● Define cells as eukaryotic and prokaryotic ● Define the term diffusion and give examples of where it occurs ● Define osmosis ● Define active transport ● Describe the cell cycle and mitosis at a basic level, and describe the cells formed by mitosis <p>4-6</p> <ul style="list-style-type: none"> ● Be able to label and describe the functions of all organelles ● Compare and contrast eukaryotic and prokaryotic cells ● To describe the process of diffusion, give examples of where it occurs, and how some cells/ surfaces are adapted for the process ● To describe the process of osmosis and explain the effects of osmosis on potato tissue ● To compare the process of active transport with the process of diffusion ● To explain how cells are produced by the cell cycle, and the features of the cells produced by the process. <p>5-9</p> <ul style="list-style-type: none"> ● To describe the structure of eukaryotic and prokaryotic cells, including the functions of their organelles ● To explain how the structures of some specialised cells are adapted for their function ● To describe the processes of diffusion, active transport and osmosis; including examples 	Cells MCQ test

			<ul style="list-style-type: none"> • To explain how root hair cells are adapted for the absorption of water and mineral ions • To describe how osmosis can be investigated in potato tissue, and interpret the results of such an investigation • To describe the cell cycle in detail, and explain the role of cell differentiation in producing a range of cell types 	
2	Biology MCQ test 2	<p>Animals</p> <p>Topics Covered:</p> <ul style="list-style-type: none"> • Digestion • Enzymes • Healthy lifestyle • Homeostasis 	<p>3-5</p> <ul style="list-style-type: none"> • Explain what an enzyme is and how one works to break down a substrate e.g. amylase breaking down starch by lock and key • Describe the roles of amylase, protease and lipase in the digestion of food • Explain how enzymes are able to be specific • Identify factors that affect how well an enzyme functions • Identify organs in the digestive system, and explain why nutrients must be digested before absorption • To describe the roles of some organs in the digestion and absorption process • Define the term communicable disease • Define the term pathogen • Describe the features of five communicable diseases; gonorrhoea, salmonella, HIV, measles and Rose black spot fungus • Describe some methods by which disease can be transferred • Explain the roles of barrier defences and white blood cells in the initial immune response • Explain how white blood cells can provide long lasting immunity • Explain how vaccination works to give an individual immunity • Describe the pros and cons of using antibiotics • Define the term “non-communicable” • Give examples of non-communicable disease • Describe the process of CVD occurring in an artery 	Animals MCQ test

			<ul style="list-style-type: none"> • Identify risk factors associated with CVD • Describe trends and patterns from data on risk • Describe how stents and statins can help to treat/ reduce risk of CHD • Describe differences between hormonal and nervous system control of the body <p>4-6</p> <ul style="list-style-type: none"> • Describe what an enzyme is, how they break down substrates and how they are specific • To describe the roles of some digestive enzymes, and where they are produced • Describe the effects of pH and temperature on enzyme activity, and explain the process of denaturing • Interpret data from an investigation into the effect of pH on amylase activity • Identify and describe the role of all organs in the digestive system • Explain how the liver helps to facilitate rapid lipid digestion • Explain the process of absorption that occurs in the small intestine, and why nutrients must be digested first • Define the terms communicable disease and pathogen • Compare different examples of communicable disease; their symptoms, transmission methods and preventions • Explain how barriers and white blood cells can protect against infection, and how white blood cells can provide long lasting immunity • Explain how vaccinations can benefit an individual, applying understanding to graphical representations of initial and secondary infection • Explain the concept of “herd immunity” 	
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			<ul style="list-style-type: none"> • Describe the pros and cons of using antibiotics • Define the term “non-communicable” and give examples of non-communicable disease • Describe the process of CVD occurring in an artery • Identify risk factors associated with CVD • Describe and explain trends and patterns from data on risk • Describe how stents and statins can help to treat/ reduce risk of CHD • Describe an investigation to assess the effectiveness of statins • Understand what a test group and a control group are • Explain hormonal and nervous system control of the body, using relevant examples <p>5-9</p> <ul style="list-style-type: none"> • Explain how enzymes function, and how they achieve a level of specificity • Describe and explain the effects of factors on enzyme activity, and be able to apply this to practical contexts • Be able to explain what “denaturing” involves in detail, and be able to link this to the importance of bile in the digestion of lipids • Be able to compare the roles of some key organs in the digestive system, including their roles in facilitating the rapid digestion and absorption of all key nutrients • Apply an understanding of digestion and absorption to practical models of the process • Explain how the small intestine is adapted for the absorption of nutrients into the blood • Explain the meanings of the term “communicable disease” and “pathogen”, describing the features of specific examples, and drawing comparisons between them 	
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			<ul style="list-style-type: none"> • Explain the role of barriers and white blood cells in protecting against infection, and providing long lasting immunity • Explain the benefits of vaccination to the individual AND the population as a whole; analysing graphical data and linking understanding of herd immunity to explain reduced infection rates • Evaluate the use of antibiotics to treat infections • Explain how bacteria can become resistant to antibiotics • Analyse and draw conclusions on antibiotic effectiveness by observing and measuring “zone of inhibition” • Define the term “non-communicable” and give examples of non-communicable disease • Describe the process of CVD occurring in an artery • Identify risk factors associated with CVD, describing trends and patterns from data on risk • Evaluate the effectiveness of stents and statins in treating and preventing CHD • Evaluate the validity of statements associated with trends in data • Plan investigations into the effectiveness of statins, including a discussion of control variables, validity and repeatability, blind double blind, sample size etc • Explain hormonal and nervous system control of the body with examples 	
3	Biology MCQ test 3	<p>Plants</p> <p>Topics covered:</p> <ul style="list-style-type: none"> • Topics included: 	<p>3-5</p> <ul style="list-style-type: none"> • To be able to label the parts of a root hair cell • Describe the osmosis and active transport that occurs in root hair cells • Describe the roles of xylem and phloem tissue • Identify similarities and differences between xylem and phloem 	Plants MCQ test

		<ul style="list-style-type: none"> • Plant cells • Respiration (aerobic/anaerobic/yeast) • Photosynthesis • Limiting factors 	<ul style="list-style-type: none"> • Identify layers of tissue in a leaf • Describe the function of each tissue found in the leaf • Describe the exchange of gases that occurs in the leaf • To be able to label the parts of a root hair cell • Describe the osmosis and active transport that occurs in root hair cells • Describe the roles of xylem and phloem tissue • Identify similarities and differences between xylem and phloem • Identify layers of tissue in a leaf • Describe the function of each tissue found in the leaf • Describe the exchange of gases that occurs in the leaf • Define the term respiration and explain its importance in living things • State the organelle in which respiration occurs • Describe the process of photosynthesis and be able to write the word equation • Explain what plants use the glucose from photosynthesis for • Identify some factors that affect the rate of photosynthesis, and describe their effect on photosynthesis • Describe where in the plant, and where in plant cells photosynthesis occurs • Identify the gas given out by pondweed when it photosynthesises <p>4-6</p> <ul style="list-style-type: none"> • To be able to label the parts of a root hair cell, and explain how it is adapted for its function • Compare how root hair cells absorb minerals and water • Compare the structures and functions of the xylem and phloem 	
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			<ul style="list-style-type: none"> • Explain the process of transpiration in detail • Identify tissues found in a leaf and explain how they assist the effective exchange of gases, and facilitate photosynthesis • Describe the exchange of gases that occurs in the leaf, explaining the role of guard cells and stomata in this process • To be able to label the parts of a root hair cell, and explain how it is adapted for its function • Compare how root hair cells absorb minerals and water • Compare the structures and functions of the xylem and phloem • Explain the process of transpiration in detail • Identify tissues found in a leaf and explain how they assist the effective exchange of gases, and facilitate photosynthesis • Describe the exchange of gases that occurs in the leaf, explaining the role of guard cells and stomata in this process <ul style="list-style-type: none"> • Define the term respiration and explain its importance in living things. • Describe the process of photosynthesis and explain its importance to plants • Represent photosynthesis with word and balanced symbol equations, identifying reactants and products • Describe and explain the effect of a range of factors on the rate of photosynthesis • Describe a method for investigating the effect of light intensity on rate of photosynthesis, and be able to describe and explain the results of the investigation • Identify variables to be controlled during the light intensity practical <p>5-9</p> <ul style="list-style-type: none"> • To be able to label the parts of a root hair cell, and explain how it is adapted for its function • Compare how root hair cells absorb minerals and water 	
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			<ul style="list-style-type: none"> • Compare the structures and functions of the xylem and phloem • Explain the process of transpiration in detail, and be able to describe the effect of a range of factors on transpiration rate • Apply an understanding of transpiration rate, to some practical representations/investigations • Identify tissues found in a leaf and explain how they assist the effective exchange of gases, and facilitate photosynthesis • To be able to label the parts of a root hair cell, and explain how it is adapted for its function • Compare how root hair cells absorb minerals and water • Compare the structures and functions of the xylem and phloem • Explain the process of transpiration in detail, and be able to describe the effect of a range of factors on transpiration rate • Apply an understanding of transpiration rate, to some practical representations/investigations • Identify tissues found in a leaf and explain how they assist the effective exchange of gases, and facilitate photosynthesis • Explain the process of respiration in detail, and compare the aerobic and anaerobic forms that can occur • Describe the anaerobic respiration that can occur in yeast and compare this to that which occurs in humans • Describe the process of photosynthesis and explain its importance to plants • Represent photosynthesis with word and balanced symbol equations, identifying reactants and products • Describe and explain the effect of a range of factors on the rate of photosynthesis, including an understanding of the term "limiting factor" 	
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			<ul style="list-style-type: none"> Describe a method for investigating the effect of light intensity on rate of photosynthesis, and be able to describe and explain the results of the investigation Identify variables to be controlled during the light intensity practical Make the link between selecting the correct equipment and the level of accuracy and precision achieved 	
4	Biology MCQ test 4	<p>Inheritance and Evolution</p> <p>Topics covered:</p> <ul style="list-style-type: none"> genetics (genes, alleles, punnett square diagrams & probability, human gene code), variation, evolution 	<p>3-5</p> <ul style="list-style-type: none"> Describe sexual reproduction in animals and plants Explain the number of chromosomes in the gametes during meiosis and fertilisation. Identify why humans selectively breed plants and animals. Define the term genetic engineering. Define the terms species and mutation Describe Darwin's theory of evolution by natural selection. Describe how fossils may be formed. Define the term extinction. <p>4-6</p> <ul style="list-style-type: none"> Explain why sexual reproduction produces variation in the offspring but asexual reproduction does not Describe the structure of chromosomes, DNA and genes. Define and use the terms: gametes, genotype, phenotype, dominant recessive, homozygous and heterozygous. Use genetic cross diagrams to explain inheritance and carriers. 	Inheritance and Evolution MCQ test

			<ul style="list-style-type: none"> • Explain the benefits and risks of selective breeding in plants and animals. • Explain how extinction may be caused. • Complete a Punnett square to show the outcomes of genetic crosses. <p>5-9</p> <ul style="list-style-type: none"> • Interpret the results of a genetic cross diagram and use direct proportion and simple ratios to express the outcomes. • Make informed judgements about the economic, social and ethical issues concerning embryo screening. • Evaluate the use of genetic engineering in medicine, e.g. in gene therapy and production of hormones and some vaccines. • Explain some of the evidence for evolution discovered by Darwin • To explain the importance of isolation in the process of speciation 	
5	Chemistry MCQ test 5	<p>Particle model (Chemistry & Physics)</p> <p>Topics covered:</p> <ul style="list-style-type: none"> • States of matter, • Specific Latent Heat 	<p>3-5</p> <ul style="list-style-type: none"> • Be able to identify representation of solids, liquids and gases from particle diagrams. • Draw particle diagrams for the three states of matter. • Be able to identify conversions between changes of state • State the definition of mixtures and to identify appropriate separation techniques of mixtures based on information • Use the particle model to describe states of matter • Use the equation for density to solve simple problems • Use the equation for pressure to solve simple problems 	Particle model MCQ test

			<ul style="list-style-type: none"> • Use the equation for specific latent heat to solve simple problems to calculate the energy change involved in a change of state. <p>4-6</p> <ul style="list-style-type: none"> • Predict the states of substances at different temperatures given appropriate data • Explain the different temperatures at which changes of state occur in terms of energy transfers and types of bonding • State that chemical properties of each substance in the mixture are unchanged. • Describe, explain and give examples of the specified processes of separation • Use the particle model to describe materials • Use the equation for density to solve intermediate problems • Use the equation for pressure to solve intermediate problems • Use the equation for specific latent heat to solve intermediate problems to calculate the energy change involved in a change of state. <p>5-9</p> <ul style="list-style-type: none"> • Predict the states of substances at different temperatures given appropriate data • Explain the different temperatures at which changes of state occur in terms of energy transfers and types of bonding • State that chemical properties of each substance in the mixture are unchanged. • Describe, explain, and give examples of the specified processes of separation • Suggest suitable separation and purification techniques for mixtures when given appropriate information. 	
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			<ul style="list-style-type: none"> Describe distillation and chromatography in detail. Use the terms stationary phase and mobile phase to explain why certain solutes travel further in chromatography. Use the particle model to describe particle arrangement and motion Use the equation for density to solve challenging problems Use the equation for pressure to solve challenging problems Use the equation for specific latent heat to solve challenging problems to calculate the energy change involved in a change of state. 	
6	Chemistry MCQ test 6	<p>Atomic Structure (Chemistry & Physics)</p> <p>Topics covered:</p> <ul style="list-style-type: none"> Atomic structure development of atomic model radioactivity 	<p>3-5</p> <ul style="list-style-type: none"> Be able to identify the location of protons, neutrons and electrons Be able to state the relative charge and mass of subatomic particles State that atoms are mostly empty space and have no net charge because they contain equal numbers of protons and electrons Describe how the atom changed over time Define isotopes Recall the properties of alpha, beta and gamma radiation <p>4-6</p> <ul style="list-style-type: none"> State that the atomic number determines the atom identity Determine the number of neutrons from given data 	Atomic Structure MCQ test

			<ul style="list-style-type: none"> • Appreciate that isotopes exist and mass numbers quoted in the periodic table are an average of all the isotopes • Use the periodic table to draw electron configurations • Describe how scientific methods and theories developed the model of an atom over time • Identify alpha, beta and gamma decay from their properties • Complete nuclear equations for alpha and beta decay • Use graphs to determine half life <p>5-9</p> <ul style="list-style-type: none"> • Determine neutron number of isotopes given information • Use parenthesis notation for electron configuration • Use maths skills to determine the ratio of size of nucleus to size of atom • Given isotope information, determine the relative atomic mass of elements • State that the group number determines valence electron count and period number determines the total number of electron shells • Explain why scientific methods and theories developed the model of an atom over time • Complete challenging nuclear equations for alpha and beta decay • Describe the processes of fission and fusion • Explain how a nuclear reactor works 	
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7	Chemistry MCQ test 7	<p>Bonding</p> <p>Topic covered:</p> <ul style="list-style-type: none"> • Covalent bonds (simple, giant) • ionic bonds • metallic bonds 	<p>3-5</p> <ul style="list-style-type: none"> • State which ions are formed when electrons are lost or gained • Know that ionic bonding takes place when metals react with non-metals via electron transfer • Know that covalent bonding takes place when two or more nonmetals react via electron sharing <p>4-6</p> <ul style="list-style-type: none"> • Use dot and cross diagrams to represent electron transfer in ionic bonding and covalent bonding • Explain the properties of ionic compounds and covalent substances (simple and giant covalent) <p>5-9</p> <ul style="list-style-type: none"> • State what metallic bonding is • State how the properties of alloys deviate from the pure metal • Represent metallic bonding as rows of positive ions surrounded by a sea of delocalised electrons • Determine the type of bonding in substances from given melting point and boiling point data 	Bonding MCQ test
8	Chemistry MCQ test 8	<p>Periodic Table</p> <p>Topic covered:</p>	<p>3-5</p> <ul style="list-style-type: none"> • state why Mendeleev left gaps in the periodic table • know that elements with similar properties are in columns, known as groups 	Periodic Table MCQ test

		<p>Mendeleev</p> <p>Group 1/7/0 trends</p> <p>Group 1/7/0 reactions</p>	<ul style="list-style-type: none"> identify the position of group 1 / 7 / 0 elements in the periodic table <p>4-6</p> <ul style="list-style-type: none"> explain why early periodic tables were incomplete and why some elements were placed in inappropriate groups describe these steps in the development of the periodic table and Mendeleev's role with this. explain how the position of an element in the periodic table is related to the arrangement of electrons in its atoms predict the reactivity of elements from their positions in the periodic table <p>5-9</p> <ul style="list-style-type: none"> Explain how testing a prediction can support or refute a new scientific idea. Explain the steps in the development of the periodic table. Predict properties from given trends down Group 1 / 7 / 0 	
9	Chemistry MCQ test 9	<p>Organic Chemistry</p> <p>Topics include:</p> <p>Hydrocarbons</p> <p>Homologous series</p> <p>Alkanes</p>	<p>3-5</p> <ul style="list-style-type: none"> Describe what crude oil is made out of Describe what a hydrocarbon is Recognise the structure of an alkane and alkene Describe how crude oil fractions can be separated Describe the uses of alkanes <p>4-6</p>	Organic Chemistry MCQ test

		<p>Alkenes Bromine test</p>	<ul style="list-style-type: none"> • Explain how fractional distillation in terms of evaporation and condensation • Explain how boiling point, viscosity and flammability are linked to the size of a hydrocarbon • Explain the differences between complete and incomplete combustion • Write balanced chemical equations for the complete combustion of hydrocarbons <p>5-9</p> <ul style="list-style-type: none"> • Explain why alkenes are more reactive than alkanes • Explain what alkenes are used to produce • Explain the purpose of cracking hydrocarbons • Describe the reaction conditions for the cracking of hydrocarbons • Write balanced equations for cracking reactions • Explain the results from a bromine water test 	
<p>10</p>	<p>Chemistry MCQ test 10</p>	<p>Quantitative Chemistry</p> <p>Topics include: Relative Formula Mass</p>	<p>3-5</p> <ul style="list-style-type: none"> • Understand the use of the multipliers in equations in normal script before a formula and in subscript within a formula. • Use relative atomic masses in the calculations specified in the subject content. • Be able to calculate the relative formula mass (M_r) of a compound from its formula, given the relative atomic masses. 	<p>Quantitative Chemistry MCQ test</p>

	<p>Percentage element in a compound</p> <p>Yield</p> <p>Moles</p> <p>Concentration</p> <p>Energy changes</p> <p>Rates of reaction calculations</p>	<ul style="list-style-type: none"> Describe the difference between an exothermic reaction and endothermic reaction Work out the rate of a chemical reaction measuring the quantity of a reactant used / product formed over time. <p>4-6</p> <ul style="list-style-type: none"> Calculate the mass of solute in a given volume of solution of known concentration in terms of mass per given volume of solution. Explain any observed changes in mass in non-enclosed systems during a chemical reaction given the balanced symbol equation for the reaction and explain these changes in terms of the particle model. Draw simple reaction profiles (energy level diagrams) for endothermic and exothermic reactions. Use the quantity of reactants in terms of moles (with reaction rate units measured in mols/s) Calculate the mean rate of a reaction from given information draw, and interpret, graphs showing the quantity of product formed or quantity of reactant used up against time <p>5-9</p> <ul style="list-style-type: none"> Calculate the masses of reactants and products from the balanced symbol equation and the mass of a given reactant or product. Calculate the masses of substances shown in a balanced symbol equation. Be able to use the relative formula mass of a substance to calculate the number of moles in a given mass of that substance and vice versa. 	
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			<ul style="list-style-type: none"> • Calculate the mass of solute in a given volume of solution of known concentration in terms of mass per given volume of solution. • Calculate the energy transferred in chemical reactions using bond energies supplied • draw tangents to the curves on these graphs and use the slope of the tangent as a measure of the rate of reaction • calculate the gradient of a tangent to the curve on these graphs as a measure of rate of reaction at a specific time. 	
11	Physics MCQ test 11	<p>Electricity</p> <p>Topics include:</p> <ul style="list-style-type: none"> • Series/parallel • current/resistance in a circuit • voltage/power/charge calculations • electromagnetism 	<p>3-5</p> <ul style="list-style-type: none"> • Define current, p.d. and resistance • Describe simple circuits • Describe the VI characteristic of a resistor, a lamp and a diode • Describe how to do the the VI / resistance of a wire required practical and equipment used • draw the magnetic field pattern for a straight wire carrying a current and for a solenoid (showing the direction of the field). <p>4-6</p> <ul style="list-style-type: none"> • Identify currents, p.d., and resistance in circuits • Explain the difference between series and parallel circuits • Explain the VI characteristic of a resistor, a lamp and a diode • Explain the VI / resistance of a wire required practical, with variables and explanation of the results 	Electricity MCQ test

			<ul style="list-style-type: none"> describe how the magnetic effect of a current can be demonstrated <p>5-9</p> <ul style="list-style-type: none"> Solve complex circuit problems Explain how a fuse works Explain VI and IV characteristics of a resistor, a lamp and a diode Evaluate the VI / resistance of a wire required practical and how to improve the results explain how a solenoid arrangement can increase the magnetic effect of the current. 	
12	Physics MCQ test 12	<p>Forces</p> <p>Topics included:</p> <p>Action of forces</p> <p>Resultant forces</p> <p>Speed</p> <p>Acceleration</p>	<p>3-5</p> <ul style="list-style-type: none"> Name examples of contact and non-contact forces Describe what the terms scalar and vector mean Calculate resultant forces that act in a straight line Calculate weight by recalling and using its equation Give examples of forces involved in stretching, bending or compressing an object Apply the elastic potential energy equation to simple calculations Find the spring constant of a spring by experiment. 	Forces MCQ test

		<p>Distance time graphs</p> <p>Speed time graphs</p>	<ul style="list-style-type: none"> • Make measurements of distance and time to calculate speeds of objects • Define work done. • State the units of work. • Define distance. • Define speed and calculate it by using $\text{speed} = \text{distance}/\text{time}$ • Define velocity. • Draw and interpret distance – time graphs. • State Newton’s First Law. <p>4-6</p> <ul style="list-style-type: none"> • Calculate resultant forces that act in a straight line • Use free body diagrams to calculate resultant forces acting on an object • Define weight and mass and explain the difference between them. • Describe what is meant by ‘centre of mass’. • Describe the difference between elastic deformation and inelastic deformation caused by stretching forces • Recognise the extension of an elastic object is directly proportional to force applied (so long as limit of proportionality is not exceeded). 	
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			<ul style="list-style-type: none"> • Apply the elastic potential energy equation to intermediary calculations • Sketch on an existing graph the force – extension curve for a spring with a spring constant of greater or lesser value than the spring given. • Define displacement. • Explain the difference between distance and displacement. • Calculate the speed of an object given the distance travelled and the time taken. Rearrange the equation to find either unknown quantity. • Determine speed from a distance-time graph • Calculate the acceleration of an object from the gradient of a velocity-time graph • Compare the speeds of two or more objects, or from one object at different points, on a distance – time graph from the gradients of the lines. • Calculate the work done by a force on an object when given the magnitude of the force and the displacement of the object. Rearrange this equation to find any unknown value. • Describe the energy transfer involved when work is done on an object • Explain why an object travelling around a circular track may have a constant speed but a constantly varying velocity. • Calculate the speed of an object from a distance – time graph. • Calculate the acceleration of a vehicle when given the initial and final speed and the time taken for the change in speed to 	
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			<p>occur. Rearrange the equation to find other unknown quantities.</p> <ul style="list-style-type: none"> Describe the effect of having a zero resultant force on a stationary object / an object moving at a constant velocity <p>5-9</p> <ul style="list-style-type: none"> Use vector diagrams to show resultant forces, equilibrium situations and scale drawings to show the forces magnitude and direction. Draw force diagrams to represent forces acting parallel to each other, both in the same direction or in opposite directions. Calculate the horizontal and vertical component of a single force that acts on an object. Interpret data from an investigation of the relationship between force and extension Apply the elastic potential energy equation to challenging calculations Calculate the force acting on a spring when given the spring constant and the extension of the spring. Rearrange the equation to find any missing quantity. Evaluate the best spring to use for a given situation when given the spring constants of the springs. Draw distance time graphs from measurements and extract and interpret lines and slopes of distance-time graphs, 	
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			<p>translation information between graphical and numerical form.</p> <ul style="list-style-type: none"> Analyse data about vehicle/animals travelling with different speeds, distances and times to find which object is travelling the fastest or will travel the greatest distance in a given time. Explain how the speed of a vehicle can be found experimentally. Calculate the speed of an object that is accelerating from a distance – time graph by finding the tangent to the curve at a given point then finding the gradient of the tangent. For velocity-time graphs that show non-uniform acceleration, measure the area under the line by counting squares. Explain how the acceleration of a vehicle can be determined experimentally. 	
13	Physics MCQ test 13	<p>Energy</p> <p>Topics include:</p> <ul style="list-style-type: none"> Energy stores/systems energy equations SHC National/global energy sources (pros/cons) 	<p>3-5</p> <ul style="list-style-type: none"> Recall the 8 energy stores Recall the 4 energy pathways Describe stores and pathways in real world systems Use equations for GPE and KE Identify changes in energy from GPE to KE Apply the law of energy conservation to simple problems Recall the non renewable energy resources Recall the renewable energy resources Describe how electricity is generated <p>4-6</p>	Energy MCQ test

			<ul style="list-style-type: none"> • Explain energy systems using stores and pathways model • Use stores and pathways model to describe systems and their surroundings • Explain energy transfer diagrams • Explain changes in energy from GPE to KE • Solve simple conservation of energy problems • Equate KE to GPE to solve problems • Identify advantages and disadvantages of energy resources • Explain how electricity is generated • Identify trends in energy consumption <p>5-9</p> <ul style="list-style-type: none"> • Evaluate energy systems using the stores and pathways model • Use energy transfer diagrams to describe energy systems • Apply stores and pathways model to novel situations • Explain changes in energy from EE to KE to GPE • Solve complex conservation of energy problems • Relate conservation of energy to stores and pathways model • Evaluate advantages and disadvantages of energy resources • Explain how use depends on energy resource • Explain trends in energy consumption 	
14	Physics MCQ test 14	<p>Waves</p> <p>Topics covered:</p>	<p>3-5</p> <ul style="list-style-type: none"> • Identify longitudinal waves and transverse waves • Describe wave motion in terms of their amplitude, wavelength, frequency and period. <p>4-6</p>	Waves MCQ test

		<p>EM spectrum – properties / uses/ applications</p> <p>Properties of waves</p> <p>Measuring waves</p>	<ul style="list-style-type: none"> Describe the differences between longitudinal and transverse waves Explain evidence to show that waves travel not air or water. Correctly apply the wave speed and period equations Describe a method to measure the speed of sound waves in air Describe a method to measure the speed of sound ripples in water <p>5-9</p> <ul style="list-style-type: none"> Identify and amplitude and wavelength from given diagrams Make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank Identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a solid and take appropriate measurements. 	
15	Day before Biology Paper 1	<p>Cells</p> <p>Animals</p> <p>Plants</p>	<ol style="list-style-type: none"> Revisit key concepts within cells, animals and plants that students commonly struggle with, in a bitesize manner. Walk through typical exam questions linked to these topics including mathematical calculations, required practical skills and data analysis. Talk students through specific exam techniques focused upon command words, graphical questions and unfamiliar contexts. 	Day before Biology Paper 1 MCQ test
16	Day before Chemistry Paper 1	<p>States of matter, Specific Latent Heat</p> <p>Atomic structure development of atomic model radioactivity</p> <p>Covalent bonds (simple, giant)</p>	<ol style="list-style-type: none"> Revisit key concepts within key Paper 1 Chemistry topics that students commonly struggle with, in a bitesize manner. Walk through typical exam questions linked to these topics including mathematical calculations, required practical skills and data analysis. 	Day before Chemistry Paper 1 MCQ test

		ionic bonds metallic bonds Mendeleev Group 1/7/0 trends Group 1/7/0 reactions	3. Talk students through specific exam techniques focused upon command words, graphical questions and unfamiliar contexts.	
17	Day before Physics Paper 1	Electricity Energy Atomic Structure	1. Revisit key concepts within Physics Paper 1 topics that students commonly struggle with, in a bitesize manner. 2. Walk through typical exam questions linked to these topics including mathematical calculations, required practical skills and data analysis. 3. Talk students through specific exam techniques focused upon command words, graphical questions and unfamiliar contexts.	Day before Physics Paper 1 MCQ test
18	Day before Biology Paper 2	Inheritance and Evolution	1. Revisit key concepts within inheritance and evolution that students commonly struggle with, in a bitesize manner. 2. Walk through typical exam questions linked to these topics including mathematical calculations, required practical skills and data analysis. 3. Talk students through specific exam techniques focused upon command words, graphical questions and unfamiliar contexts.	Day before Biology Paper 2 MCQ test
19	Day before Chemistry Paper 2	Organic Chemistry Quantitative Chemistry	1. Revisit key concepts that students commonly struggle with in a bitesize manner within Organic Chemistry and Quantitative Chemistry 2. Walk through typical exam questions linked to these topics including mathematical calculations, required practical skills and data analysis.	Day before Chemistry Paper 2 MCQ test

			<ol style="list-style-type: none"> 3. Talk students through specific exam techniques focused upon command words, graphical questions and unfamiliar contexts. 	
20	Day before Physics Paper 2	<p>Forces</p> <p>Waves</p>	<ol style="list-style-type: none"> 1. Revisit key concepts that students commonly struggle with, in a bitesize manner within Forces and Waves 2. Walk through typical exam questions linked to these topics including mathematical calculations, required practical skills and data analysis. <p>Talk students through specific exam techniques focused upon command words, graphical questions and unfamiliar contexts.</p>	Day before Physics Paper 1 MCQ test

GCSE English Language Course

Impress Online

Course Overview

This course is specifically designed to cover the entirety of the AQA GCSE English Language course in 20 weeks and requires no prior knowledge beyond Key Stage 3. It is therefore entirely suitable as a recovery curriculum for those who have missed large sections of Year 10 or 11, as well as students in post 16 or students meeting the course for the first time.

This course will be developed by a highly experienced former Principal Examiner Jo Heathcote: designer of the current mark scheme and part of the development team for the course and will be live delivered by a highly experienced practitioner and Assistant Principal Examiner Caroline Davies.

The course works by focusing on the Assessment Objectives in a student friendly way and demystifying the core skills required for success. The focus throughout is on clarity and simplicity as being the key to success. It must be noted that GCSE English Language is predominantly a skills-based course with the expectation that students will demonstrate those skills against a range of complex unseen source material

drawn from novels, short stories, newspapers, journals, travel writing, diaries and letters all intended for an adult readership and covering time periods from 1801 to the present day. Students will therefore have the chance to work with a range of source material, including original texts, to build confidence towards tackling the unseen material of the final examination.

All work for GCSE English Language involves an equitable balance of reading skill and writing skill. Reading skills may be broken down into two distinct areas correlating to two Assessment Objectives AO1 and AO2: comprehension and analysis. It is here where our course begins - embedding clear knowledge and understanding of these principles as well as detailed exposition of the question types and mark schemes to ensure confident and accurate coverage.

The course makes use of simple, memorable, tried and tested, effective methodologies for success building skills of inferential reading through active involvement using polls, cloze exercise, matching games, multiple choice responses and summative practice tasks with annotated exemplars. Live presentation will explain and explore differences in responses showing progression through the mark scheme. Students will consolidate and expand their repertoire of core subject terminology through matching and multiple-choice opportunities, building their confidence. They will go on to develop skills in commenting on the effect of writers' choices - a concept students often find difficult as this is the higher order skill of the mark scheme grids - through expert advice, scaffolded activities, and modelling.

The course will then progress to the higher order reading skills: critical evaluation for Paper 1 (AO4) and comparison for Paper 2 (AO3). These skills will be demystified and simplified by showing how they are a blend of basic skills. Clear and detailed exposition of the mark scheme and scaffolded step by step tasks will enable students to build longer responses which they can match against clearly annotated model responses and success criteria.

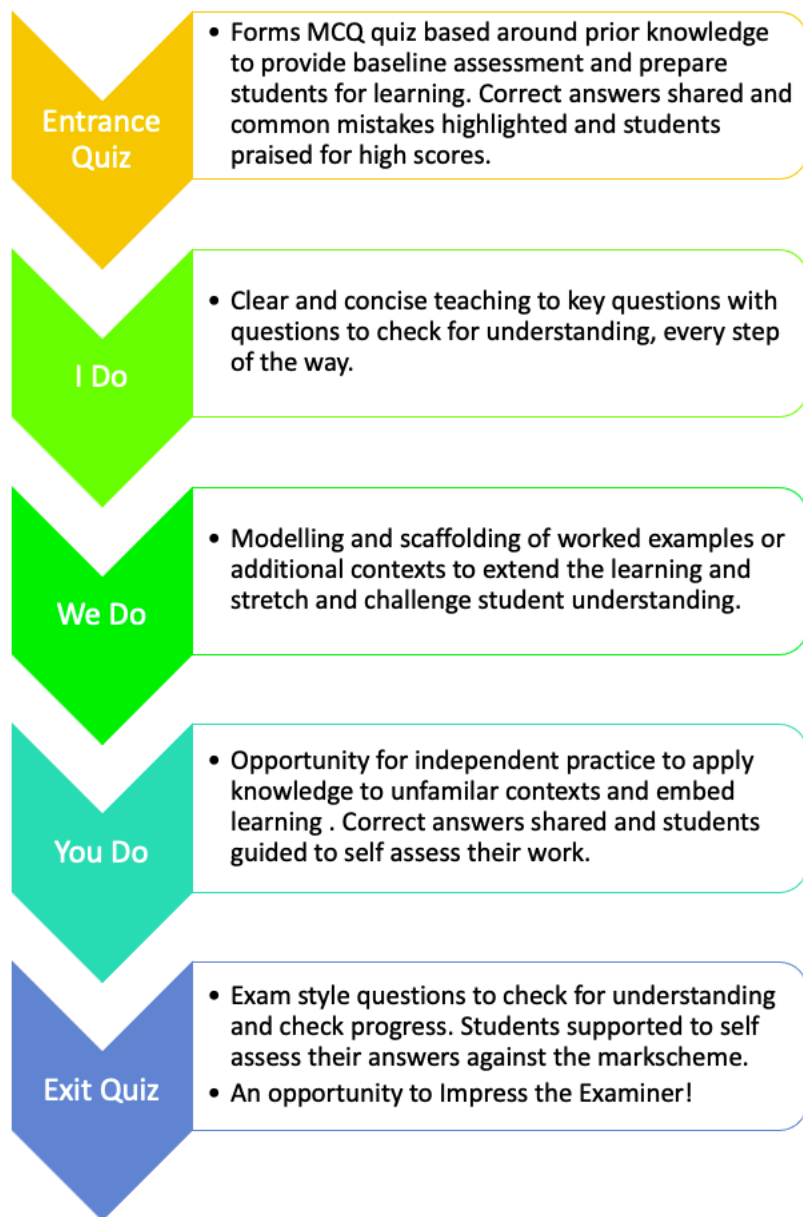
Students will learn to apply their knowledge of how texts work to the creation of their own texts for the writing element of the examinations (AO5 and AO6). In an examination, students are expected to produce effective, purposeful, and accurate pieces of writing in 45 minutes. This course will explore ways to plan work effectively for timely and secure outcomes and will focus on teaching creative techniques to improve the structure, imagery, and vocabulary choices of creative pieces. Students will enhance their knowledge of the building blocks of effective non-fiction writing and explore more subtle aspects such as creating an appropriate tone, understanding the power of rhetorical devices, and using sentence variety for impact and effect.

The course is organised as a logical progression to build skills and knowledge as well as preparing students to feel confident in understanding what to do for each specific question of the two papers and see the patterns of skill within the mark scheme descriptors. Assessment will take place formatively – with a range of activities designed to enable students to self-check - as well as modelled and annotated responses for longer responses with clear self-assessment guidance. Students will be encouraged to write examination responses in real time and shown how to apply the mark scheme as a tool to critique their own work and that of their peers on the course. Each block of lessons dealing with a particular paper will culminate in a supportive walk-through mock paper, delivered in real time with modelled checkpoint responses.

Lesson Structure

Each lesson of 90 minutes will consist of a three-part learning journey giving students the opportunity to acquire knowledge, develop skill and practice. Each lesson will include:

- the exposition of key subject knowledge
- a close examination of question and mark scheme ensuring students understand exactly what is required of them
- the embedding of a clear and simple methodology for each task
- continuous formative assessment and retrieval of key points and knowledge-based responses
- the chance to practice the skills with realistic scaffolded questions
- summative assessments of each question type and self-assessment against clearly explained modelled responses
- live delivery by a highly experienced practitioner and assessment expert.



Assessment

Assessment will be both formative and summative and will take place through a variety of checkpoints within the lesson using polls, multiple choice checking and matching exercises to embed key knowledge and information. More developed exercises such as cloze responses or scaffolded build and challenge activities will enable students to demonstrate more detailed and thoughtful answers. English Language obviously requires longer written responses and students will have the opportunity to match their longer written pieces against carefully annotated models – these will be presented through live discussion and clear explanation by our subject expert to enable successful self-assessment and targets for improvement.

Differentiation

It must be noted and acknowledged that English Language is different to the other core compulsory subjects at GCSE: Mathematics and Science, in that this specification is not tiered. The two examinations cover Grades 9-1. This is challenging, as there is an expectation that all students working without access requirements will be able to read and access the same source material – this is no longer differentiated in any way. As a result of this, the course will provide challenging reading material, scaffolded by audio clips, think aloud and tips for managing the reading load throughout. All students will need to be able to tackle the same set of questions.

However, the formulation of the mark scheme allows us to be able to differentiate this course by developing outcomes for students in three ways. The mark scheme grids operate on a four-level basis delineating the skill level of the same set of descriptors. For example, in the grid below you will see how the same required skills (use of subject terminology/selection of textual detail/ work on the effect of

language) appear in each level of the grid but are described with differing levels of success: some/attempts; clear/relevant; detailed/perceptive. This success criteria will be the driving force for differentiation within this skills-based course.

It must be noted that while grade boundaries are subject to change dependent on the outcomes of each particular cohort, the grade descriptors in the specification directly relate to the language of the mark scheme and it is from that we take our cue.

Level 4 - Detailed, perceptive

7-8 marks

Shows detailed and perceptive understanding of language:

- Analyses the effects of language
- Selects a judicious range of textual detail
- Makes sophisticated and accurate use of subject terminology

Level 3 - Clear, relevant

5-6 marks

Shows clear understanding of language:

- Explains clearly the effects of language
- Selects a range of relevant textual detail
- Makes clear and accurate use of subject terminology

Level 2 - Some attempts

3-4 marks

Shows some understanding of language:

- Attempts to comment on the effect of language
 - Selects some appropriate textual detail
 - Makes some use of subject terminology
-

- Students working towards Grades 3-5 will be shown how to move their work from the simple, limited, and generic Level 1 responses with the objective of answering every question on the paper firmly in Level 2 with a focus on the 2/3 borderline.
- Students working in the 5-7 range will have a focus on developing the clarity and relevance of their work to achieve all of Level 3.
- Students working in the 7-9 range will have the chance to develop work with more depth and sophistication to match the demands of Level 4.

The basic principles and skillset remain the same in each band of the mark scheme and each student needs to be able to demonstrate those skills to fully achieve the appropriate level – this is the beauty of our tried and tested methods. However, clear modelling and explanation of sample responses will provide the backbone for differentiated outcomes in student work.

Programme of Study

Paper 1

Week	Lesson Title	Summary of Lesson Content
1	Developing basic comprehension skill	<p>Intro and overview.</p> <p>Introducing the idea of 'what' and 'how' linked to AO1 and AO2.</p> <p>The art of the clear statement sentence.</p> <p>How to select and support evidence.</p> <p>What is an inference?</p>
2	Developing knowledge and skill with language	<p>Introducing AO2.</p> <p>What are Language Features?</p> <p>Building language knowledge.</p> <p>Developing subject terminology.</p> <p>Building skill with effects.</p>
3	Applying language knowledge and skill to P1 Q2	<p>The method for AO2.</p> <p>The Magic 3: language.</p>

		<p>How to match the mark scheme.</p> <p>Scaffolded practice P1 Q2 with modelled responses.</p>
3	Applying language knowledge and skill to P1 Q2	<p>The method for AO2.</p> <p>The Magic 3: language.</p> <p>How to match the mark scheme.</p> <p>Scaffolded practice P1 Q2 with modelled responses.</p>
4	Developing knowledge and skill with structure	<p>More about AO2.</p> <p>What is structure?</p> <p>What are structural features?</p> <p>Developing subject terminology.</p> <p>Dealing with structure without regurgitating content.</p>
5	Applying structural knowledge and skill to P1 Q3	<p>The method for AO2 recap.</p> <p>The Magic 3: structure.</p> <p>How to match the mark scheme.</p> <p>Scaffolded practice P1 Q3 with modelled responses.</p>

6	Developing writing skills: constructing and creating an effective narrative	<p>What have I learned about narrative?</p> <p>Developing knowledge and practice in:</p> <ul style="list-style-type: none">• Structure and sequence• Plot• Storytelling• Managing character• Managing setting• Managing dialogue. <p>Workshopping a narrative.</p> <p>Modelled responses.</p>
7	Developing writing skills: Constructing and creating an effective description	<p>What have I learned about description?</p> <p>Developing knowledge and practice in:</p> <ul style="list-style-type: none">• Sequencing• Creating imagery• Effective vocabulary choices• Sentence variety for impact. <p>Workshopping a description.</p>

		Modelled responses.
8	Applying writing skills: constructing an effective examination response.	Understanding the mark scheme for writing. Understanding AO5 and AO6 Planning and writing a P1 Q5. The Magic 5: managing timing and quality.
9	Developing skills for critical evaluation	Putting the 'What' and the 'How' together. Building skills for critical evaluation using clear comprehension methods and clear analytical skills. How to plan and annotate to build a longer response: selection skill
10	Applying critical evaluation skill: creating the effective mini essay.	Understanding AO4. How to match the mark scheme with an effective method. Scaffolded approaches to the task. Practice P1 Q4 with modelled responses.
11	Mock Paper 1	A walking talking practice Paper 1 in real time with feedback and modelled responses.

Paper 2

Week	Lesson Title	Summary of Lesson Content
12	Working with two non-fiction texts	<p>Dealing with non-fiction texts.</p> <p>Text types, purposes, form.</p> <p>Feeling confident with nineteenth century texts.</p> <p>Working with complex sentence structures and sophisticated vocabulary.</p>
13	Developing skills for AO1 synthesis of ideas.	<p>Recapping on the 'What'.</p> <p>A clear comprehension method for AO1.</p> <p>How to work with two texts.</p> <p>Planning and retrieving information.</p> <p>Creating effective inferences.</p> <p>How to match the mark scheme.</p> <p>Scaffolded practice P2 Q2 with modelled responses.</p>
14	Applying language skills to a non-fiction text	<p>Recapping on the 'How'.</p> <p>Recap and add to our language knowledge: specifics of non-fiction writing.</p>

		<p>Matching the method to the mark scheme: recap.</p> <p>Feeling confident with 19th century language.</p> <p>Scaffolded practice P2 Q3 with modelled responses.</p>
15	Developing skills for AO3 comparison.	<p>Writers' perspectives, experiences, viewpoints.</p> <p>Introducing comparative skills.</p> <p>Working with two texts in a timely way.</p> <p>Dealing with the 'what' and the 'how' to hit the specifics of the mark scheme.</p> <p>Scaffolded practice P2 Q4 with modelled responses.</p>
16	Developing writing skills in non-fiction writing: speeches	<p>Writing non-fiction: what is rhetoric and how does it help us to write a speech?</p> <p>Understanding key rhetorical devices.</p> <p>Purpose and audience.</p> <p>Effective openings and endings.</p> <p>The key to planning.</p> <p>The Magic 5: managing timing.</p> <p>Matching the mark scheme.</p>
17	Developing writing skills in non-fiction writing: articles	<p>Adapting the principles: effective journalistic writing.</p> <p>Purpose and audience.</p> <p>Topic sentences.</p>

		<p>Techniques for structure and organisation.</p> <p>Adding professional touches: sophisticated ideas and vocabulary.</p>
18	Developing writing skills in non-fiction writing: articles	<p>Adapting the principles: the strongly worded letter</p> <p>Letter writing conventions.</p> <p>Purpose and audience.</p> <p>Managing tone.</p> <p>Keeping it real without the rant.</p>
19	Mock paper 2	A walking talking practice Paper 2 in real time with feedback and modelled responses.
20	Recap and Revise: a walk through both papers.	A final workshop recapping on all the key information, messaging, and checklists for success with modelled responses and Q and A walking through both mock examination papers.



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