
Attitude
Altitude
Determines

Assessment and Grading System at Platanos College

Background

- Assessment is integral to high quality teaching and learning.
- It helps teachers to ensure that our teaching is tailored to pupils and that learners are making expected or outstanding progress.

Tracking data

- Assessment judgements are recorded and backed by a body of evidence created using observations, records or work and formalised testing.
- Assessment judgements are also moderated to ensure our assessments are fair, reliable and valid.

Grading System

- Teachers will assess pupils against standardised **Success Criteria** derive from the National Curriculum.
- These are short descriptions of what pupils are expected to know and be able to do, in each aspect of every subject.
- We will also use the quantitative **9-1 grading scale**, so we can monitor pupils' actual attainment, in line with the recently reformed GCSE grading system.

Grading using Success Criteria

Example - Science

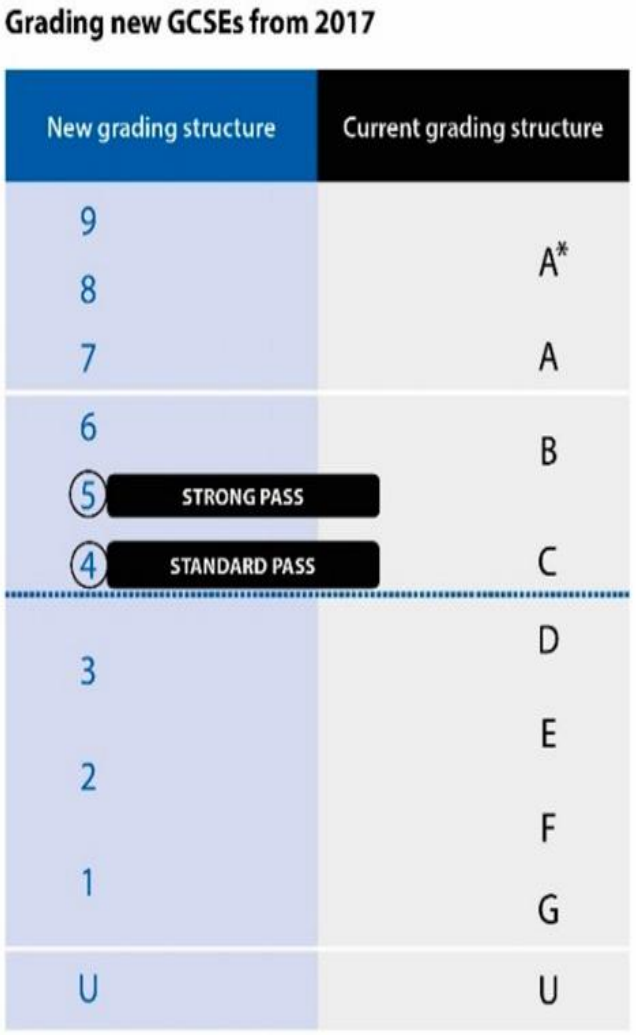
Lesson	Aiming for 4		Aiming for 6		Aiming for 8	
B9.1 Aerobic respiration	I can state the word equation for aerobic respiration.	☐	I can write the balanced symbol equation for respiration.	☐	I can apply understanding of respiration in new contexts.	☐
	I can list ways in which living organisms use energy.	☐	I can describe respiration as an exothermic reaction.	☐	I can explain why respiration is an exothermic reaction.	☐
	I can identify a control		I can plan an investigation to include a		I can explain why a control is necessary	

Grading using 9-1 grading scale

Ofqual grading

Three key points where the old and the new system aligns:

- The bottom of grade 7 is aligned with the bottom of grade A;
- The bottom of grade 4 is aligned with the bottom of grade C; and
- The bottom of grade 1 is aligned with the bottom of grade G.



Assessment cycle

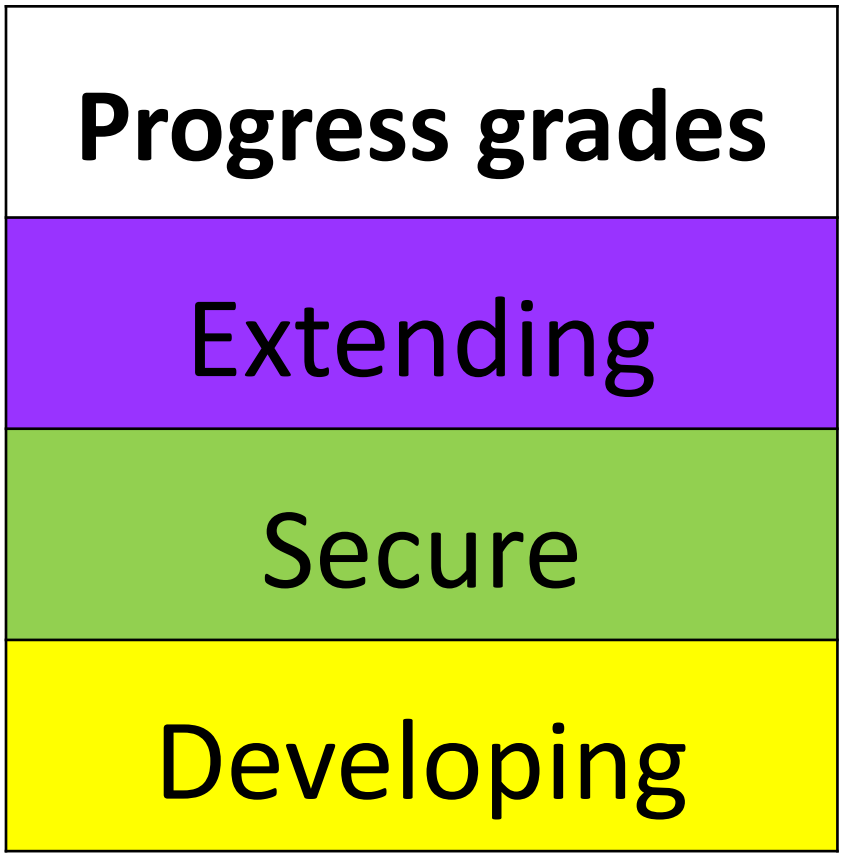
Assessment cycle – Formal examinations

- There are three formal assessments per year (one per term).
- Pupils will complete an one hour exam for each of their subjects within the formal assessment week.
- Staff will enter **two** academic grades:

1. **Current grade** (based on pupils' examination grade only).
2. **Projection grade** (the grade pupils are likely to attain at the end of the key stage, following pupils' current rate of progress).

- Individualised targets will be entered.
- CHABOP grades will be entered.
- Reports will be sent home on a termly basis, detailing pupils' overall progress during the particular term.

Progress grades – formal examination



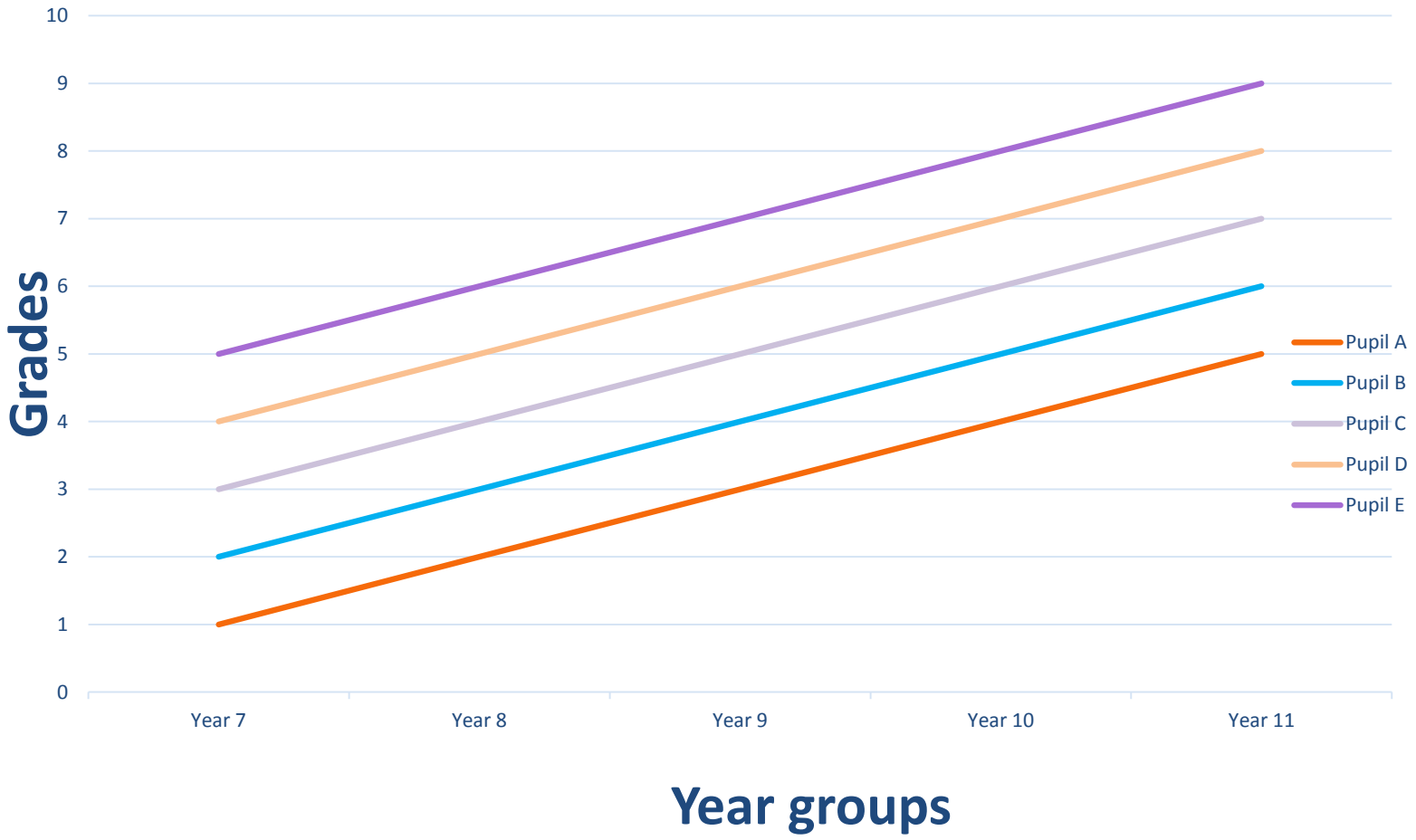
- Depending on the formal examination grade, pupils will be graded **'Extending'**, **'Secure'** or **'Developing'**, based on pupils' attainment and progress in relation to their end of year targets.

Target setting

Target setting

- Every pupil's target had been set according to the Key Stage 2 results in **Reading** and **Maths**.
- Targets are individualised because every pupil has a different starting point.
- As an outstanding school, we set **aspirational targets** for all pupils.

Target settings



Rank order

- After every formal examination, pupils are ranked based on their **attainment** and **progress** results across all subjects.
- **Positive competition** encourages pupils to improve and monitor their own academic performances.

Year 9 Report

Example – Year 9

Subject	Summer Exam Grade	End of KS4 Projection	End of KS4 Target	Progress Measure	CHABOP Progress Points	Comment	Classwork	Homework	Attendance	Behaviour	Organisation	Punctuality	CHABOP Assessment Points
English	3	5	7	Developing	0		B	B	B	B	B	B	60
Maths	6	8	7	Extending	20		A	A	A	A	A	A	120

Summary

- Pupils' progress are graded as either **'Extending'**, **'Secure'** or **'Developing',** in relation to their end of year targets.
- Pupils are graded in the form of numbers (**9-1**), with grade 9 being the best grade.
- Pupils are **ranked termly** based on their performances in attainment and progress.

Assessment and Grading System at Platanos College

Year 10 English

Both the Language and Literature GCSEs are examination only; **there is no coursework**

AQA English Language: 2 Papers

Paper 1 Section A Reading			
Q1	4 marks	List	AO1
Q2	8 marks	Language	AO2
Q3	8 marks	Structure	AO2
Q4	20 marks	Evaluate	AO4

Paper 2 Section A Reading			
Q1	4 marks	True False	AO1
Q2	8 marks	Summary	AO1
Q3	12 marks	Language	AO2
Q4	16 marks	Compare	AO3

Paper 1 Section B Writing			
Q5	40 marks	Describe Narrate	

Paper 2 Section B Writing			
Q5	40 marks	Speech Letter Article Leaflet Essay	

Both the Language and Literature GCSEs are examination only; **there is no coursework**

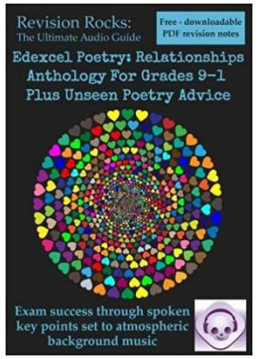
Edexcel English Literature: 2 Papers

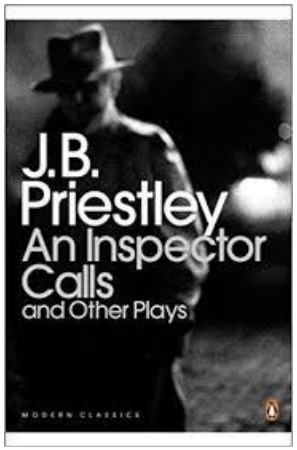
Paper 1: Shakespeare and Post-1914 Literature 1 hour 45 minutes	Paper 2: 19th Century novel and Poetry since 1789 2 hours and 15 minutes
<u>Macbeth</u> Q1a: How does Shakespeare present…. In this extract… Q1b Explain the importance of … elsewhere in the play.	<u>Jekyll and Hyde</u> Q1a: How does Stevenson present…. In this extract… Q1b Explain the importance of … elsewhere in the novel.
<u>An Inspector Calls</u> A choice of two questions about the importance of a character or theme in the play as a whole	<u>Poetry Anthology</u> Compare how … is presented in this poem and another poem of your choice
	<u>Unseen Poetry</u> Compare how the writers present… in the two poems.

Pupils will study key GCSE skills

- Explaining inferences in detail, using relevant quotations
- Analysing vocabulary and language devices.
- Understanding the relationship between text and context.
- Comparing texts
- Spelling, punctuation and grammar
- Structural analysis
- Adapting the structure of their own writing for effect
- Adapting and selecting appropriate language devices for a range of audiences, text types and purposes

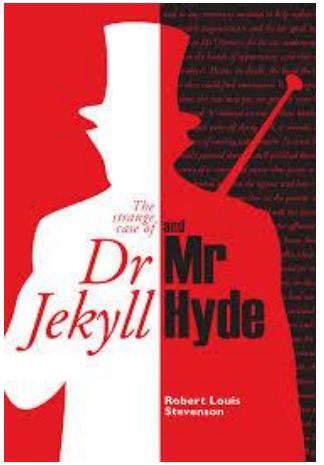
All pupils will be examined on these texts at the end of year 11

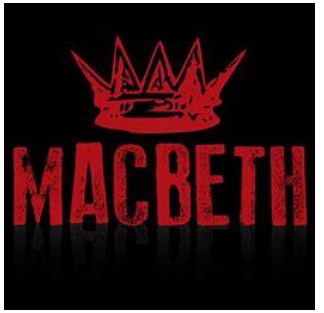




- Shakespeare's 'Macbeth'
- J. B. Priestley's 'An Inspector Calls'
- Edexcel Poetry Anthology
- Non-Fiction texts from 20th and 19th Centuries

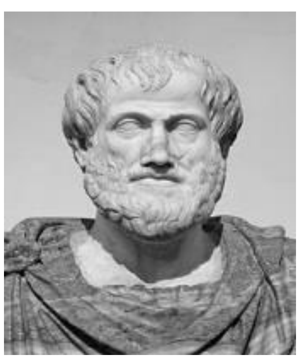
In year 11, students will complete their study of Stevenson's 'Jekyll and Hyde'

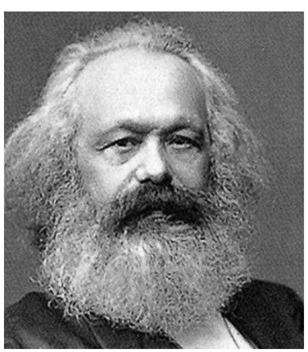


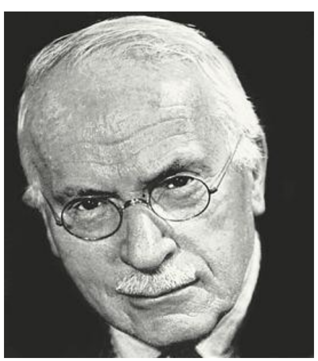


Critical Theorists

- Karl Marx
- Carl Jung
- Simone de Beauvoir
- Sigmund Freud
- Aristotle
- John Locke





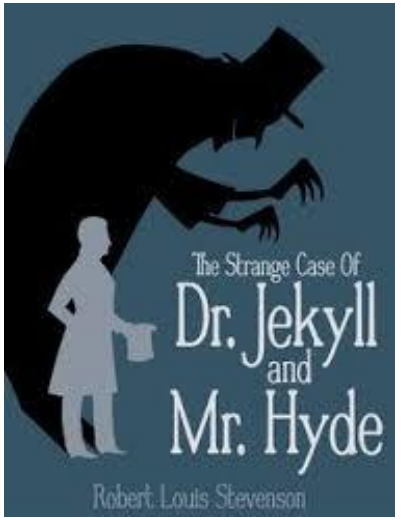


The exam board have said:

" It is imperative that students regularly read, if they are to meet the demands of the new exams."

Challenging content:

"Man is not truly one, but truly two. I say two, because the state of my own knowledge does not pass beyond the point… and I hazard a guess that man will ultimately be known for the mere polity of multifarious, incongruous, and independent denizens." *Jekyll and Hyde – chapter 10*



Reading and vocabulary

- Students need to read regularly
- 20 minutes three times a week
- Actively build vocabulary

How can you help?

-Help them choose their reading books and encourage them to challenge themselves

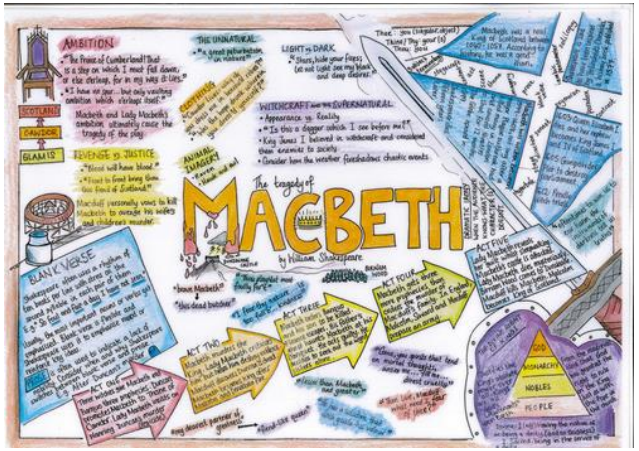
-Listen to them read

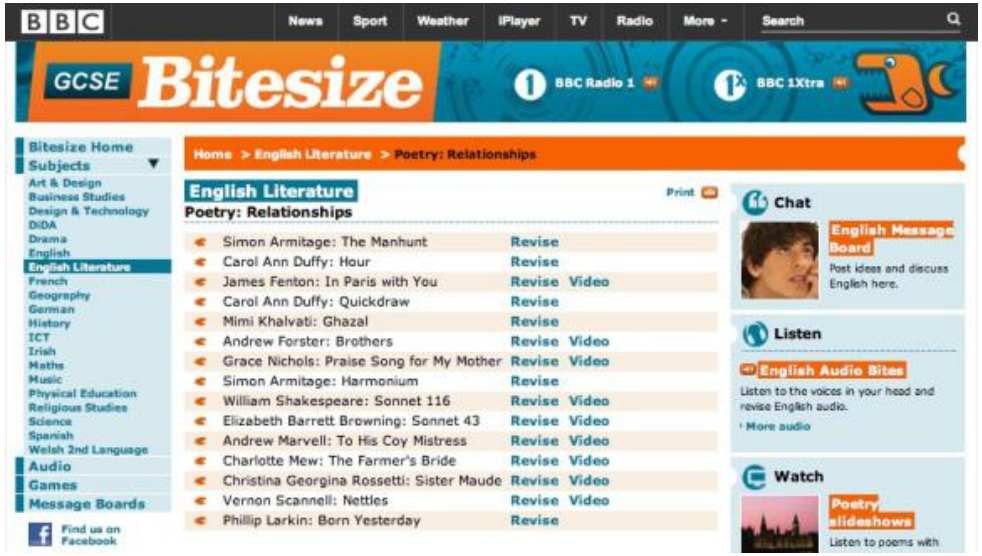
-Read to them

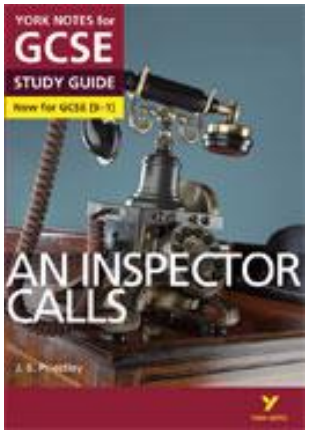
-Discuss what their reading and discuss newspaper articles with them

-Talk about and introduce them to new vocabulary

Become an expert







Platanos College
Mathematics Department

Area of trapezium $= \frac{1}{2}(a+b)h$
Area of circle $= \pi r^2$
Circumference of circle $= \pi d = 2\pi r$
Volume of cuboid $= lwh$
Volume of prism = area of cross section $\times$ length
Volume of cylinder $= \pi r^2 h$
Volume of pyramid $= \frac{1}{3} \times$ area of base $\times h$
Pythagoras' Theorem for a right-angled triangle where c is the hypotenuse: $a^2 + b^2 = c^2$
Trigonometric ratios: $\sin x° = \frac{\text{opp}}{\text{hyp}}$ $\cos x° = \frac{\text{adj}}{\text{hyp}}$ $\tan x° = \frac{\text{opp}}{\text{adj}}$
Compound measures: $\text{Speed} = \frac{\text{distance}}{\text{time}}$ $\text{Density} = \frac{\text{mass}}{\text{volume}}$ $\text{Pressure} = \frac{\text{force}}{\text{area}}$

$$x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

Sine rule: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine rule: $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle $= \frac{1}{2} ab \sin C$

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Units to be completed in Year 10

GCSE (9-1) Higher
Unit 9 Equations and inequalities
Unit 10 Probability
Unit 11 Multiplicative reasoning
Unit 12 Similarly and congruence
Unit 13 More trigonometry
Unit 14 Further statistics
Unit 15 Equations and graphs
Unit 16 Circle theorems
Unit 17 More algebra

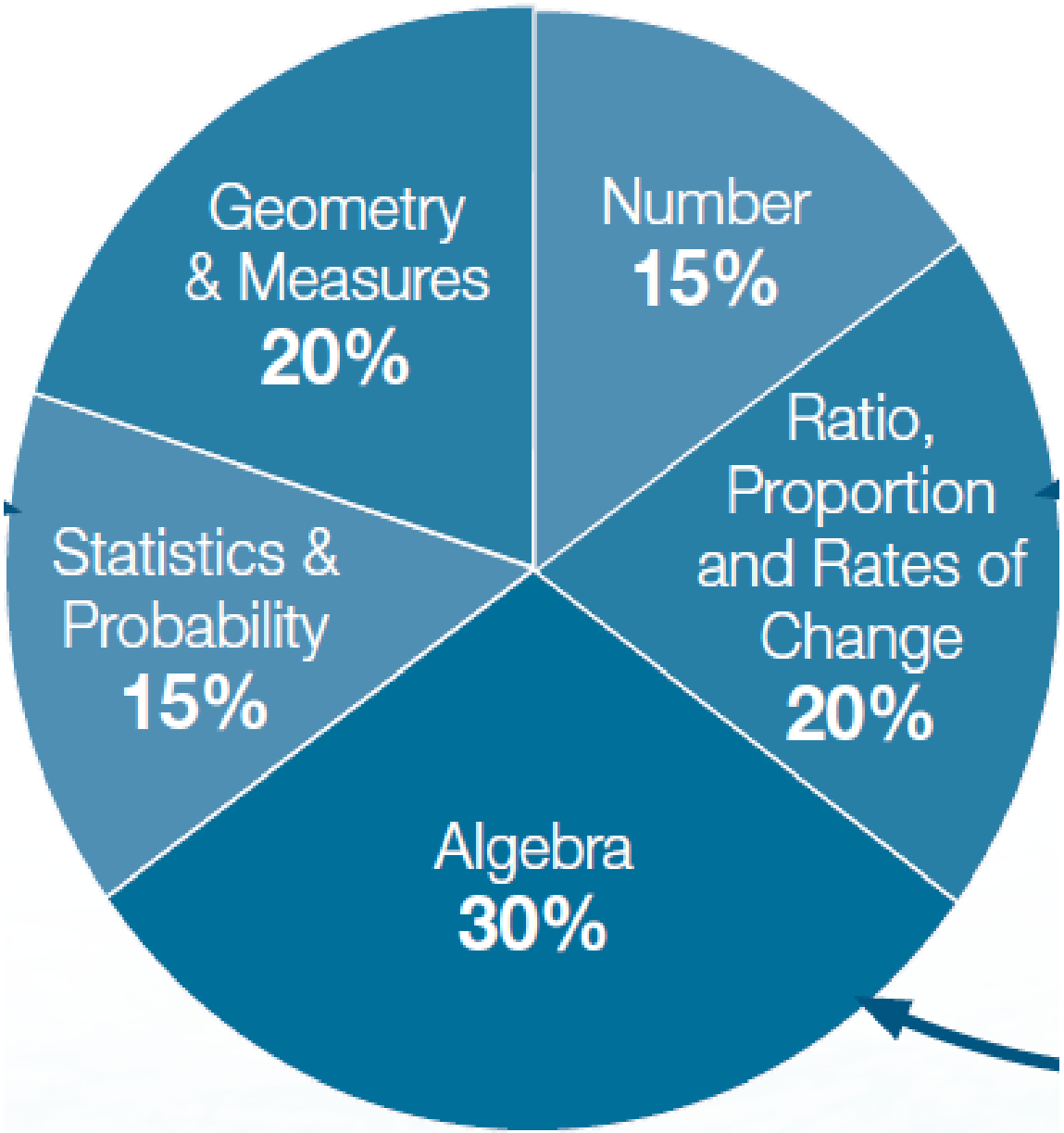
GCSE (9-1) Foundation
Unit 9 Graphs Unit 10 Transformations
Unit 11 Ratio and proportion
Unit 12 Right-angled triangles
Unit 13 Probability Unit 14 Multiplicative reasoning
Unit 15 Constructions, loci and bearings
Unit 16 Quadratic equations and graphs
Unit 17 Perimeter, area and volume 2

Higher	Foundation
Solving quadratic equations using the formula	Coordinates
More complex quadratic equations	Mid-point of a line segment
Completing the square	Linear graphs
Simultaneous equations	Gradient of a line
Solve simultaneous equations for real life situations	Find equations of straight line graphs
Use simultaneous equations to find the equation of a line	Real life graphs
Interpret real life situations in two unknowns and solve them	Distance-time graphs
Solve simultaneous equations with one quadratic	Translation
Use real life situations to construct quadratic and linear equations and solve them	Reflection
Inequalities	Rotation
	Enlargement
	Combining transformations

Higher	Foundation
Congruence	Right angled-triangles
Geometric proof and congruence	Pythagoras' theorem
Similarity	The sine ratio
Similarity in 3-D solids	The cosine ratio
Accuracy	The tangent ratio
Graphs of functions	Finding angles using trigonometry
Calculating areas and the sine rule	Finding lengths using trigonometry
The cosine rule	Problem solving
Solving problems in 3-D	
Transforming trigonometric graphs	

Higher	Foundation
Solving simultaneous equations graphically	3D solids
Graphical inequalities	Plans and elevations
Graphs of quadratic functions	Accurate drawings
Solving quadratic equations graphically	Scale drawing and maps
Graphs of cubic functions	Constructions
Radii and chords	Loci and regions
Tangents	Bearings
Angles in circles	Expanding double brackets
Applying circle theorems	Plotting quadratic graphs
Rearranging formulae	Using quadratic graphs
Algebraic fractions	Solving quadratic equations algebraically
Simplifying algebraic fractions	Factorising quadratic expressions
Surds	Circumference of a circle
Solving algebraic fraction equations	Area of a circle
Functions	Semicircles and sectors
Proof	Composite 2D shapes and cylinders
	Pyramids and cones

Higher


Geometry
& Measures
20%
Number
15%
Ratio,
Proportion
and Rates of
Change
20%
Statistics &
Probability
15%
Algebra
30%

Foundation (grades 1-5)

Paper 1
Non-calculator

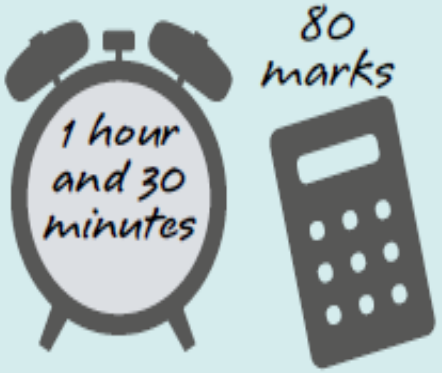
33.3% weighting

Paper 2
Calculator

33.3% weighting

Paper 3
Calculator

33.3% weighting



Higher (grades 4-9)

Paper 1
Non-calculator

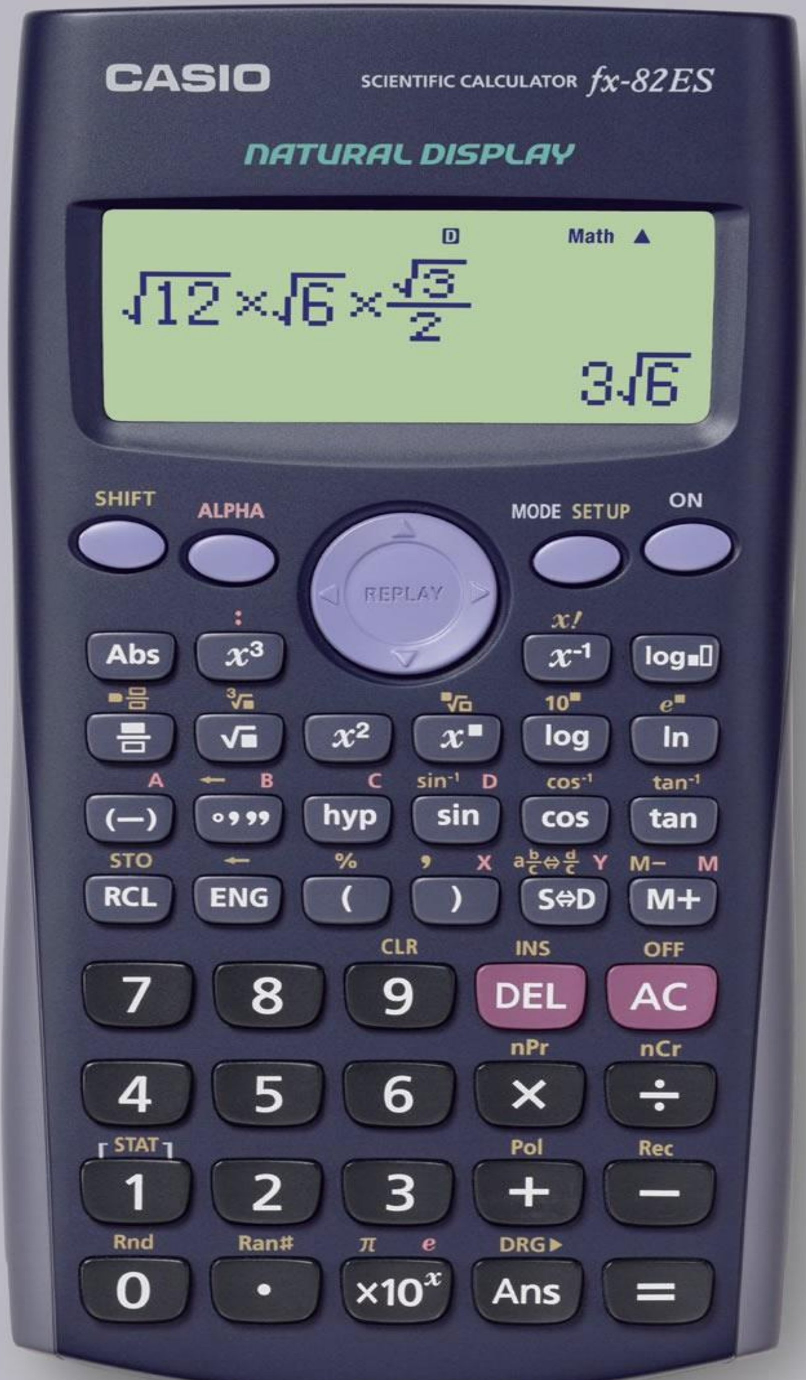
33.3% weighting

Paper 2
Calculator

33.3% weighting

Paper 3
Calculator

33.3% weighting


CASIO
SCIENTIFIC CALCULATOR fx-82ES
NATURAL DISPLAY
SHIFT
ALPHA
MODE SETUP
ON
REPLAY
Abs
log
ln
hyp
sin
cos
tan
RCL
ENG
S⇔D
M+
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=

CASIO
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Foundation

Foundation papers now start at, and reach, a higher level.

The marks on current Foundation papers are allocated like this:

50%	25%	25%
Targeted at F/G	Targeted at grade E	Targeted at grades D/C

In the new Foundation papers, marks will be allocated like this:

Bottom two-thirds of C marks

Bottom of 1 allgned with bottom of G

Top third of C marks / bottom third of B marks

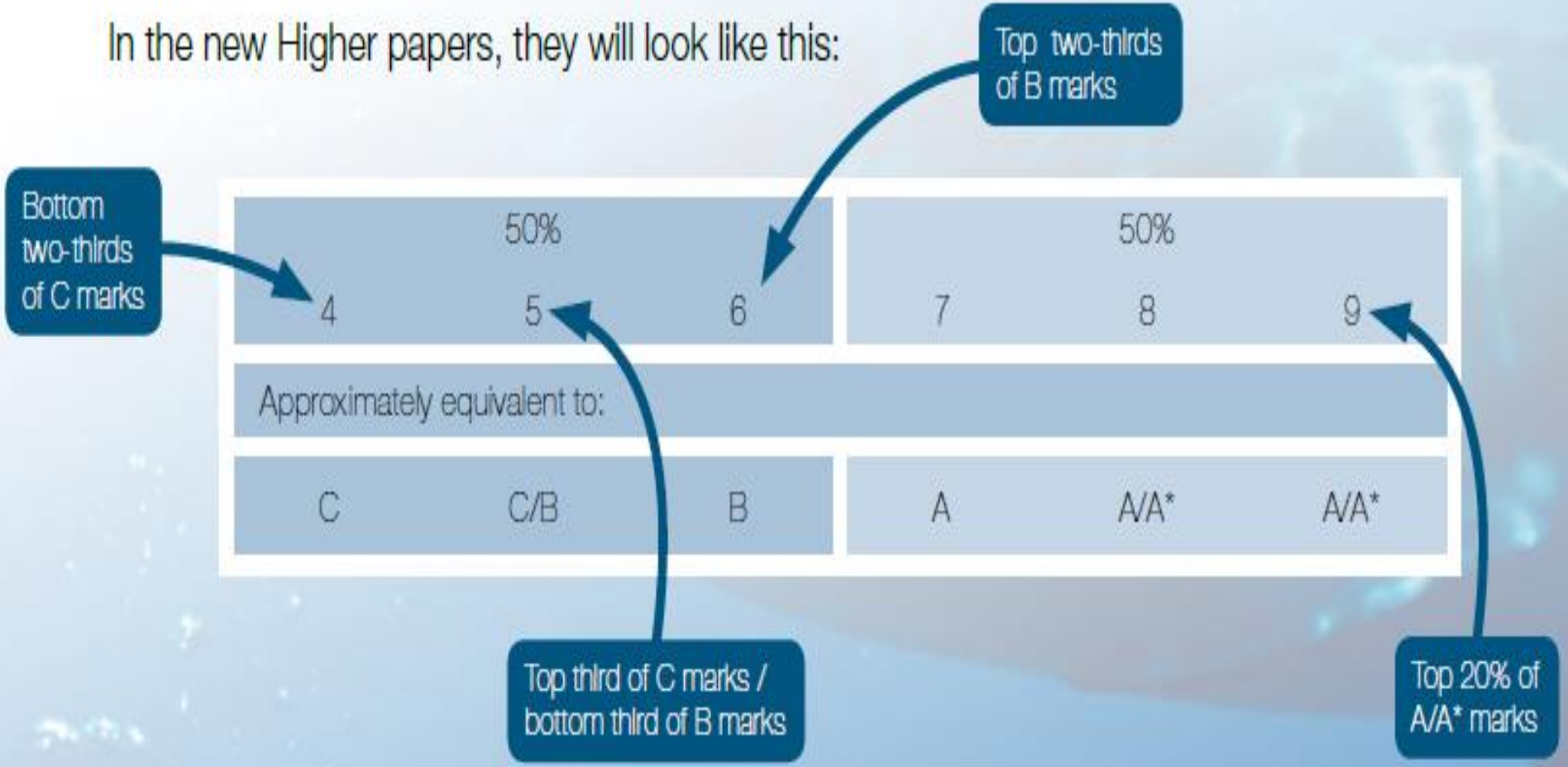
50%			50%		
1	2	lower 3	upper 3	4	5
Approximately equivalent to:					
G/F	E	D-	D+	C	C/B

Higher

Higher tier papers now start at a higher level than in the current GCSE, which starts at grade D.

The new Higher tier papers will cover 6 grades instead of 5, allowing for more differentiation at the top end of the grades. Previously, 25% of questions were targeted at A/A*, but now 50% of questions in each paper are targeted at the equivalent grades, 7–9.

In the new Higher papers, they will look like this:



Foundation and Higher tier

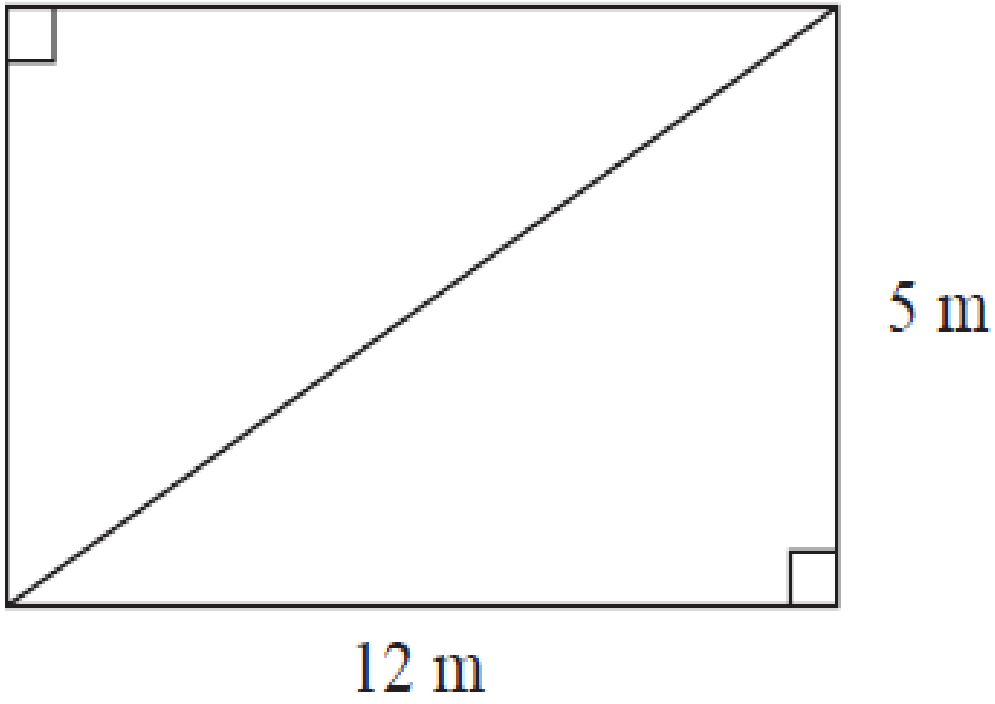
12 Ashten chooses three different whole numbers between 1 and 50

The first number is a prime number.
The second number is 4 times the first number.
The third number is 6 less than the second number.

The sum of the three numbers is greater than 57

Find the three numbers.

This rectangular frame is made from 5 straight pieces of metal.



The weight of the metal is 1.5 kg per metre.

Work out the total weight of the metal in the frame.

On Saturday, some adults and some children were in a theatre.
The ratio of the number of adults to the number of children was 5 : 2

Each person had a seat in the Circle or had a seat in the Stalls.

$\frac{3}{4}$ of the children had seats in the Stalls.

117 children had seats in the Circle.

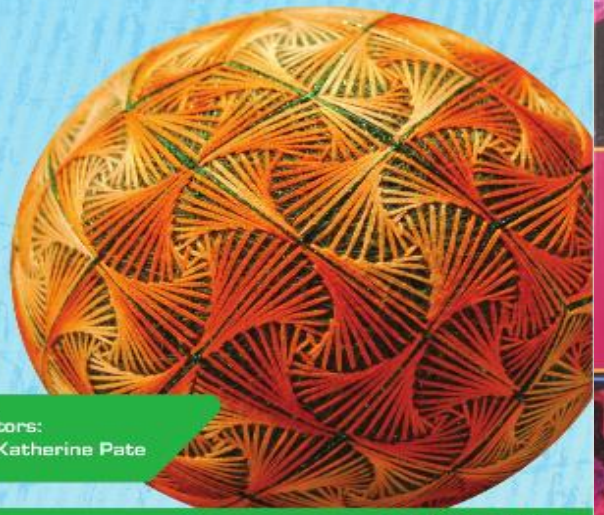
There are exactly 2600 seats in the theatre.

On this Saturday, were there people on more than 60% of the seats?
You must show how you get your answer.

11–19 PROGRESSION

Edexcel GCSE (9–1)
Mathematics
Higher
Student Book

Confidence • Fluency • Problem-solving • Reasoning



Series Editors:
Dr Naomi Norman • Katherine Pate

ALWAYS LEARNING

PEARSON

CAMBRIDGE

Brighter Thinking

endorsed for edexcel

Higher

MATHEMATICS
GCSE for Edexcel
Student Book

Karen Morrison, Julia Smith, Pauline McLean, Rachael Horsman and Nick Asker

PLATANOS COLLEGE

Welcome to year 9 curriculum evening

Science Department

Aims of the course

Students will be able to:

- **Develop their understanding of the nature of science and its applications and the interrelationships between science and society**

- **Develop and apply their knowledge and understanding of the scientific process through hypotheses, theories and concepts**

- **Develop their understanding of the relationships between hypotheses, evidence, theories and explanations**

- **Develop their awareness of risk and the ability to assess potential risk in the context of potential benefits**

- **Develop and apply their observational, practical, enquiry and problem-solving skills and understanding in laboratory, field and other learning environments**

- **Develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions**

- **Develop their skills in communication, mathematics and the use of technology in scientific contexts.**

Nature of new GCSE science curriculum

There is no coursework as part of the GCSE exams as of Summer 2018.

Each course (Triple Science and Combined Science: Trilogy) consists of a 100% written exam which will be taken at the end of year 11.

Route 1:Triple Science

-offers separate assessments of biology, chemistry and physics, each consisting of two written papers. **Each paper is 50% of the GCSE.**

Route 2: Combined science: Trilogy

-offers assessments combining biology, chemistry and physics, each consisting of two written papers**. Each paper contributes 16.7% of the GCSE.**

Term 1	Term 2	Term 3
▪ B5: Communicable diseases ▪ B6: Preventing and treating disease ▪ B7: Non-communicable diseases ▪ B9: Respiration ▪ B10: The human nervous system ▪ B11: Hormonal coordination ▪ C3: Structure and bonding	▪ C4: Chemical calculations ▪ C5: Chemical changes ▪ C6:Electrolysis ▪ C7: Energy changes ▪ C14: The earth's resources ▪ C15: Using our resources	▪ P6: Molecules and matter ▪ P7: Radioactivity ▪ P9: Motion ▪ P10: Force and motion ▪ P11: Force and pressure

Skills to cover throughout the course

Analytical skills
- Analyse patterns
- Discuss limitations
- Draw conclusions
- Present data

Enquiry skills
- Collect data
- Devise questions
- Plan variables
- Test hypothesis

Communication skills
- Communicate ideas
- Construct explanations
- Critique claims
- Justify opinions

Problem Solving
- Estimate risks
- Examine consequences
- Review theories
- Interrogate sources

Nature of new GCSE science curriculum

Practical and mathematical skills will be taught during the course and will be assessed in the GCSE Exam.

Math skills

- Recognise and use expressions in decimal form
- Recognise and use expressions in standard form
- Use ratios, fractions and percentages
- Make estimates of the results of simple calculations

Required practical

- There are 10 required practical for biology, including the three needed for the standalone GCSE Biology qualification

- There are 8 required practical for chemistry, including the two needed for the standalone GCSE Chemistry qualification

- There are 10 required practical for physics, including the two needed for the standalone GCSE Physics qualification.

Structure of exam: Triple Science

Biology:

Paper 1:

Topics 1–4: Cell biology; Organisation; Infection and response; and Bioenergetics.

Paper 2:

Topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology

Written exam: 1 hour 45 minutes

Foundation and Higher Tier

100 marks

50% of GCSE

Type of Questions

Multiple choice, structured, closed short answer and open response

Structure of exam: Triple Science

Chemistry*:*

Paper 1

Topics 1–5: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry, Chemical changes; and Energy changes.

Paper 2:

Topics 6–10: The rate and extent of chemical change; Organic chemistry; Chemical analysis, Chemistry of the atmosphere; and Using resources.

Written exam: 1 hour 45 minutes

Foundation and Higher Tier

100 marks

50% of GCSE

Types of Questions

Multiple choice, structured, closed short answer and open response

Structure of exam: Triple Science

Physics:

Paper 1:

Topics 1-4: Energy; Electricity; Particle model of matter; and Atomic structure.

Paper 2:

Topics 5-8: Forces; Waves; Magnetism and electromagnetism; and Space physics.

Written exam: 1 hour 45 minutes

Foundation and Higher Tier

100 marks

50% of GCSE

Types of Questions

Multiple choice, structured, closed short answer and open response

Structure of exam: Combined science: Trilogy

Biology

Paper 1:

Topics 1–4: Cell Biology; Organisation; Infection and response; and Bioenergetics.

Paper 2:

Topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology.

Written exam: ***1 hour 15 minutes***

Foundation and Higher Tier

70 marks

16.7% of GCSE

Types of Questions

Multiple choice, structured, closed short answer and open response

Structure of exam: Combined science: Trilogy

Chemistry

Paper 1:

Topics 8–12: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes; and Energy changes.

Paper 2:

Topics 13–17: The rate and extent of chemical change; Organic chemistry; Chemical analysis; Chemistry of the atmosphere; and Using resources.

Written exam: ***1 hour 15 minutes***

Foundation and Higher Tier

70 marks

16.7% of GCSE

Types of Questions

Multiple choice, structured, closed short answer and open response

Structure of exam: Combined science: Trilogy

Physics

Paper 1:

Topics 18–21: Energy; Electricity; Particle model of matter; and Atomic structure.

Paper 2:

Topics 22–24: Forces; Waves; and Magnetism and electromagnetism

Written exam: ***1 hour 15 minutes***

Foundation and Higher Tier

70 marks

16.7% of GCSE

Types of Questions

Multiple choice, structured, closed short answer and open response

The exams will measure how well students have achieved the following assessment objectives.

- AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures.

- AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures.

- AO3: Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures.

Assessment objectives (AOs)	Component weightings (approx. %)		Overall weighting (approx. %)
	Paper 1	Paper 2	
AO1	37 – 43	37 – 43	40
AO2	37 – 43	37 – 43	40
AO3	17 – 23	17 – 23	20
Overall weighting	50	50	100

Equations that you must be able to recall and apply in your exam:

1 weight = mass × gravitational field strength $W = m\,g$

2 work done = force × distance along the line of action of the force $W = F\,s$

3 force applied to a spring = spring constant × extension $F = k\,e$

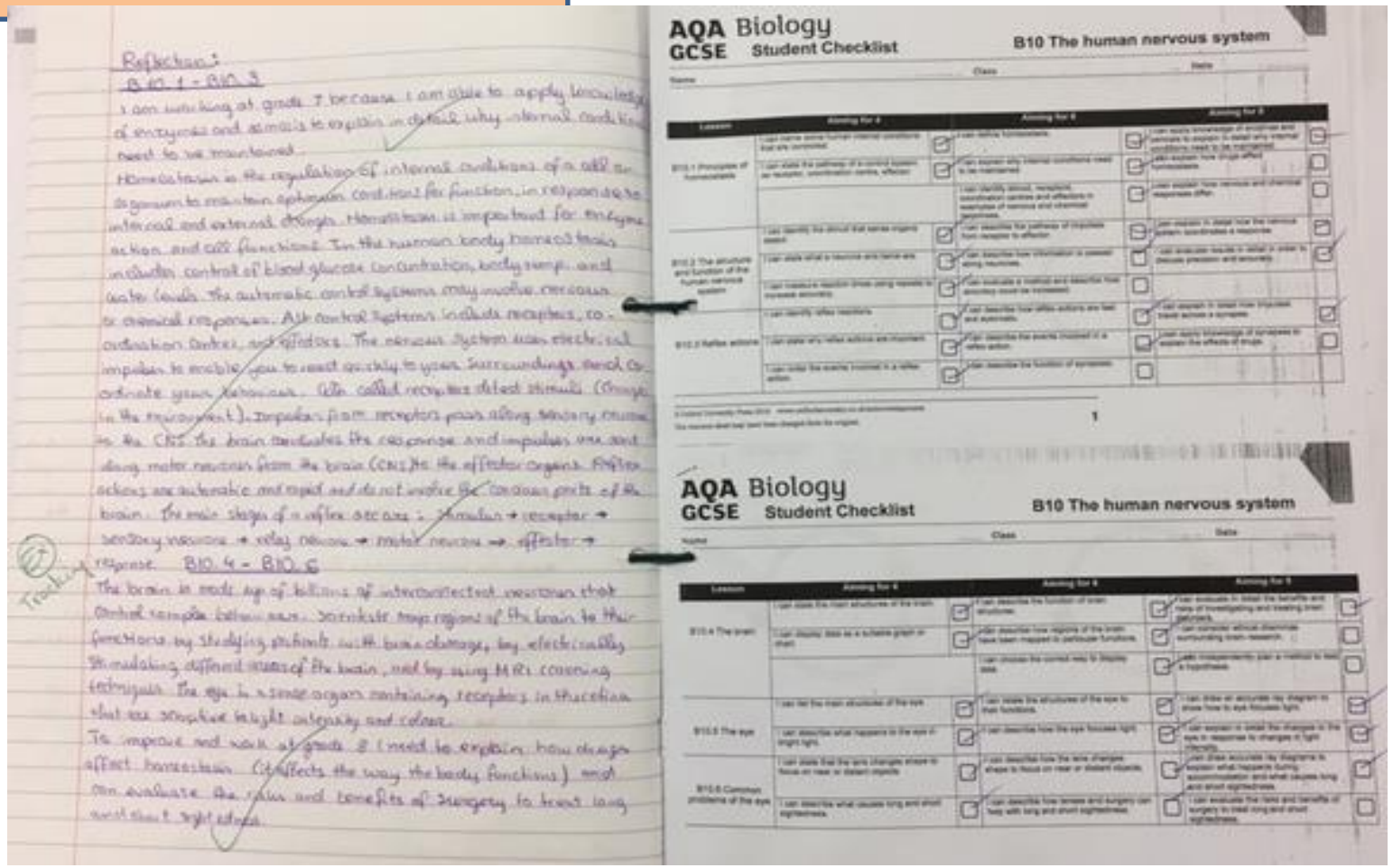
4 moment of a force = force × distance normal to direction of force $M = F\,d$

5 pressure = $\dfrac{\text{force normal to a surface}}{\text{area of that surface}}$ $p = F/A$

6 distance travelled = speed × time $s = v\,t$

Increase the pace of learning through acceleration

Use of graded success criteria:
Pupil begins with the activity equivalent to their target and move upwards.



Reflection:
B10.1 - B10.3
I am working at grade 7 because I am able to apply knowledge of enzymes and stimuli to explain in detail why internal conditions need to be maintained.
Homeostasis is the regulation of internal conditions of a cell or organism to maintain optimum conditions for function in response to internal and external change. Homeostasis is important for enzyme action and cell functions. In the nervous body homeostasis includes control of blood glucose concentration, body temp. and water levels. The automatic control systems may involve neurones or chemical responses. All control systems include receptors, co-ordination centres, and effectors. The nervous system uses electrical impulses to enable you to react quickly to your surroundings and co-ordinate your behaviour. We called receptors detect stimuli (changes in the environment). Impulses from receptors pass along sensory neurones to the CNS. The brain coordinates the response and impulses are sent along motor neurones from the brain (CNS) to the effector organs. Reflex actions are automatic and rapid and do not involve the conscious parts of the brain. The main stages of a reflex are: stimulus → receptor → sensory neurone → relay neuron → motor neuron → effector → response. B10.4 - B10.6
The brain is made up of billions of interconnected neurones that control complex behaviour. Scientists map regions of the brain to their functions by studying patients with brain damage, by electrically stimulating different areas of the brain, and by using MRI scanning techniques. The eye is a sense organ containing receptors in the retina that are sensitive to light intensity and colour.
To improve and work at grade 8 I need to explain how changes affect homeostasis (it affects the way the body functions) and often evaluate the risks and benefits of surgery to treat long and short sightedness.

AQA Biology
GCSE Student Checklist
B10 The human nervous system

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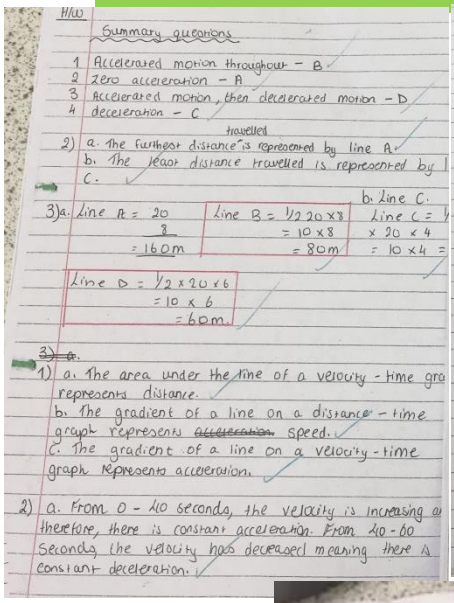
B10 The human nervous system

Use of HOTs to stretch and challenge more able students


H/W

Summary questions

1 Accelerated motion throughout – B
2 zero acceleration – A
3 Accelerated motion, then decelerated motion – D
4 deceleration – C

travelled

2) a. The furthest distance is represented by line A.
b. The least distance travelled is represented by line C.

3)a. Line A = 20 / 8 = 160m

Line B = ½ 20 x 8 = 10 x 8 = 80m

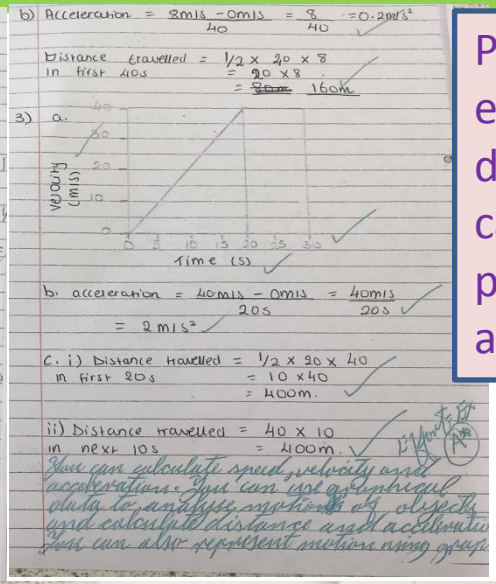
b. Line C. Line C = ½ x 20 x 4 = 10 x 4 =

Line D = ½ x 20 x 6 = 10 x 6 = 60m.

3) a.

1) a. The area under the line of a velocity - time gra represents distance.
b. The gradient of a line on a distance - time graph represents ~~acceleration~~ speed.
c. The gradient of a line on a velocity - time graph represents acceleration.

2) a. From 0 - 40 seconds, the velocity is increasing a therefore, there is constant acceleration. From 40 - 60 seconds the velocity has decreased meaning there is constant deceleration.


b) Acceleration = 8m/s - 0m/s / 40 = 8/40 = 0.2m/s²

Distance travelled in first 40s = ½ x 20 x 8 = 20 x 8 = 160m

3) a.

b. acceleration = 40m/s - 0m/s / 20s = 40m/s / 20s = 2m/s²

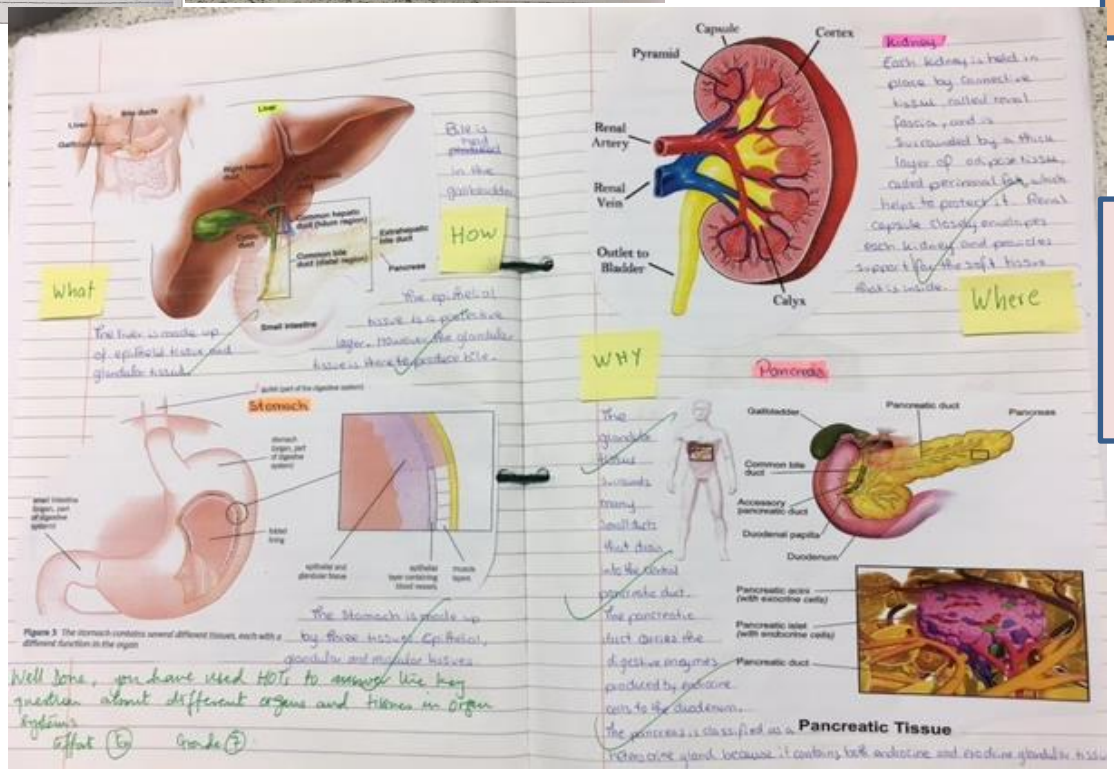
c. i) Distance travelled in first 20s = ½ x 20 x 40 = 10 x 40 = 400m.

ii) Distance travelled in next 10s = 40 x 10 = 400m.

How can calculate speed, velocity and accelerations. You can use graphical data to analyse motions of objects and calculate distance and acceleration. You can also represent motion using graph

Pupils plan and execute more difficult calculations to provide more accurate results

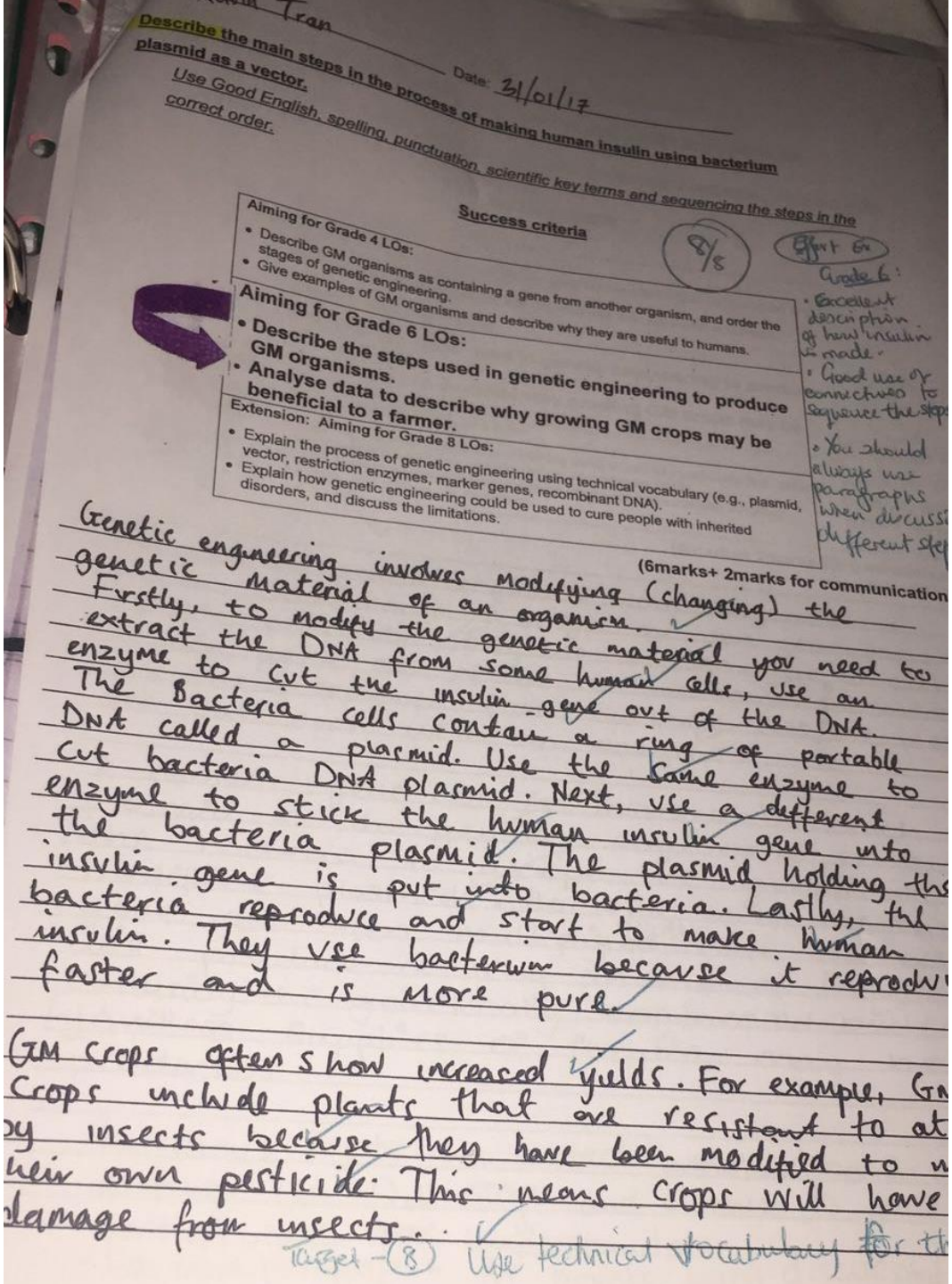
Problem –solving:
This needs to be deconstructed-
1. Understanding and representing the problem.
2. Selecting or planning the solution.
3. Executing the plan
4. Evaluating the results.



Well done, you have used HOTs to answer the key question about different organs and tissues in organ systems

Effort Grade

Pupils used HOTs questioning grid to complete task.



Tran

Date: 31/01/17

Describe the main steps in the process of making human insulin using bacterium plasmid as a vector.

Use Good English, spelling, punctuation, scientific key terms and sequencing the steps in the correct order.

Success criteria

Aiming for Grade 4 LOs:

- Describe GM organisms as containing a gene from another organism, and order the stages of genetic engineering.
- Give examples of GM organisms and describe why they are useful to humans.

Aiming for Grade 6 LOs:

- **Describe the steps used in genetic engineering to produce GM organisms.**
- **Analyse data to describe why growing GM crops may be beneficial to a farmer.**

Extension: Aiming for Grade 8 LOs:

- Explain the process of genetic engineering using technical vocabulary (e.g., plasmid, vector, restriction enzymes, marker genes, recombinant DNA).
- Explain how genetic engineering could be used to cure people with inherited disorders, and discuss the limitations.

(6marks+ 2marks for communication

8/8

Effort 6+

Grade 6:
- Excellent description of how insulin is made.
- Good use of connectives to sequence the steps
- You should always use paragraphs when discussing different steps

Genetic engineering involves modifying (changing) the genetic material of an organism. Firstly, to modify the genetic material you need to extract the DNA from some human cells, use an enzyme to cut the insulin gene out of the DNA. The Bacteria cells contain a ring of portable DNA called a plasmid. Use the same enzyme to cut bacteria DNA plasmid. Next, use a different enzyme to stick the human insulin gene into the bacteria plasmid. The plasmid holding the insulin gene is put into bacteria. Lastly, the bacteria reproduce and start to make human insulin. They use bacterium because it reproduces faster and is more pure.

GM crops often show increased yields. For example, GM crops include plants that are resistant to attack by insects because they have been modified to make their own pesticide. This means crops will have no damage from insects.

Target - (8) Use technical vocabulary for the

Extended writing task

Parental support

Expectations

1. **Encourage your child to give their best effort in both classwork and homework.**

2. **Ensure that your child has the necessary equipment to engage with the learning task effectively each day.**

3. **Have learning conversation with your child as to what they enjoy in lesson and what barriers may be hindering their progress.**

4. **Encourage and motivate your child to always strive towards achieving and even outperforming their targets.**

5. **Encourage your child to attend booster class (to bridge gap in their knowledge) and Science centre of excellence (provide enrichment activities that stretch and challenge pupils and widen their knowledge and understanding of the application of science in the real world).**