



All Saints'
Academy
Cheltenham

Year 10

Cycle 1

Curriculum Organiser

Name : _____

Tutor : _____

Contents Page

Page	Contents
3	All Saints' Academy Home School Agreement
4	Independent homework timetable for 2025-26
5	Why Study?
6	How should I use my Curriculum Organiser?
7	Spelling, Punctuation and Grammar
8-11	English
12-17	Maths
18-25	Science
26-28	Religion and Ethics
29-30	Physical Education
31-33	Options Subject 1:
34-36	Options Subject 2:
37-39	Options Subject 3:



All Saints' Academy Home School Agreement – 2024/25

All Saints' Academy recognises that the successful development of its students depends on an effective partnership of the Academy, students and parents/carers.

All three parties share responsibility for the development and achievement of each student. Together we commit ourselves to the following:

The Academy will:	Parents/Carers will:	Students will:
• Provide a learning environment that is stimulating, safe and caring. • Treat everyone with respect. • Ensure that each student has the opportunities, support and guidance to achieve their full potential. • Report regularly on each student's progress. • Expect high standards, set clear rules, promote mutual respect and develop a sense of responsibility. • Keep parents informed about Academy matters, be welcoming to enquiries and responsive to concerns. • Set homework in line with the published timetable, and give feedback on tasks completed. • Record and reward good progress and performance. • Offer enrichment activities that will develop broader skills to prepare for life and the world of work.	• Make sure their child attends in correct uniform, arrives on time and is properly equipped. • Encourage their child to work hard and support them in their homework. • Attend consultation evenings and discussions about their child's progress. • Support the Academy's policies and guidelines as published on the Academy website. • Allow their child to attend off-site visits during the day. • Agree to the sanctions system as set out in the Academy Ready to Learn Policy. • Ensure their child attends every day and that time out of school is not taken or requested, unless for an urgent reason. • Inform staff, if they have concerns about their child's progress, well-being or any other issues. • Encourage their child to participate in the enrichment opportunities offered by the Academy.	• Be an ambassador for All Saints' Academy. • Work hard in class and at home to achieve their full potential. • Treat others as they would wish to be treated and live out the Academy values. • Attend the Academy in correct uniform, be on time and properly equipped. • Keep the Academy rules, behave responsibly and be polite to others in the Academy, and in the wider community. • Follow the Ready to Learn Policy, completing any sanctions set and striving to achieve rewards each week. • Understand that any misbehaviour in the community whether in uniform or not, will be treated as if the incident happened in the Academy. • Take part in enrichment activities offered by the Academy. • Care for the environment in and outside the Academy.

Signed by Form Tutor	Signed by Parent/Carer	Signed by Student
----------------------	------------------------	-------------------

Independent homework timetable

Subject	Week 1 day	Week 2 day
English		
Maths		
Biology		
Chemistry		
Physics		
RE		
Option subject 1:		
Option subject 2:		
Option subject 3:		

Why study?

All students study because they value opportunities to learn and improve.

All students understand that in order to make excellent progress towards bright futures, they need to take responsibility for their own success and study at home as well as at the Academy.

We want you to have the very best opportunities available to you when you leave the Academy. Achieving excellent exam results in Year 11 and Year 13 is one way to help you to do that.

To gain excellent exam results in Year 11 and Year 13, you need to work hard in school every single lesson, every day in Year 7, 8, 9, 10 and 11. If you are in the Academy every day for 5 years you will have 4,750 hours of study time.

We want to make it as easy as possible for you to complete your study away from the Academy. Completing one hour of study per evening at home adds up to an extra 950 hours over your five years with us – which is like having an extra year of learning.

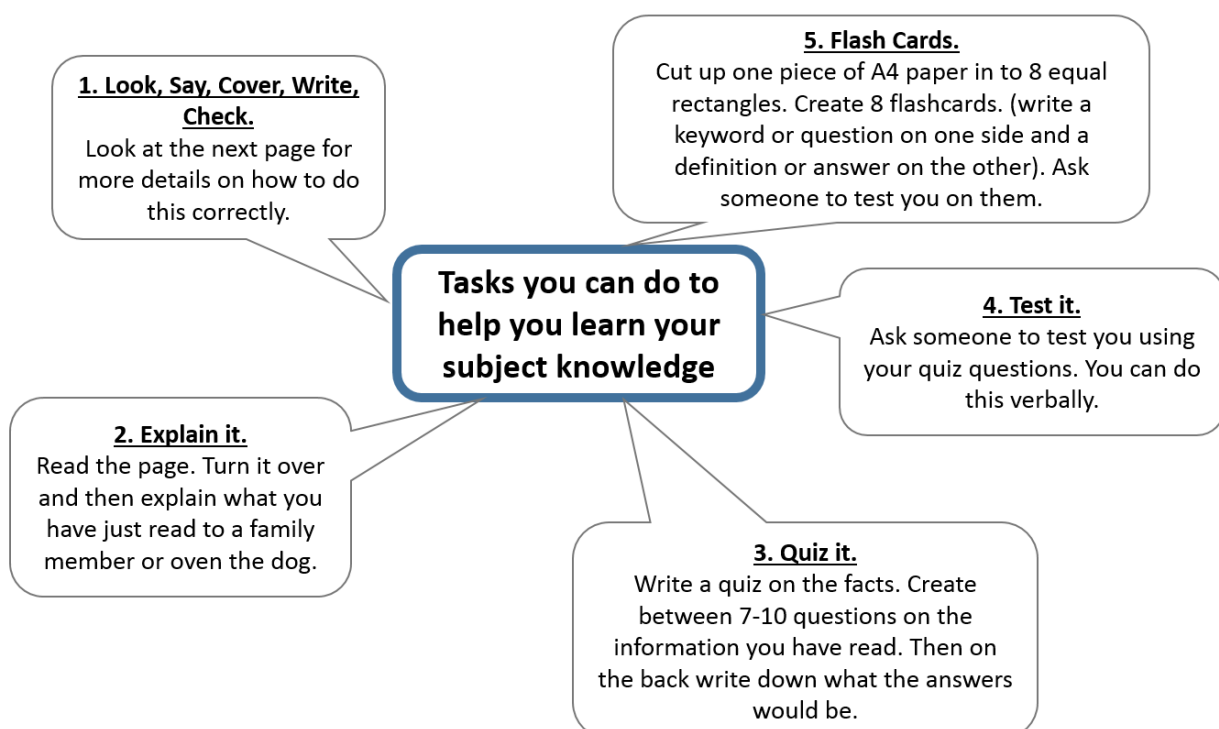
When and what should I study?

You should complete your Independent homework timetable on page 3, so that you know when to study.

Year 7, 8 and 9 should be completing one hour of homework each evening.

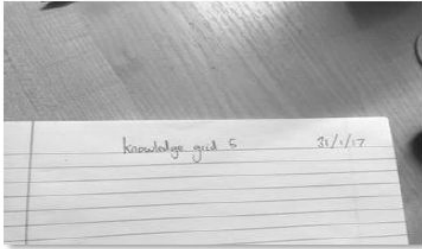
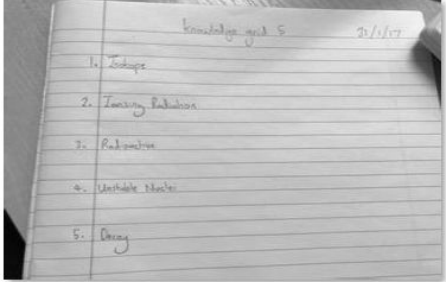
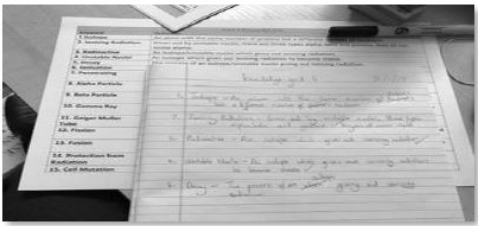
Year 10 and 11 should be completing two hours of homework each evening.

How should I use my Knowledge Organiser to study?



How should I use my Knowledge Organiser to study?

Look, Say, Cover, Write, Check

Step 1		1) Write the date and the title from the knowledge organiser. Underline them.
Step 2		2) Write out the keywords you have been asked to learn, leaving two lines between each word.
Step 3		3) Cover the definitions apart from the first: read it, cover it, say it in your head, check it until you are confident with it. Repeat this process with the other words and take your time.
Step 4		4) Cover up each definition in turn and write them out from memory. Avoid cheating as you need to know how much you can remember. Don't expect yourself to get it exactly right first time.
Step 5		5) Correct your answers in green pen. Repeat the process.



SPAG: Spelling, Punctuation and Grammar

Punctuation

Sentence demarcation:

Symbol	Name	Use
A, N	Capital letters	To start a sentence.
.	Full stop	To show a point/ idea is finished.
!	Exclamation mark	To illustrate heightened emotions, either positive or negative
?	Question mark	To illustrate a question is being asked.
...	Ellipsis	To build tension at the end of sentence or to leave a sentence unfinished for effect.

In sentence punctuation:

Symbol	Name	Use
,	Comma	Following an adverb or connective which starts a sentence or to join a subordinate and main clause together.
“ ”	Speech marks	To indicate the start and end of direct speech.
()	Brackets	To put additional information into a sentence.
‘ ’	Apostrophe	To show a contraction (joining of two words) or omission (taking out of a letter).

Ambitious punctuation:

Symbol	Name	Use
:	Colon	To show the start of a list or to show important information.
;	Semi colon	To separate long items in a list or to join to simple sentences that are linked by meaning.

Grammar rules

Sentence construction:

All sentences need a subject, verb and an object.

Tense:

Past- Was/ Were
Present- Is/Am
Future- Will

Singular and Plural:

I was...
We/ they were....

Capital Letter Rules:

Start to a sentence.
Proper nouns.
Titles of books, films etc.
Days of the week.
Months of the year.
Religious deities.
I/ I'm/ I'd/ I've.
Historical periods/events.

Homophones

Their- belonging to them.

There- a position or place.

They're- contraction for they are.

Witch- a person with magic powers.

Which- a question word.

Were- past tense of was.

We're- contraction for we are.

Its- belonging to something.

It's- contraction for it is.

Toe- a part of the body.

Tow- to pull something along.

Hole- a hollow place in a solid body.

Whole- all of something.

English KS4 Curriculum 2025-2026



Year 10				Year 11		
	Knowledge and skills	Cross Curricular	Enrichment	Knowledge and skills	Cross Curricular	Enrichment
Cycle 1	Literature Paper 1-Macbeth Read and explore key characters and themes. Language Skills Language analysis skills and writing techniques Assessments: Mid- Cycle: Macbeth extract End: Transactional Writing Careers- Stage manager/Director/ Actor/Speech writer/Journalist/ Marketing.	RE: Great Chain of Being and Christian beliefs. History: essay writing skills	RSC live showings	Literature Paper 2 Play: An Inspector Calls Read and explore key characters and themes. Unseen poetry Analysis skills Assessments: November mock exams Language Paper 1, Literature Paper 2 Careers- Self-employed person/ Councillor/ shop worker.	Geo and Business: Economic world- links to economic ideas presented in the texts. History: similar time period.	Theatre trip
Cycle 2	Literature Paper 2-A Christmas Carol Read and explore key characters and themes. Understanding of historical context. Language Skills Retrieval, analysis, evaluation, synthesis, and comparison. Writing skills. Assessments: Mid-Cycle: Theme of Redemption End: Paper 2 Language reading section Careers- Historian/ Charity worker.	Geography: The Living World and Nature poetry. History- poetry context.	Book club Carnegie shadowing Creative Writing competitions	Revision and Consolidation All sections of Literature and Language revisited and revised as appropriate for specific classes.		Book club Carnegie shadowing
Cycle 3	Literature Paper 1-Poetry Anthology Read and explore key themes and contextual information. Language Skills Retrieval, analysis, evaluation, synthesis, and comparison. Writing skills. Assessments: Mid-cycle: Poetry essay End of cycle: Exams: Literature Paper 1, Language Paper 2 Careers- Author/ Poet/English teacher/ Editor/ Librarian.	Extended writing skills: History MFL		Revision/ Exams All sections of Literature and Language revisited and revised as appropriate for specific classes.		



Year 10 – English Literature Cycle One – Macbeth		
Characters	Plot	Key Quotations
Macbeth - Tragic hero. A brave and honourable soldier and thane who is tempted to commit regicide. Lady Macbeth - Macbeth's wife. Hugely ambitious but unable to live with her actions. Banquo - Macbeth's friend who is destined to be head of a line of kings and so poses a threat to Macbeth. Fleance - The son of Banquo. King Duncan - King of Scotland. Malcolm - Duncan's eldest son and the true heir to the throne. Donalbain - Duncan's younger son. Macduff - Thane of Fife. He is the victim of Macbeth's tyranny. Not of woman born. Three Witches - Supernatural beings who can see the future.	Act 1: Three evil witches plan to meet with Macbeth who has just led a victory against Norway. The witches confront Macbeth with predictions which quickly come true when King Duncan rewards Macbeth's valour. Macbeth's ambitious wife persuades him to murder King Duncan and take the crown for himself. Act 2: Macbeth murders King Duncan and Lady Macbeth frames his guards. Macduff discovers the body and Macbeth kills the guards to cover his tracks. Duncan's sons, Malcolm and Donalbain, flee to England and Ireland making them appear guilty. Act 3: Macbeth struggles with his success as he suspects Banquo because of the predictions. Macbeth arranges to have Banquo and his son Fleance killed. Fleance, however, escapes. The ghost of Banquo haunts Macbeth at a banquet he is holding. Act 4: Macbeth returns to the witches for reassurance. They warn him about Macduff but also predict that no man born of woman shall harm Macbeth and that Macbeth shall be safe until Birnam Wood moves. Macduff is in England with Malcolm. Macbeth sends men to kill Macduff's family. Hearing the news of his murdered family, Macduff vows to kill Macbeth. Act 5: Malcolm and the English decide to attack Macbeth's castle using branches from Birnam Wood as a disguise. Lady Macbeth has become mad with grief and kills herself. Macduff fights Macbeth and kills him. Malcolm is restored to the throne.	"Fair is foul and foul is fair" Witches (A1,S1) "What, can the devil speak true?" Banquo (A1,S1) "Brave Macbeth - well he deserves that name..." Captain (A1,S2) "Yet I do fear thy nature – it is too full o' th' milk of human kindness." Lady Macbeth (A1,S5) "Unsex me here. Fill me from the crown to the toe top-full of direst cruelty." Lady Macbeth (A1,S5) "Is this a dagger I see before me..." Macbeth (A2,S1) "Had he not resembled my father as he slept, I had done't." Lady Macbeth. (A2,S2) "Thou has it all now... and I fear thou played most foully for it." Banquo (A3,S1) "It will have blood they say. Blood will have blood." Macbeth (A3,S4) "Beware Macduff" "None of woman born shall harm Macbeth." Witches (A4,S1) "All my pretty chickens and their dam..." Macduff (A4,S3) "Out damned spot! Out I say!" Lady Macbeth (A5,S1) "She should have died hereafter/ There would have been time for such a word" Macbeth (A5,S5) "This dead butcher and his fiend like queen." Malcolm (A5,S7) "Macduff was from his mother's womb untimely ripped" Macduff (A5,S8)



Key Terminology	Themes	Key Words- Tier 3
Protagonist - The main character in a story. Antagonist - A person who opposes the main character usually their enemy. Foil- A character that is the direct opposite of another in terms of personality or actions. Pathetic Fallacy - Using the weather or setting to mirror the feelings of characters. Allusion - A direct or indirect reference to another medium of literature in a text. Symbolism - Where an object is used to represent a bigger idea or concept. Motif - A reoccurring idea or symbol in a literary work. Paradox - A statement that is seemingly contradictory or opposed to common sense and yet is perhaps true. Dramatic Irony - Where the audience know more than the characters about a situation.	Gender roles- Lady Macbeth, ambiguity of witches and questioning masculinity are explored. Ambition- Macbeth for titles, Lady Macbeth for power, Malcolm overthrowing Macbeth, Banquo's rejection of ambition. Supernatural- Witches, visions, prophecies, Banquo's ghost. Power - Duncan's royal authority, Macbeth's power as a leader, Lady Macbeth's power over her husband, Witches' power over Macbeth, power of superstition and the belief in the supernatural. Appearance and Reality- The original Thane of Cawdor betrays Duncan, witches convince Macbeth of a potential future, Macbeth and Lady Macbeth act innocent but betray peoples' trust, Macbeth sees a dagger and Banquo's ghost, Malcolm pretends to Macduff that he would be a bad king. Relationships - Macbeth and Lady Macbeth, Macbeth and Banquo, Macbeth and Duncan, Macbeth and Witches, Banquo and Fleance. Madness- Macbeth seeing the dagger, killing Banquo, the ghost, revisiting the witches. Lady Macbeth sees blood on her hands. Loyalty and Betrayal – Fighting for the king, Thane of Cawdor betrayal, killing the king, following Lady Macbeth, killing Banquo, Malcolm, and Macduff test, killing of the Macduff family and Lady Macbeth unaware and killing herself. Macduff killing Macbeth.	Thane - A Scottish Lord or Earl who has sworn allegiance to the King. Fealty - Sworn loyalty to a King or Queen. Prophecy - A prediction about the future. Divine Right of Kings - The monarch is God's representative on earth. Great Chain of Being – Where the monarch is killed, and the laws of nature go into chaos. Apparition - A ghost or ghostlike image of a person. Stretch and Challenge Watch a different version of Macbeth. Write a soliloquy from the point of view of Macbeth in your own words. Read another Shakespearian tragedy and identify links between them.



Cycle 1 Year 10 – English Language – Transactional Writing		
DAFORREST	Format	GAPS.
D – Direct Address You are a highly valued member of this team. A- Alliteration That was a perfect presentation - Anecdote When I was eleven... F- Fact England is the birthplace of Shakespeare and The Beatles. O- Opinion I personally believe that higher education should be free. R- Rhetorical Question How could I be so stupid? R –Repetition I think it is right that I should be able to make decisions about my own body. I think it is right that women be involved on my behalf in the policies and decisions that will affect my life. I think it is right that socially, I am afforded the same respect as men. E- Emotive Language The puppy has been abandoned by its owner. S- Statistics Overall, 78% of companies had a pay gap in favour of men, 14% favoured women and the rest reported no difference. T- Tripling It's great, it's brilliant, it's amazing!	You will be asked to write in a specified form: Letter: Have an address in the top right of the page. Begin: Dear... End: Yours sincerely/faithfully... Write in a formal tone. Speech: Start by introducing yourself or using a rhetorical question. Use verbs like 'speak' 'listen' or 'talk' to show it's meant to be said. Ensure an appropriate closing. Article: Include a headline. Use a lively style with a range of features. Your first paragraph should give an overview. Leaflet: Divide your ideas into sections with subheadings. Usually informative or persuasive - focus on the purpose. Essay: a formal point tone, an introduction and a conclusion.	Genre: What is it? Audience: Who is it aimed at? Purpose: What is its job? Style: How formal does it need to be? Purposes Inform- Gives the reader key facts about a given subject. Argue- Explain and defend your point of view on a given subject. Persuade- Try to convince someone to do something that you want/ believe in. Evaluate- Give a balanced response which comes to an overall conclusion. Stretch and Challenge Read an article and identify DAFOREST techniques. Write a review on a film that you have just seen.

All Saints' Academy Mathematics KS4 Curriculum

Cycle	Year 10 Foundation	Year 10 Higher	Year 11
	Knowledge & Skills	Knowledge & Skills	Knowledge & Skills
1	Algebra: - Laws of Indices - Multiplying linear expressions - Factorising Quadratic Expressions - Changing the subject Number: - Standard Form - Error Intervals - Compound Growth and Decay Construction: - Perpendicular bisector of a line - Angle bisector - Shortest distance from point to a line Proportion: - Simplifying ratios and sharing ratios - Best buys	Algebra: - Laws of Indices - Multiplying linear expressions - Factorising Quadratic Expressions - Changing the subject Number: - Standard Form - Indices and Surds - Error Intervals - Compound growth and decay Geometry: - Pythagoras' Theorem and 3D shapes - Fractional and negative enlargements - Similar Shapes and Triangles - Area and Volume Scale Factor Construction: - Perpendicular bisector of a line - Angle bisector - Shortest distance from point to a line Proportion: - Simplifying ratios and sharing ratios - Best buys - Connected Ratios	Foundation - Revision and preparation for mocks Higher - Circle Theorems - Quadratic Inequalities - Sine and Cosine Rule - Revision and preparation for mocks
Careers	Quantity Surveyor Geometry: - Area of rectilinear shapes, triangles and circles - Sector perimeter and area - Area of compound shapes - Surface Area and Volume of Prisms - Pythagoras' Theorem	Meteorologist Geometry: - Spheres, pyramids, cones, frustums and composite solids - Sector perimeter and area - Area of compound shapes Algebra: - Algebraic fractions - Constant of proportionality	College options needing Mathematics Revision and preparation for mocks University options with Mathematics

	Algebra: • nth term of linear sequences • Straight Line graphs • Simultaneous Equations Data Handling: • Scatter graphs and Line of Best Fit • averages from tables and grouped intervals	• Straight line graphs • Linear and quadratic sequences • Simple Geometric progressions. • Linear inequalities and inequality regions • Simultaneous Equations – Linear, Quadratic and Circle Equations as one of the equations	
Careers	CAD Technician	Acoustic Consultant	
3	Probability: • Product Rule for Counting • Two-way tables • Venn Diagrams • Tree Diagrams and Conditional Probability Geometry: • Angles in Polygons • Trigonometry Algebra: • Solving Quadratic Equations algebraically and from their graphs	Algebra: • Quadratic, cubic, exponential and reciprocal graphs • Tangent to a circle • Completing the Square • Solving Quadratic Equations algebraically and from their graphs Probability: • Product Rule for Counting • Two-way tables • Venn Diagrams • Tree Diagrams and Conditional Probability Geometry: • Angles in Polygons • Trigonometry • Vectors Statistics: • Cumulative frequency graphs & box plots • Histograms.	Revision and preparation for final examinations.
Careers	Sports Science and Analysis	Statistician	

Year 10 Higher Cycle 1 Mathematics

LO: I can use the index laws to simplify expressions with fractional and negative indices. ☐

INDEX LAWS

base a index, exponent, power m

$$a^m \times a^n = a^{m+n}$$

$$a^m \div a^n = a^{m-n}$$

$$(a^m)^n = a^{mn}$$

$$(ab)^m = a^m b^m$$

$$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$$

$$a^0 = 1$$

$$a^{-m} = \frac{1}{a^m}$$

$$a^{m/n} = \sqrt[n]{a^m}$$

Hegarty: 102-110, 173-175

LO: I can solve problems involving upper and lower bounds. ☐

Eg: You walk 10 km to the nearest kilometre in a time of 2 hours to the nearest hour. What is the slowest speed you could have walked?

$$s = \frac{d}{t}$$

$$9.5 \text{ km} < \text{distance} < 10.5 \text{ km}$$

$$1.5 \text{ hrs} < \text{time} < 2.5 \text{ hrs}$$

$$\text{Slowest speed} = \frac{\text{distance LB}}{\text{time UB}}$$

$$= \frac{9.5}{2.5} = 3.8 \text{ km/hr}$$

Hegarty: 137-139

LO: I can use the basic surd rules to combine or simplify surds. ☐

$$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$$

$$\sqrt{a} \div \sqrt{b} = \sqrt{\frac{a}{b}}$$

These can be used in both directions.

$$\sqrt{72} = \sqrt{36 \times 2} = \sqrt{36} \times \sqrt{2} = 6\sqrt{2}$$

$$\sqrt{\frac{25}{49}} = \sqrt{25} \div \sqrt{49} = 5 \div 7 = \frac{5}{7}$$

Hegarty: 113-119

LO: I can rationalise the denominator of a fraction containing a surd. ☐

$$\frac{5}{\sqrt{3} + 1} = \frac{5}{\sqrt{3} + 1} \times \frac{\sqrt{3} - 1}{\sqrt{3} - 1}$$

$$= \frac{5(\sqrt{3} - 1)}{(\sqrt{3} + 1)(\sqrt{3} - 1)}$$

$$= \frac{5(\sqrt{3} - 1)}{\sqrt{3}\sqrt{3} + 1\sqrt{3} - 1\sqrt{3} - 1}$$

$$= \frac{5(\sqrt{3} - 1)}{3 - 1}$$

$$= \frac{5(\sqrt{3} - 1)}{2}$$

LO: I can expand double brackets containing surds. ☐

$$(2 + \sqrt{3})(\sqrt{3} - 5)$$

$$= 2(\sqrt{3} - 5) + \sqrt{3}(\sqrt{3} - 5)$$

$$= 2\sqrt{3} - 10 + \sqrt{3}\sqrt{3} - 5\sqrt{3}$$

$$= 2\sqrt{3} - 10 + \sqrt{3}\sqrt{3} - 5\sqrt{3}$$

$$= 2\sqrt{3} - 5\sqrt{3} - 10 + 3$$

$$= -3\sqrt{3} - 7$$

Hegarty: 113-119

LO: I can rationalise the denominator of a fraction containing a surd. ☐

$$\frac{3}{2\sqrt{3}} = \frac{3}{2\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}}$$

$$= \frac{3\sqrt{3}}{2\sqrt{3}\sqrt{3}}$$

$$= \frac{3\sqrt{3}}{2 \times 3}$$

$$= \frac{\sqrt{3}}{2}$$

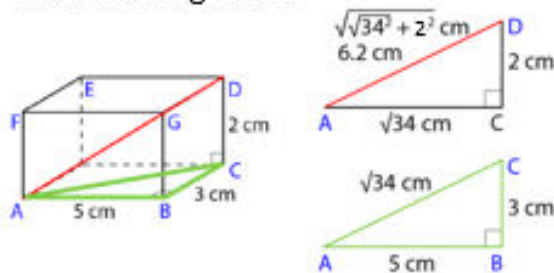
The factor of 3 cancels from "top and bottom"

Hegarty: 113-119

Year 10 Higher Cycle 1 Mathematics

LO: I can find lengths in 3D shapes using Pythagoras' Theorem. ☐

Find the length AD.



$$AD = \sqrt{38} = 6.16 \text{ to 3 s.f.}$$

Hegarty: 505-507

LO: I can factorise standard quadratic forms including the "Difference of Two Squares". ☐

Factorise the quadratic expression $x^2 - 4x - 12$.

* Find two numbers which multiply to give -12 and add to give -4.

$$-12 = -6 \times 2; -4 = -6 + 2$$

* So we can write as $(x - 6)(x + 2)$

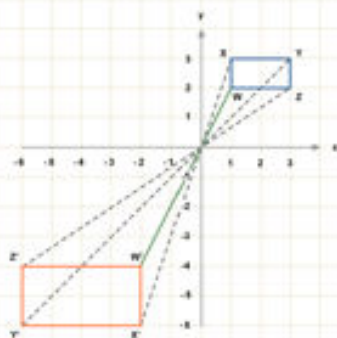
$$a^2 - b^2 = (a - b)(a + b)$$

Eg)

$$4x^2 - 81 = (2x + 9)(2x - 9)$$

Hegarty: 223-224

LO: I can enlarge shapes with a negative scale factor. ☐



XYWZ is enlarged by scale factor -2, centre of enlargement at (0,0) to give the image X'Y'Z'W' which is twice the size but "through" the origin.

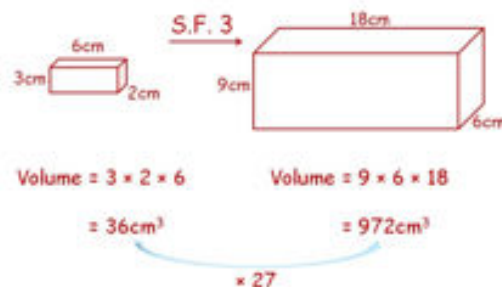
Hegarty: 642-647

LO: I can find the volumes of similar solids using scale factors. ☐

Remember:

Area Scale Factor = Linear Scale Factor²

Volume Scale Factor = Linear Scale Factor³



Hegarty: 615-621

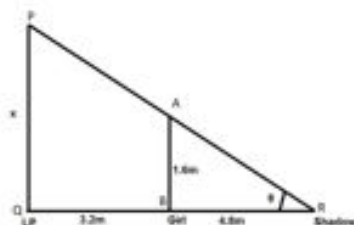
LO: I can enlarge shapes with a fractional scale factor. ☐



ABC is "enlarged" by scale factor $\frac{1}{2}$, centre of enlargement at (0,0) to give the image A'B'C' which is half the size and twice as close to the origin.

Hegarty: 642-647

LO: I can apply the principle of similar shapes and triangles to solve problems.



What is the height of the lamp post, LP?

$$\frac{x}{3.2 + 4.8} = \frac{1.6}{4.8}$$

$$x = 8 \times \frac{1}{3} = 2.67 \text{ m}$$

Hegarty: 611-613

Year 10 Foundation Cycle 1 Mathematics

LO: I can simplify expressions using the law of indices for multiplication, division and powers

$$\begin{aligned} a^m \times a^n &= a^{m+n} \\ a^m \div a^n &= a^{m-n} \\ (a^m)^n &= a^{m \times n} \\ a^0 &= 1 \end{aligned}$$

Example

Simplify $3^2 \times 3^5 = 3^7$

Can you simplify:

- $6^5 \div 6^2 =$
- $(5^2)^4 =$

Hegarty 173 and 174

LO: I can factorise a quadratic expression of the form $x^2 + bx$ and $x^2 + bx + c$

x is a factor of both terms

$$x^2 + 5x = x(x + 5)$$

$$x^2 - 2x - 8 = (x - 4)(x + 2)$$

List the factors of -8

$\begin{array}{l} -8 \ 1 \\ -1 \ 8 \\ -4 \ 2 \\ -2 \ 4 \end{array}$

Which ones add to -2 ?

Hegarty 223 and 224

LO: I can evaluate Standard Form without calculator

4.2×10^9

Must be 1 to 10 (but not 10!) Must be $\times 10$ Must be an integer

Example:

$$\begin{aligned} 3.2 \times 10^4 + 5.3 \times 10^3 &= 3200 + 530 \\ &= 3730 \\ &= 3.73 \times 10^4 \end{aligned}$$

Hegarty 122-128

LO: I can multiply two linear expressions of the form: $(x + a)(x + b)$, $(ax + b)(cx + d)$ and $(x + a)^2$

Example – expand and simplify:

$$(x + 5)(x + 6)$$

$\times$	x	$+5$
x	x^2	$+5x$
$+6$	$+6x$	$+30$
$6x + 5x = 11x$		
$\rightarrow x^2 + 11x + 30$		

Remember $(x + 3)^2 = (x + 3)(x + 3)$

So expand and simplify as above

Hegarty 162-164

LO: I can identify the minimum and maximum values of an amount that has been rounded (to nearest x , x d.p., x s.f.), as well as solve problems involving minimum and maximums. I can use inequalities to describe the range of values for a rounded value

Example

$b = 5.4$

b has been rounded to the nearest 1 d.p. Work out the minimum and maximum values this could have been

Answer

5.45 is the maximum and 5.35 is the minimum

We can write this as:
 $5.35 \leq b < 5.45$

Hegarty 137-138

LO: I understand the difference between an equation and identity

An **identity** is true for any value of the variable, but an **equation** is not.

e.g. $5(x - 2) \equiv 5x - 10$ is an **identity** as it is true for all values of x where as $5x - 2 = 8$ is an **equation** as it is only true for $x = 2$

Which are **equations** and which are **identities**:

$$\begin{aligned} 3a + 8 &= 17 & 8p^2 &= 2p \times 4p & x^2 &= 9 \\ 3(4x - 2) &= 12x - 6 \end{aligned}$$

Hegarty 154

Year 10 Foundation Cycle 1 Mathematics

LO: I can change the subject of a formula when two or more steps are required ☐

I can change the subject of a formula when the required subject appears twice ☐

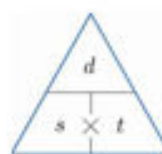
Remember to use inverse operations to change sides

Example

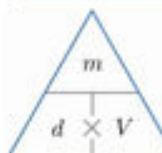
$$\begin{array}{lcl} P = 4x + 3 & & \\ -3 & \text{ } & -3 \\ \hline P - 3 = 4x & & \\ \div 4 & \text{ } & \div 4 \\ \hline \frac{P-3}{4} = x & & \end{array}$$

Hegarty 280-285

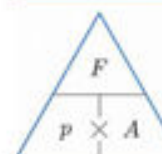
LO: I can use and calculate compound measures ☐



$$\text{speed} = \frac{\text{distance}}{\text{time}}$$



$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

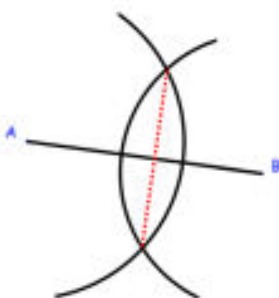


$$\text{pressure} = \frac{\text{force}}{\text{Area}}$$

Hegarty 716-737

LO: I can use ruler and compasses to construct the perpendicular bisector of a line segment, bisect an angle, perpendicular to a line from a point. ☐

I can construct the locus of points a fixed distance from a point and from a line ☐



Hegarty 660-663

LO: I can use proportion in context led recipes, as well as context led inverse proportion. I can find Best buys. ☐

I can simplify ratio and share amounts in a given ratio ☐



Hegarty 739-742, 339-342, 329-333

LO: I can convert between fractions, decimals and percentages. ☐

I can use the four operations for fractions, including mixed numbers and improper fractions. ☐

percentage	fraction	decimal
30%	$\frac{3}{10}$	0.3

$$\begin{array}{l} \text{Find common denominator} \\ \frac{2}{2} \times \frac{3}{5} + \frac{3}{2} \times \frac{2}{5} \\ \frac{6}{10} + \frac{6}{10} \\ \frac{12}{10} \end{array}$$

REMEMBER
Common denominators are only needed for adding and subtracting NOT multiplying or dividing

Hegarty 60-83

LO: I can find percentages of amounts. ☐

I can use percentage increases and decreases, including reverse percentages. ☐

I can use compound and simple interest. ☐

Find 12% of 80
 $12 \div 100 = 0.12$ (this is called the **multiplier**)
 $0.12 \times 80 = 9.6$

To **increase** we add 1 to the multiplier, so **increase** 80 by 12% is $1.12 \times 80 = 89.6$

And to **decrease** we take the multiplier away from 1, so **decrease** 80 by 12% is $0.88 \times 80 = 70.4$

Hegarty 85-98

KS4 Science Curriculum 2025-26

	Year 10		Year 11	
	Knowledge and skills	Curriculum links	Knowledge and skills	Curriculum links
Cycle 1	Paper 1 content Biology – Topic 1: Cell biology, and Topic 2: Organisation Chemistry – Topic 1: Atomic structure and the periodic table, and Topic 2: Bonding, structure, and the properties of matter Physics – Topic 1: Energy, and Topic 2: Electricity Cycle 1 assessments: Topics 1 and 2	Maths – throughout all topics. DT – links to digestion and food groups.	Paper 2 content Biology – Topic 6: Inheritance, variation and evolution Chemistry – Topic 7: Organic Chemistry, and Topic 8: Chemical analysis Physics – Topic 5: Forces (Forces and motion), and Topic 6: Waves (wave properties) AUTUMN MOCKS: Paper 1 content (combined or separate science content, dependent on set) Bio – Topics 1-4 Chem – Topics 1-5 Phys – Topics 1-4	Maths – throughout all topics. Interpreting graphs. RE – Evolution.
Cycle 2	Paper 1 content Biology – Topic 3: Infection and response, and Topic 4: Bioenergetics Chemistry – Topic 3: Quantitative chemistry, Topic 4: Chemical changes, and Topic 5: Energy changes Physics – Topic 3: Particle model of matter, and Topic 4: Atomic structure Cycle 3 assessments: Topics 3 and 4	Maths – throughout all topics. Recognising patterns. Reading and drawing graphs. PE – movement, circulation, link to fitness RSE – Personal health, healthcare.	Paper 2 content Biology – Topic 7: Ecology Chemistry – Topic 9: Chemistry of the atmosphere, and Topic 10: Using resources Physics – Topic 5: Waves (Electromagnetic waves), Topic 7: Magnetism and electromagnetism, and Topic 8: Space physics (separate sciences only) SPRING MOCKS: Paper 2 content (combined or separate science content, dependent on set) Bio – Topics 5-7, Chem – Topics 6-10, Phys – Topics 5-7 (combined) or Topics 5-8 (separate)	Maths – throughout all topics. Geography – links to sustainability. RE – The Big Bang Theory.
Cycle 3	Paper 2 content Biology – Topic 5: Homeostasis and response Chemistry – Topic 6: The rate and extent of chemical change Physics – Topic 5: Forces pt.1 END OF YEAR 10 MOCKS: Paper 1 (combined sciences) content Bio – Topics 1-4, Chem – Topics 1-5, Phys – Topics 1-4	Maths – throughout all topics. Using equations. Interpreting and drawing graphs. RSE – Health, human reproduction and contraception.	Consolidate and revise Papers 1 & 2 – identify areas to improve, revision, exam technique GCSE exams: Combined science: 2x 1h 15 min paper/science Separate sciences: 2x 1h 45 min paper/science	

Digestive system

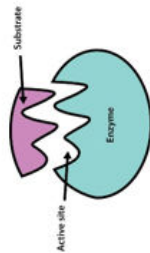
Digestion breaks down large molecules to smaller molecules that can be absorbed.

A diagram of a human figure from the waist up, showing the internal organs of the digestive system. The organs are highlighted in various colors: the mouth, esophagus, and stomach are pink; the liver, gall bladder, and pancreas are yellow; the small intestine is green; the large intestine is blue; and the rectum and anus are red. Labels with lines pointing to each organ are as follows:

- Mouth
- Salivary glands
- Esophagus
- Liver
- Gall bladder
- Pancreas
- Small intestine
- Appendix
- Stomach
- Large intestine
- Rectum
- Anus

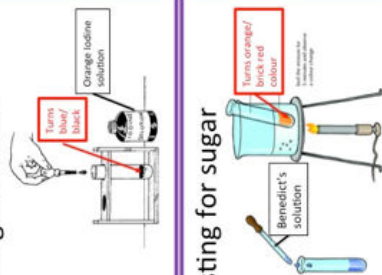
Enzymes

Speed up reactions by splitting molecules apart or joining molecules together.



Practical tests for starch, sugars, fats and proteins

Enzymes – investigating effect of pH on enzyme activity.
To do this you use starch and amylase.
When blue black colour disappears starch no longer present.
Amylase has broken starch down into sugars. Faster the colour disappears the faster the reaction is.



Testing for fats & oils

Testing for protein

AQA

Biology Paper 1- Infection and response

All Rights Reserved

Communicable diseases

<https://www.bbc.com/education/topics/z9kwwv6f>

Pathogens are microorganisms that cause infectious disease

Viruses live and reproduce inside cells causing damage

Bacteria may produce toxins that damage tissues and make us feel ill

Pathogens may infect plants or animals and can be spread by direct contact, water or air

Viral diseases

Disease	Symptoms	Method of transmission	Control of spread
Measles	Fever, red skin rash.	Droplet infection from sneezes and coughs.	Vaccination as a child.
HIV	Initially flu like systems, serious damage to immune system.	Sexual contact and exchange of body fluids.	Anti-retroviral drugs and use of condoms.
TMV	Mosaic pattern on leaves.	Enters via wounds in epidermis caused by pests.	Remove infected leaves and control pests that damage the leaves.

Vaccinations

Used to immunise a large proportion of the population to prevent the spread of a pathogen

Small amount of dead or inactive form of the pathogen	1st infection by pathogen	White blood cells detect pathogens in the vaccine. Antibodies are released into the blood.
	Re-infection by the same pathogen	White blood cells detect pathogens. Antibodies are made much faster and in larger amounts.

Vaccine immunity

Bacterial diseases

<https://www.youtube.com/watch?v=CsCVRP5W0&index=3&list=PLuara7UaRtU9n78S7ZFDeraUMNKNQg>

Disease	Symptoms	Method of transmission	Control of spread
Salmonella	Fever, cramp, vomiting, diarrhoea.	Food prepared in unhygienic conditions or not cooked properly.	Improve food hygiene, wash hands, vaccinate poultry, cook food thoroughly.
Gonorrhoea	Green discharge from penis or vagina.	Direct sexual contact or exchange of body fluids.	Use condoms. Treatment using antibiotics.

Fungal and Protist diseases

Disease	Symptoms	Method of transmission	Control of spread
Malaria (Protists)	Recurrent fever.	By an animal vector (mosquitoes).	Prevent breeding of mosquitoes. Use of nets to prevent bites.
Rose black spot (Fungus)	Purple black spots on leaves.	Spores carried via wind or water.	Remove infected leaves. Spray with fungicide.

Mid-Cycle Assessment

Antibiotics and Painkillers

antibiotics	e.g. penicillin	Kill infective bacteria inside the body. Specific bacterial infections require specific antibiotics.
Painkillers and other medicines	e.g. aspirin, paracetamol, ibuprofen	Drugs that are used to treat the symptoms of a disease. They do not kill pathogens

Antibiotics cannot be used to treat viral pathogens

It is difficult to develop drugs to kill viruses without harming body tissues because viruses live and reproduce inside cells

Antibiotics have greatly reduced deaths from infectious bacterial disease
Bacteria can mutate- Sometimes this makes them resistant to antibiotic drugs.

Human defences-Non specific defence

Nose	Nasal hairs, sticky mucus and cilia prevent pathogens entering through the nostrils.
Trachea and bronchus (respiratory system)	Lined with mucus to trap dust and pathogens. Cilia move the mucus upwards to be swallowed.
Stomach acid	Stomach acid (pH1) kills most ingested pathogens.
Skin	Hard to penetrate waterproof barrier. Glands secrete oil which kill microbes

Human defences-The immune system

White blood cells are part of the immune system

Pathogens are identified by white blood cells by the different proteins on their surfaces **ANTIGENS**.

Phagocytes	Phagocytosis	Phagocytes engulf the pathogens and digest them.
Lymphocytes	Antibody production	Specific antibodies destroy the pathogen. This takes time so an infection can occur. If a person is infected again by the same pathogen, the lymphocytes make antibodies much faster.
	Antitoxin production	Antitoxin is a type of antibody produced to counteract the toxins produced by bacteria.

Drugs

Drugs have to be tested and trialled before to check they are safe and effective

New drugs are tested for:	Efficacy	Make sure the drug works
	Toxicity	Check that the drug is not poisonous
	Dose	The most suitable amount to take

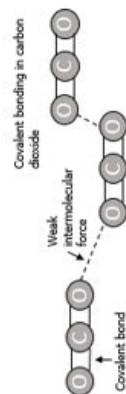
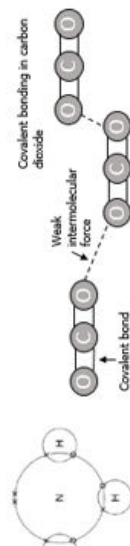
Preclinical trials - using cells, tissues and live animals - must be carried out before the drug can be tested on humans.

Clinical trials use healthy volunteers and patients

- Very low doses of the drug are given at the start of the clinical trial.
- If the drug is found to be safe, further clinical trials are carried out to find the optimum dose for the drug.
- In double blind trials, some patients are given a placebo.

Covalent bonding

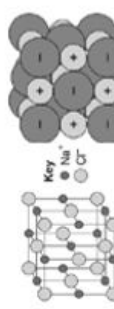
Covalent bond= A bond formed when **non-metals share electrons**. A **strong bond**.



Ionic bonding



In ionic bonding, metals lose electrons to become positively-charged ions. Non-metals gain electrons to become negatively-charged ions.



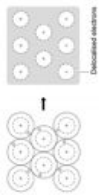
Key terms-

Ion= An atom that is **charged** because of **gain or loss of electrons**.
Electrostatic attraction= The **force** that **holds two oppositely charged ions** together. A **strong force**.

Metallic bonding

Metals consist of giant structures of atoms arranged in a regular pattern. The electrons in the outer shell of metal atoms are **delocalised** and so are free to move through the whole structure. The sharing of delocalised electrons gives rise to strong metallic bonds.

Metals are good conductors of electricity because the **delocalised electrons** in the metal carry electrical charge through the metal. Metals are good conductors of thermal energy because energy is transferred by the **delocalised electrons**.



Mid-Cycle Assessment

States of matter

The three states of matter are solid, liquid and gas. Melting and freezing take place at the melting point, boiling and condensing take place at the boiling point.



Properties of small molecules

Property	Reason
Low melting and boiling points (usually gases or liquids)	There are only weak intermolecular forces between the molecules. Not much energy is needed to overcome these forces.
Do not conduct electricity	Covalent molecules are not charged .

Properties of graphite

Property	Reason
Conducts electricity	Each carbon only forms 3 bonds so one electron is delocalised . These electrons are free to move and carry charge through the structure.
Soft and slippery	Only weak intermolecular forces exist between layers , so layers can easily be rubbed off.

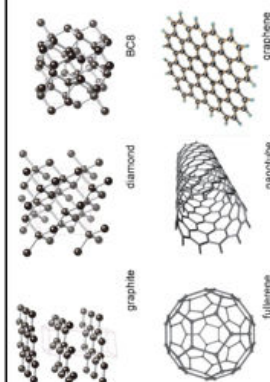
Properties of diamond

Property	Reason
Doesn't conduct electricity	Diamond doesn't contain delocalised electrons or ions .
Very hard	Each carbon bonds to 4 other carbon atoms with strong covalent bonds to form a lattice .
High melting point	Each carbon bonds to 4 other carbon atoms with strong covalent bonds to form a lattice. A large amount of energy is needed to overcome all these bonds.

Structure of carbon

Graphite-Each carbon forms **3 bonds** to other carbon atoms. Arranged in **layers** with **weak intermolecular forces** between layers.

Diamond- Each carbon forms **4 bonds** to other carbon atoms.



Properties of ionic compounds

Property	Reason
High melting point	There is a strong electrostatic force between the positive and negative ions in the giant lattice . A large amount of energy is needed to overcome this force.
Conduct electricity when liquid/molten	Ions are able to move so there is a flow of charged ions (current).
Do not conduct electricity when solid	Ions are in fixed positions so cannot flow.

<https://www.youtube.com/watch?v=off127nax0E&list=PL8d6a6d6a6d6a6d6a>

Key terms

1 Law of conservation of mass	No atoms are lost or gained during a chemical reaction. The mass of the products is the same as the mass of the reactants. Some reactions appear to give a change in mass, but this is because a gas may have escaped from the reaction container.
2 Relative atomic mass (A_r)	The average mass of an atom of an element compared to Carbon-12.
3 Relative formula mass (M_r)	The sum of all the atomic masses of the atoms in a formula (e.g. H_2O).
4 Uncertainty	The interval within which the true value can be expected to lie. E.g. $25^\circ C \pm 2^\circ C$ - the true value lies between $23^\circ C$ and $27^\circ C$.
5 Mole (HT)	A measurement for the amount of a chemical. It is the mass (in grams) of 6.02×10^{23} (the Avogadro constant) atoms of an element. Symbol: mol.
6 Balanced equation (HT)	Balanced symbol equations show the number of moles that react. e.g. $Mg + 2HCl \rightarrow MgCl_2 + H_2$ Shows one mole of magnesium reacting with two moles of hydrochloric acid to form one mole of magnesium chloride and one mole of hydrogen.
7 Limiting reactant (HT)	The reactant that is completely used up in a chemical reaction. It limits the amount of product formed.
8 Excess reactant (HT)	The reactant that is not completely used up in a chemical reaction. There is some reactant left at the end.
9 Concentration	A measure of the number of particles of a chemical in a volume. Can be measured in g/dm^3 .
10 Decimetre ³ (dm^3)	A measurement of volume. Contains $1000cm^3$.

Calculating relative formula mass (M_r)

Add up all the atomic masses in a formula.

e.g. H_2O . Mass of hydrogen = 1. Mass of oxygen = 16.
 $(2 \times 1) + 16 = 18$

Percentage uncertainty

Percentage uncertainty = $\frac{\text{Uncertainty}}{\text{Quantity being measured}} \times 100$

e.g. What is the percentage uncertainty of a $50cm^3$ measuring cylinder accurate to $\pm 2cm^3$?

Percentage uncertainty = $\frac{2}{50} \times 100 = 4\%$

Mid-Cycle Assessment

Number of moles

Number of moles = $\frac{\text{Mass of chemical}}{\text{Relative formula mass}}$

e.g. How many moles of water are there in $36g$ of H_2O ?

Number of moles = $\frac{36}{18} = 2$ moles

Volume in dm^3

Volume in $dm^3 = \frac{\text{volume of liquid}}{1000cm^3}$

e.g. What is the volume in dm^3 of $500cm^3$ of hydrochloric acid?

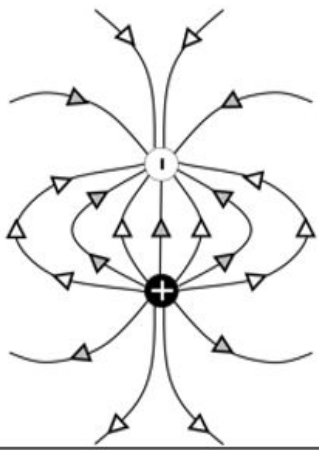
Volume in $dm^3 = \frac{500}{1000} = 0.5dm^3$

Concentration of a solution

Concentration = $\frac{\text{Mass of solute}}{\text{Volume (in } dm^3)}$

e.g. What is the concentration of a solution of hydrochloric acid which contains $100g$ of hydrochloric acid in $500cm^3$?

Concentration = $\frac{100}{0.5} = 200g/dm^3$

Static Electricity	
Static Electricity	Static Electricity is caused when by electrons are transferred from one insulator to another by friction
Static Charges	If an object gains electrons it becomes negatively charged. If an object loses electrons it becomes positively charged.
Electric Fields	
Electric Charge	Things with an electric charge experience a force when placed in an electric field.
Electric Fields	An electric field is formed around electrically charged objects. Like charges repel and opposite charges are attracted to each other. The diagram shows the force a +ve charge would experience from an electric field 
Flow of Charge	In a closed circuit electric charge moves from high potential difference to low potential difference.
Conventional Current'	'Conventional current' moves from high voltage to low voltage, but electrons which are -ve move from low to high voltage.
Electrical Current	
Electric Current	Electric current is the flow of electric charge $Q = It$
Current in a Loop	In a single closed loop the current is the same at all points.
Measuring Current	The ammeter must be connected in series.

Voltage and Potential Difference	
Voltage	Voltage is the difference in electrical potential and is measured in V .
Work	Voltage is the work done per unit of charge. $E = VQ$
Measuring Voltage	The voltmeter must be connected in parallel.
Resistance	
Resistance	Measures how hard it is for electrical current to pass through a component
Factors Effecting Resistance	- As the cross-sectional area increases, resistance decreases. - As the length increases the resistance increases. - As the temperature increases the resistance increases. - The material of the component effects the resistance.
Ohm's Law	$V = IR$
Electrical Power and Energy	
Electrical Power	$P = IV$ $P = I^2 R$
Electrical Energy	$E = Pt$ $E = QV$
Symbols and Units	
Q is the charge flow in coulombs, C I is the current in amps, A t is the time in seconds, s E is the energy in joules, J V is the voltage in volts, V R is the resistance in Ohms, Ω P is the power in Watts, W	

Circuit Symbols					
Cell		Open Switch		Diode	
Battery		Closed Switch		LED	
Resistor		Ammeter		Lamp	
Variable Resistor		Voltmeter		Fuse	
LDR			Thermistor		
As the light level increases the resistance decreases.		As the temperature increases the resistance decreases.			
Current Voltage Graphs					
Ohmic Conductor		Lamp		Diode	
Transformers – Higher Only					
Construction		Transformers consist of a primary coil and a secondary coil wound on an iron core.			
Step Up Transformers		These have more coils on the secondary coil and increase the voltage of a AC supply			
Step Down Transformers		These have more coils on the primary coil and decrease the voltage of a AC supply			

Series Circuits	
Series Circuits	Components are connected along a single path
Current in Series Circuits	The current is the same at all points
Voltage in Series Circuits	The total potential difference of the power supply is shared across all components.
Resistance in Series Circuits	$R_{\text{total}} = R_1 + R_2$
Parallel Circuits	
Parallel Circuits	Components are connected along multiple paths
Current in Parallel Circuits	The total current is the sum of the current across each component.
Voltage in Parallel Circuits	The voltage is the same at all points
Resistance in Parallel	The total resistance of two resistors is less than the resistance of the smallest resistor.
National Grid	
Function	The National Grid supplies electricity from power stations to customers at high voltages to reduce energy loss.
DC	Electricity flows in a single direction i.e. from batteries.
AC	The current alternates and regularly changes direction i.e. Mains electricity.
Mains	Mains electricity is the electricity supplied by the National Grid. It is an AC supply with a frequency of 50Hz and is 230V.
Transformers – Higher Only	
Construction	Transformers consist of a primary coil and a secondary coil wound on an iron core.
Step Up Transformers	These have more coils on the secondary coil and increase the voltage of a AC supply
Step Down Transformers	These have more coils on the primary coil and decrease the voltage of a AC supply

Series Circuits		Parallel Circuits	
Series Circuits		Parallel Circuits	
Current in Series Circuits	The current is the same at all points	Current in Parallel Circuits	The total current is the sum of the current across each component.
Voltage in Series Circuits	The total potential difference of the power supply is shared across all components.	Voltage in Parallel Circuits	The voltage is the same at all points
Resistance in Series Circuits	$R_{\text{total}} = R_1 + R_2$	Resistance in Parallel	The total resistance of two resistors is less than the resistance of the smallest resistor.
National Grid		Transformers – Higher Only	
Function	The National Grid supplies electricity from power stations to customers at high voltages to reduce energy loss.	Construction	Transformers consist of a primary coil and a secondary coil wound on an iron core.
DC	Electricity flows in a single direction i.e. from batteries.	Step Up Transformers	These have more coils on the secondary coil and increase the voltage of a AC supply
AC	The current alternates and regularly changes direction i.e. Mains electricity.	Step Down Transformers	These have more coils on the primary coil and decrease the voltage of a AC supply
Mains	Mains electricity is the electricity supplied by the National Grid. It is an AC supply with a frequency of 50Hz and is 230V.		

Density

Density is how much **mass** a substance contains **compared to its volume**. Solids are usually dense because the particles are closely packed.

Equation	Symbol equation	Units
Density = $\frac{\text{mass}}{\text{volume}}$	$\rho = \frac{m}{V}$	Density = kilograms / metre ³ (kg/m ³) Mass = kilograms (kg) Volume = metres ³ (m ³)

Gas Pressure

The **force** exerted by gases on surface as the **particles collide** with it. **As temperature increases, gas pressure increases** if the volume stays constant.

Increasing temperature increases pressure as the particles have more kinetic energy so collide with the surface more frequently.

Internal energy and transfers

Internal Energy= The **energy stored** inside a system by the **particles** (atoms and molecules) that make up the system. Internal energy is the **total kinetic energy and potential energy of all the particles**.

When you heat something up, you increase its **internal energy**

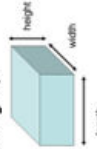
Kinetic Energy= **Energy stored** within moving objects (e.g. particles).

Potential Energy= **Energy stored** in particles because of their **position**. The **further apart** particles are, the **greater the potential energy**.

Required practical: Measuring density

Regular shaped objects:

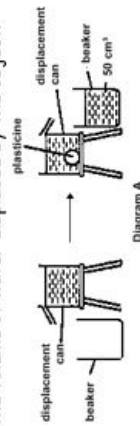
1. Measure the length, width and height of each of the objects.
2. Measure the mass of each object using the digital balance, and record the results.
3. Calculate and record the volumes (length x width x height).
4. Calculate and record the densities (mass ÷ volume)



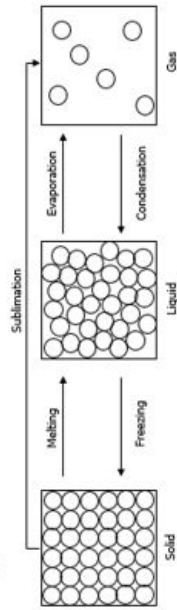
Irregular shaped objects:

Can be measured using a displacement (eureka) can.

Measure the volume of water displaced by the object.



Changes of state



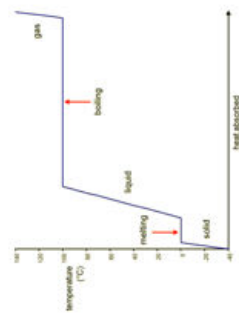
Change of State= When a substance **changes from one state of matter** to another (e.g. melting is the change from a solid to a liquid). Energy changes the state, not the temperature.

Changes of state are **physical changes** because the **material recovers its original properties if the change is reversed**.

Specific heat

The specific heat capacity of a substance is the **amount of energy** required to **raise the temperature** of one kilogram of the substance by **one degree Celsius**.

Latent heat is the **amount of energy** required to **change the state** of one kilogram of the substance with **no change in temperature**.



A heating curve for ice

Equation

Energy = mass x SLH

E = ml

Change in thermal energy = mass x specific heat capacity x temperature change

ΔE = mcΔθ

Energy = joules (J)

Mass = kilograms (kg)

SLH = Joules per kilogram (J/Kg)

Specific heat capacity = J/Kg°C

Change in thermal energy = joules (J)

Temperature change = degrees (°C)

Symbol equation Units

Energy = joules (J)

Mass = kilograms (kg)

SLH = Joules per kilogram (J/Kg)

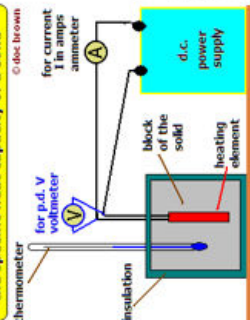
Specific heat capacity = J/Kg°C

Change in thermal energy = joules (J)

Temperature change = degrees (°C)

Required practical-Specific heat capacity

Experimental principles for determining the specific heat capacity of a solid



Specific heat capacity is the **energy** needed to raise the temperature of 1kg of a material by 1°C

change in thermal energy = mass x specific heat capacity x temperature change

[ΔE = mcΔθ]

change in thermal energy, ΔE, in joules, J

mass, m, in kilograms, kg

specific heat capacity, c, in joules per kilogram per degree Celsius, J/kg °C

temperature change, Δθ, in degrees Celsius, °C

KS4 Religious Studies Curriculum Plan 2025-26

Staff	Year 10 - Edexcel	Year 11 - Edexcel
Careers	Building understanding of world views and philosophical and ethical approaches gives an understanding of how society functions. Leading to careers in the public sector, HR, Social policy design, law, environmental work, International development, working with NGOs etc. home work related tasks will be set at the end of every cycle that link to careers.	
Cycle 1 = 10 weeks	Paper 1 Religion and Society through a study of Christianity <u>Christian Beliefs</u> - The Trinity - The creation of the universe and humanity - The incarnation - The last days of Jesus' life - The nature of salvation - Christian eschatology - The problem of evil and suffering - Solutions to the problem of evil and suffering <u>Matters of Life and Death</u> - Origins and value of the universe - The sanctity of life - The origins and value of human life - The issue of abortion - Death and the afterlife - Non-religious arguments against life after death - Euthanasia - The natural world and issues raised	<u>Intro Living the Muslim life -</u> - The Ten obligatory acts in Shi'a Islam - The Shahadah - Salah - Sawm - Zakah and Khums - Hajj - Jihad - Celebrations and commemorations <u>Intro Peace and Conflict -</u> - Peace - Peace making - Conflict - Pacifism - The just war theory - Holy war - Weapons of mass destruction - Issues surrounding conflict
Assess Week - (1 week)	GCSE style assessment, based upon these topics. Assessment and mark scheme in shared area.	Mocks and GCSE style assessment, based upon these topics Assessment and mark scheme in shared area.
Review - (1 week)	Green pen against mark scheme, peer review then teacher assessment followed by consolidation of common misconceptions.	Green pen against mark scheme, peer review then teacher assessment followed by consolidation of common misconceptions.
Cycle 2 = 10 weeks	<u>Intro Living the Christian life</u> - Christian worship - Sacraments - The nature and purpose of prayer - Pilgrimage - Celebrations - The future of the Church - The Church in the local community - The worldwide Church <u>Intro Marriage and the family -</u> - Marriage - Sexual relationships - Families - Roles within the family - Family in the local parish	Revision Start revision for Mocks - Matters of life and death - Sanctity of life and associated teaching Cycle 2 - FULL MOCKS - Christian Beliefs and Practices, plus marriage and family revision Revision from the past mock point will be based upon weak areas from full mocks for each class, below is a suggested outline. This will be confirmed in Dept. meetings and agreed with HoE Cycle 2 - Structured Revision Start with Muslim Beliefs - 6 Beliefs and 5 Roots Allah and Prophets Holy books and Angels Al-Qadr and <u>Aqirah</u> Living the Muslim Life revision - The 10 obligatory Acts and Shahadah

	- The family in the parish today - Family planning - Divorce - Men and women in the family - Gender prejudice and discrimination	Salah and Sawm Zakh and Khums - and Hajj Jihad and celebrations and festivals
Assess Week - (1 week)	GCSE style assessment, based upon this topic. Assessment and mark scheme in shared area.	GCSE style assessment, based upon this topic. Assessment and mark scheme in shared area.
Review - (1 week)	Green pen against mark scheme, peer review then teacher assessment followed by consolidation of common misconceptions.	Green pen against mark scheme, peer review then teacher assessment followed by consolidation of common misconceptions.
Cycle 3 = 10 weeks	Introduction to Paper 2 - Religion, Peace and Conflict through a study of Islam Muslim Beliefs - - The six beliefs of Islam - The five roots of "Usul ad-Din" in Shi'a Islam - The nature of Allah - Risalah - Malakah - Muslim Holy books - Al-Qadr - Akhirah Intro Crime and punishment in Islam - - Justice - Crime - Good, evil and suffering - Punishment - Aims of punishment - Forgiveness - Treatment of criminals - The death penalty	
Assess Week - (1 week)	GCSE style assessment, based upon this topic. Assessment and mark scheme in shared area.	Assessment based upon Paper 1.
Review - (1 week)	Green pen against mark scheme, peer review then teacher assessment followed by consolidation of common misconceptions.	Green pen against mark scheme, peer review then teacher assessment followed by consolidation of common misconceptions.

Edexcel - Year 10 Religion and Ethics - Cycle 1 - Christian Beliefs				
The Trinity	The Creation	The Incarnation	The last days of Jesus' life	Key Words
Christians believe that God is eternal, without limit (infinite), all-loving (omnibenevolent), all-powerful (omnipotent), all-knowing (omniscient) Christians believe that God relates to the world in three different ways: God as the Father who created the world; God as the Son, Jesus, who is the saviour of the world; God as the Holy Spirit, an invisible spiritual power that guides and inspires human beings. 	The Christian story of Creation is found in Genesis, the first book of the Bible, and describes how God created everything in the universe. - Christians believe that human beings are different from animals by being given a special place in God's Creation and a duty of stewardship. The story of Creation reminds them of this responsibility. - Christians have different views about whether the Creation story is completely true. - A belief in Creation is important to Christians as it demonstrates that God is eternal, all-powerful and should be worshipped. 	Christians believe that Jesus is the Son of God who came to Earth in human form. This belief is known as the Incarnation. - Jesus is the second member of the Trinity and is understood to be completely divine and completely human at the same time. - Belief in the Incarnation is very important to Christians. They believe that Jesus' death, as a sacrifice for the sins of human beings, demonstrates how much God loves and cares about humanity. - Christians see Jesus as a source of revelation, which helps them to understand what God is like and how God wants them to live. - Christians also believe that they can have a personal relationship with God through Jesus. 	Christians believe that Jesus' suffering and death had a purpose. They also believe that the resurrection is the most important event in Christianity and proves that Jesus is the Son of God, the second member of the Trinity. Christianity teaches that Jesus was betrayed by one of his disciples, Judas Iscariot. The Last Supper is the final meal that Jesus shared with his disciples before he was arrested. During the Last Supper Jesus gave his disciples two symbols to remember him by. The symbols of bread and wine, which represent the sacrifice of Jesus' body and blood, form an important part of Christian worship today in a ceremony known as the Eucharist. 	Trinity God as one being in three persons Creationism the belief that the world was created in a literal 6 days Stewardship looking after something so it can be passed on to the next generation Incarnation God the Son taking human form as Jesus Christ Sin something damaging to a relationship with God Resurrection the belief that Jesus rose from the dead after 3 days Atonement Jesus death restores the relationship between God and humans damaged by Original Sin Salvation Being saved from sin; going to Heaven Eschatology area of Christian teaching about life after death Universalism the belief that everyone will go to Heaven
Salvation	Eschatology	The problem of evil	Solutions to the problem of evil	
Christians believe that Jesus suffered and died on the cross to save human beings from their sins. This is called atonement. - There are different views about how atonement works and there are a number of theories that try to explain it. - Salvation is the idea that only a soul that is free from sin can be with God in Heaven after death. Christians believe that the opportunity of salvation is available to everyone through faith in Jesus, providing they are truly sorry for what they have done, repentant of their sins and ask for forgiveness	Christians believe that life continues after death in either heaven, hell or Purgatory. This is because they think human beings have a soul that lives on after the physical death of the body. - Some denominations also believe in an intermediate state before known as Purgatory. - Christians believe that human beings have the opportunity to be with God when they die, depending on God's judgement and whether they have accepted salvation through Jesus Christ. - Christians also believe in the Last Judgement, which will take place when Jesus returns to. The Last Judgement is when God makes a final judgement on everyone, alive or dead 	The presence of evil and suffering in the world has always presented a challenge to Christian beliefs about God. For many, it is philosophically incoherent to believe in the Christian concept of God when there is so much evil and suffering in the world: how could an omnipotent, omniscient, omnibenevolent God exist whilst evil and suffering exists? It makes more sense to believe that God does not exist. For atheists the problem of evil and suffering isn't a problem in the same sense, it is just a tragic fact about life. For Christians it is a problem that needs a solution. 	There have been a number of different ideas, called theodicies, put forward that aim to reconcile the idea of an omnibenevolent, all-loving, and omnipotent, all-powerful, God alongside the existence of evil and suffering. - Christians believe that God cannot be responsible for evil. Many Christians believe that evil exists because human beings have misused their free will and made wrong moral choices, which has caused suffering. - Some Christians believe that experiencing suffering can help people to develop into better human beings. Suffering also gives people the opportunity to make good moral choices, such as helping others. 	

Physical Education KS4 Curriculum Plan 2025-26

	Year 10	Year 11	
	Leadership skills and implementing and developing tactics	Healthy participation, officiating, game play	Enrichment
Cycle 1	- Evaluate performance - Embedding and continuing to develop techniques into a competitive game - Use and develop tactics in various situations - Analyse and evaluate skills as a leader and official – officiating games with support Assessment: Booklet used - focusing on motor competence, rules, strategies, tactics, leadership, and exercising safely.	- Evaluate performance and demonstrate improvement - Embedding and continuing to develop techniques into a competitive game - Use and develop tactics in various situations - Analyse and evaluate skills as a leader and official – officiating games with support Assessment: Booklet used - focusing on motor competence, rules, strategies, tactics, leadership, and exercising safely.	Football Netball Rugby Trampolining Fitness club Dance Basketball
Cycle 2	- Evaluate performance - Embedding and continue to develop techniques into a competitive game - Use and develop tactics in various situations - Analyse and evaluate skills as a leader and official – officiating games with support Assessment: Booklet used - focusing on motor competence, rules, strategies, tactics, leadership, and exercising safely.	- Evaluate performance and demonstrate improvement - Embedding and continuing to develop techniques into a competitive game - Use and develop tactics in various situations - Analyse and evaluate skills as a leader and official – officiating games with support Assessment: Booklet used - focusing on motor competence, rules, strategies, tactics, leadership, and exercising safely.	Football Netball Rugby Trampolining Fitness club Dance Basketball
Cycle 3	- Evaluate performance - Embedding and continue to develop techniques into a competitive game - Use and develop tactics in various situations - Analyse and evaluate skills as a leader and official – officiating games with support Assessment: Booklet used - focusing on motor competence, rules, strategies, tactics, leadership, and exercising safely.	- Evaluate performance and demonstrate improvement - Embedding and continue to develop techniques into a competitive game - Use and develop tactics in various situations - Analyse and evaluate skills as a leader and official – officiating games with support Assessment: Booklet used - focusing on motor competence, rules, strategies, tactics, leadership, and exercising safely.	Cricket Rounders Athletics Tennis Softball

Year 10 PE – Tactical Development/Leadership

Table Tennis

- Grip and stance
- Push – Backhand/Forehand
- Backhand Drive – application of spin
- Forehand Drive – application of spin
- Serve
- Lob and smash
- Singles and doubles play

Girls Football

Leaders:

Confidence Skills
Working with others
Leadership skills
Communication skills
Problem Solving skills.

Attacking:

- Finishing
- Passing
- Receiving
- Turning
- Moving with the ball

Defending:

- Intercepting
- Pressing
- Marking
- Challenging
- Covering and recovering

Football

- Defensive tactics
- Attack tactics
- Formations
- Set plays
- Adapting tactics
- Leadership/ coaching

Trampolining

- Basic moves and twists
- Seat landing plus combinations
- Swivel hips
- Front landing plus combinations
- Back landing plus combinations
- Somersaults

Rugby

- Defensive tactics
- Attack tactics
- Formations
- Set plays
- Adapting tactics
- Leadership coaching /

Netball

- Recap – recall Passing/Receiving, Ball handling, Footwork, Marking/covering, Intercepting, Dodging
- Tactical development – centre passing, backline, side line
- Game play
- Officiating
- Coaching and development

HRE

- Circuit movements
- Safe and effective use of resistance machines
- Planning, conducting and evaluating a fitness programme

*Stick Option 1
subject
Curriculum
plan here*

*Stick Option 1
subject
Curriculum
Organiser here*

*Stick Option 1
subject
Curriculum
Organiser here*

*Stick Option 2
subject
Curriculum
plan here*

*Stick Option 2
subject
Curriculum
Organiser here*

*Stick Option 2
subject
Curriculum
Organiser here*

*Stick Option 3
subject
Curriculum
plan here*

*Stick Option 3
subject
Curriculum
Organiser here*

*Stick Option 3
subject
Curriculum
Organiser here*