Beckfoot School

Knowledgeable And Expert Learners

Year 11

Half-Term 2

enjoylearnsucceed

Name:………………………………………………

Tutor Group:……………………………………

Contents

- Homework Instructions 1
- Independent Learning Instructions 3
- Maths knowledge organisers and Independent Learning 5
- English knowledge organisers and Independent Learning 21
- Science knowledge organisers and Independent Learning 33
- Read Like a Beckfooter 61
- Revise Like a Beckfooter 62
- Reflect Like a Beckfooter 72
- Communication Pages 73

What should you be working on each week?

Homework:

- Your teacher will set you specific tasks, with a deadline, on Class Charts
- Instructions for your homework, and how to access it, are in this booklet
- You must complete and hand in the work by the deadline

Independent Learning:

- You should spend at least 20 minutes doing independent learning, using 'Quiz It, Link It, Map It, Shrink It' each day
- Your teacher will remind you of the topics and the tasks to do

Homework Instructions

- All of your Homework will be set by your teachers using the Class Charts system.
- You should check Class Charts every day to make sure you are up to date, and that you meet all your deadlines.
- In the next few pages, you will find instructions for how to access Class Charts and how to complete your homework assignments in each of your subjects.

Logging in to Class Charts

Follow the steps below to access your student account.

1. Enter your email address and password into the fields provided.

Access code *
Your access code
Please enter the access code supplied by your teacher.
Remember me

2. Click on the Log in button.

LOG IN

3. Enter your date of birth if prompted and click on the OK button.

Date of birth
Please enter your date of birth below.
Date of Birth
12/06/2009
OK CANCEL

Homework

If your school has decided to share homework with pupils, you will see the Homework tab in your account.

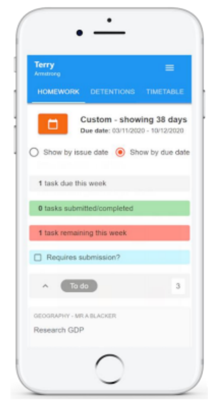
Selecting this tab will display a list of the homework tasks which you have been given.

To change the date range for displayed homework tasks, click on the orange Date button.

To display tasks in the order they were set, click on the Issue Date button

To display tasks in the order they are expected to be handed in, click on the Due date button.

To mark a homework task as completed, view the homework task of your choice in more detail and tick the Completed? checkbox.



To view a homework task in more detail, click on the expand icon in the bottom right hand corner of the homework tile.

A popup will appear that contains the a description of the homework task, the estimated completion time and any links or attachments that may have been included.

To do
Research GDP
GEOGRAPHY - 8F/GG - MR A BLACKER
Type: Blended Learning
Issue date: Monday 09/11/2020
Due date: Wednesday 11/11/2020
Estimated completion time: 1 hours
Please write a short paragraph on what GDP is and how it is used.

Keeping track of homework

As you are assigned homework tasks, you may want track of how you are progressing for the current week.

The three banners above the homework status categories count the number of homework tasks that are due this week, how many of those tasks you have completed and how many tasks you still need to complete.

1 task due this week
0 tasks submitted/completed
1 task remaining this week

To only see homework tasks that require an attachment submission, tick the checkbox labelled Requires submission.

Requires submission?

If you are viewing the Homework tab via a desktop or laptop, expanding a homework status category will display a table overview of each homework task for the selected date range.

To do 3

	Homework	Teacher	Lesson	Issued	Due	Estimated time	Type	Feedback
	Research GDP	Mr A Blacker	8F/Gg	Monday 09/11/2020	Wednesday 11/11/2020	1 hours	Blended Learning	
	Write a soliloquy	Mr J Kato	8y/En2	Tuesday 10/11/2020	Tuesday 17/11/2020	30 minutes	Homework	
	Create a poster on French food	Mrs A Abell	7YEL/Fr	Friday 06/11/2020	Thursday 19/11/2020	45 minutes	Homework	Feedback

Homework status categories

To-Do: These are homework tasks that you need to complete. Once you have completed them, tick the checkbox.

To do

Completed: These are homework tasks that you have ticked as completed but have not been marked by your teacher.

Completed

Late: These are homework tasks that have been handed in past the deadline.

Submitted late

Not submitted: These are homework tasks that were not handed in on time.

Not submitted

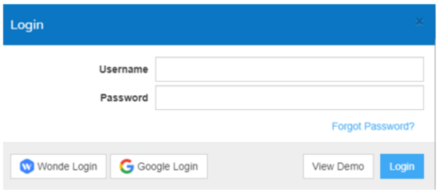
Submitted: These are homework tasks that have been handed in on time.

Submitted

Homework Instructions: Maths

MathsWatch HOW TO GUIDE

1. Follow the link: http://new.mathswatch.co.uk/vle/



2. Login: your full Beckfoot email address
   Password: beckfoot (you can change this)
3. Your assignment will be on the login page! Select an assignment to complete:

4. To access revision material, click on the videos section in the top right hand corner. Here you can use the search function to look at different topics and try extra questions for revision.

- Homework in Maths is set on maths watch each week
- You should log in to maths watch and complete the assignment set for you every week

Homework Instructions: English

- Every half term, a home learning booklet will be provided for each scheme.
- They will have the instructions for each task in them.
- Please follow them and complete the tasks for the deadline your teacher gives.

Homework Instructions: Science

CAROUSEL LEARNING

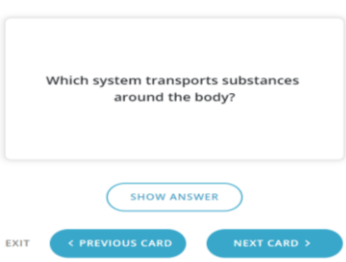
Science Home Learning Instructions

Please follow the instructions below to access your science home learning.

Remember you are expected to complete at least one quiz per week.

1. Log into Microsoft Teams using your school log in
2. Go to assignments and click on the Carousel Learning quiz set by your teacher
3. A window like the one below will pop up (if it doesn't, copy and paste the link into your internet browser)

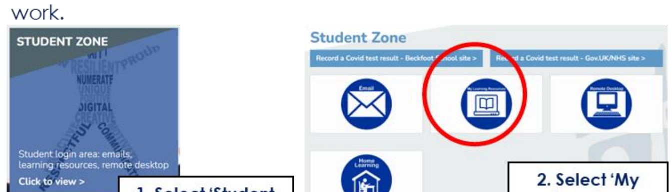
4. Type your first name and last name as it is written on the register to log into the quiz
5. Click on 'revise' and use 'look, cover, write and check' to go through the flash cards like the one below. Use your knowledge organiser to help you.



6. When you are ready, click 'exit' and then complete the quiz. Answer all questions and click 'submit' when you are finished

How to access My Learning Resources

My Learning Resources is an online space where you can find all your lesson PowerPoints, knowledge organisers, quizzes and more. This will help you to learn independently and catch up any missed work.

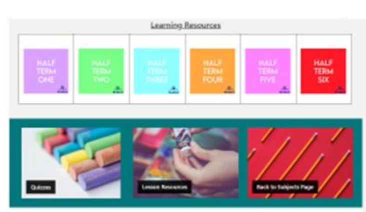


1. Select 'Student Zone' on the homepage of our website

2. Select 'My Learning Resources

3. Select your year group

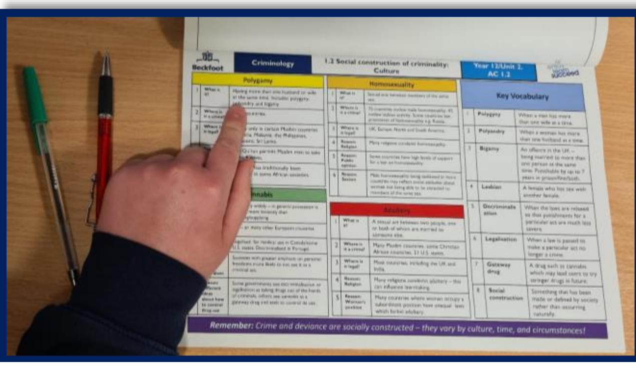
3. Select the subject you want to work on



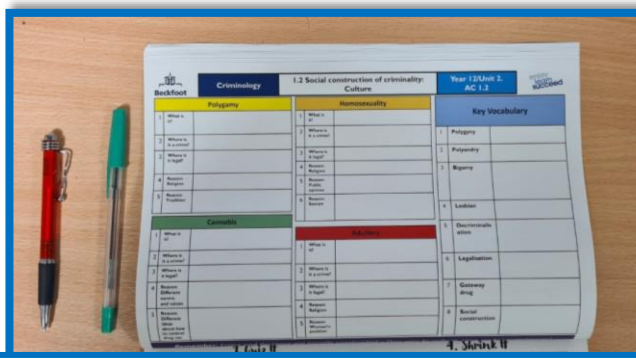
3. Select the relevant half term.

All the resources you need will be here

Independent Learning: How to 1 – Quiz It

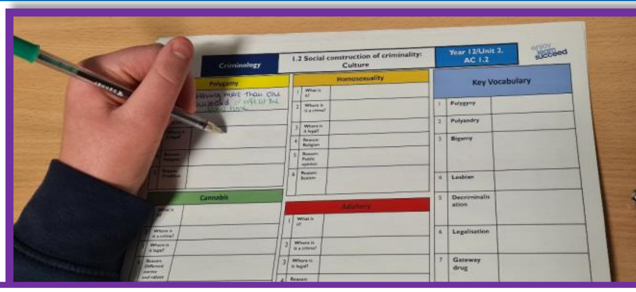


LOOK:
- Read through 3-5 items from you Knowledge Organiser (bullet points, equations, facts etc.)
- Re-read if you need to



COVER:
- Turn your Knowledge Organiser over so that you can only see the blank version (no cheating!)

WRITE:
- In your blank Knowledge Organiser, write out the 3-5 items exactly.
- Use a blue or black pen



CHECK:
- Uncover your Knowledge Organiser
- Using green pen, check your writing/drawing word by word
- Tick every correct item and correct any mistakes – this is the most important part of the process

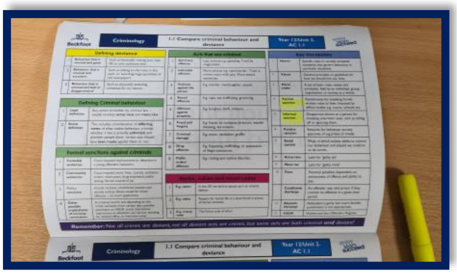
Independent Learning: How to 2 – Link It

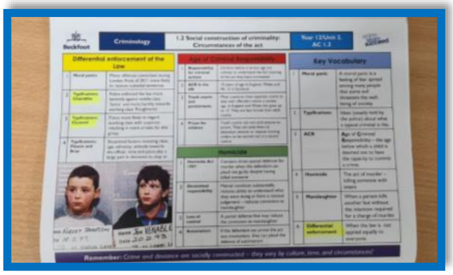
- **Choose 3-6 items from your knowledge organiser**
- **Write 3 sentences to show how these things link together**
- **You could:**

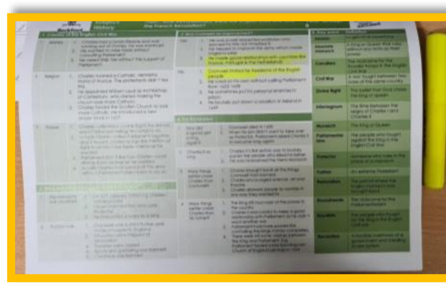
Compare and contrast:
- **x is similar to/different from y because…**
- **x is more/less … than y because…**

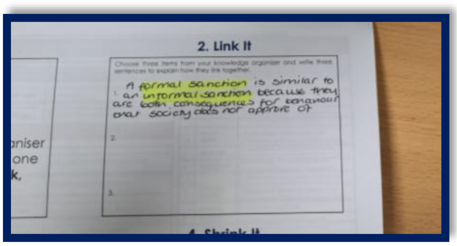
Cause and effect:
- **x happens because of y…**
- **x and y work together to produce z…**

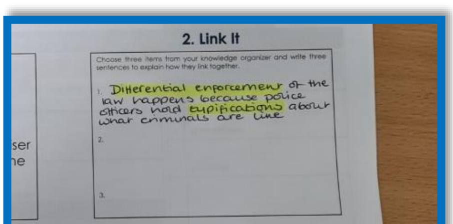
Support/refute:
- **x supports the ideas of y because…**
- **x refutes the ideas of y because…**

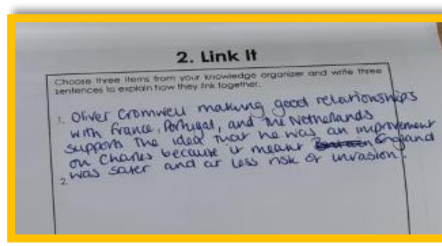






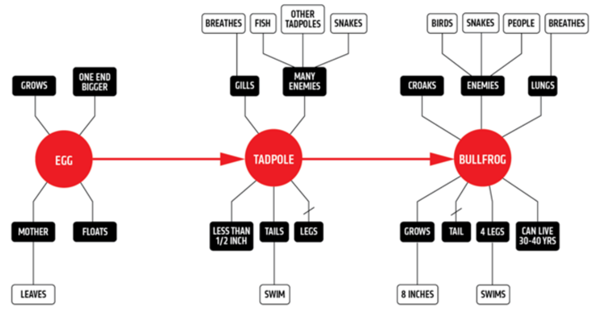




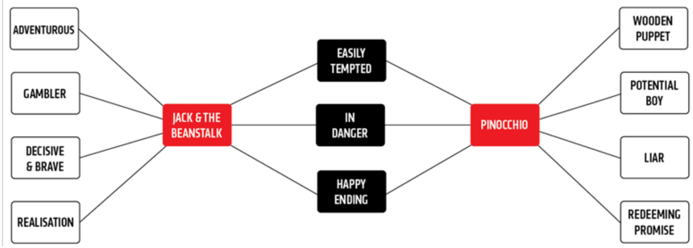


Independent Learning: How to – 3 Map It

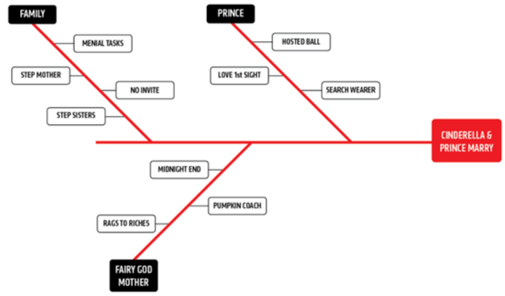
Mind-maps are useful if you want to chunk information or organise it into categories. In this example, the central idea is the 'The Three Pigs' and each branch is a theme within the story



Flow-sprays are useful if you want to show the events that happen in a particular sequence. In this example, the red boxes show the main event in the lifecycle of bullfrogs, and the order they happen in. The black and white boxes show what factors contribute to these main events

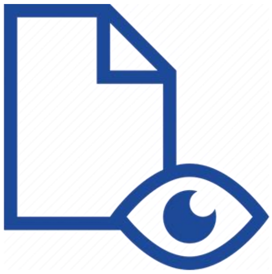


Double-sprays are useful if you want to show similarities and differences of information. In this example, the black boxes show what 'Jack & the Beanstalk has in common wit 'Pinocchio'. The white boxes show what is different about the two stories.



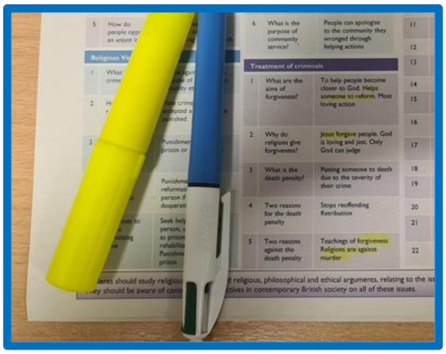
Fishbone diagrams are useful if you want to show causes and effect. In this example, the white boxes are causes of the Prince and Cinderella getting married; the black boxes show how the causes have been categorised; and the red box shows the effect itself

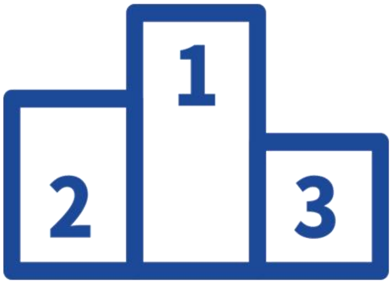
Independent Learning: How to 4 – Shrink It



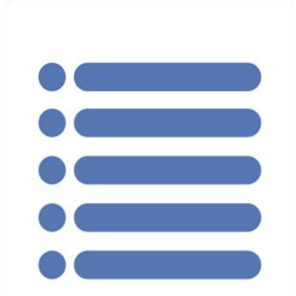
1. Skim over the Knowledge Organiser and look for the key information

2. Highlight (or underline) the things you think are most important

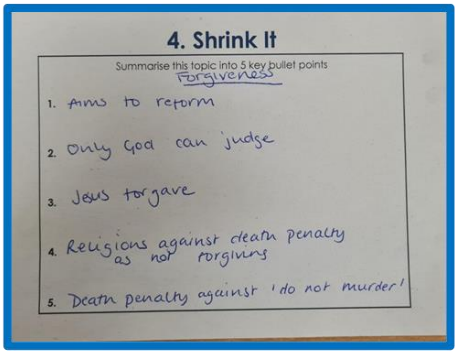




3. Rank your chosen points in order of importance



4. Bullet Point your 5 most important points using as few words as possible



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Subject: Maths	Term: Half term 2 Page 1	Year Group: 11F

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Algebra: Working with symbols

1	Collecting like terms	e.g. $3x + 7 + 8x^2 + 2x - 10 =$ $8x^2 + 5x - 3$ (x^2 and x cannot be collected together when added or subtracted)
2	Substitution	Replace the letters with numbers. x=8 and y=-2 Find 3x+2y (3x8)+ (2x-2) = 24-4=20
3	Expand single brackets	Multiple the outside of the brackets with all of the inside. $3(x - 3) = 3x - 9$
4	Expand double brackets	$(x - 9)(x + 6)$ $x^2 + 6x - 9x - 54$ Simplify: $x^2 - 3x - 54$
5	Factorise	$4x + 32 = 4(x + 8)$
6	Factorise quadratics	$x^2 + 7x + 12$ $(x + 3)(x + 4)$ 2 numbers that X to give 12 and + to give 7

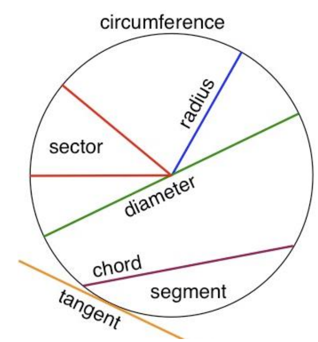
Number: Percentages

1	One quantity as a % of another	Find 30 as a % of 78. 30/78x100= 38.5%
2	% increase and decrease	Increase 30 by 25% 30 x 1.25= 37.5 Decrease 40 by 35% 40 x 0.65= 26
3	Find a %	$\frac{\text{Change}}{\text{Original}} \times 100$
4	Compound interest	$A = P(1+i)^n$ A = final amount including principal P = principal amount i = interest rate per year n = number of years invested

Ratio and Proportion: Ratio

1	Relationship between fractions and ratio	5 blue sweets 2 red <u>Ratio</u> 5:2 <u>Fraction of blue</u> 5/7
2	Direct proportion	$y \propto x$ $y = kx$ for a constant k

Geometry: **A**rea and **P**erimeter

1	Circumference Perimeter	∏X Diameter
2	Parallelogram Area	Base X perpendicular height
3	Trapezium Area	(a+b) x perpendicular height / 2
4	Triangle Area	Base X perpendicular height / 2
5	Parts of a circle	
6	Circle Area	∏ X $Radius^2$

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Subject: Maths	Term: Half term 2 Page 1	Year Group: 11F

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Algebra: Working with symbols

1	Collecting like terms	
2	Substitution	
3	Expand single brackets	
4	Expand double brackets	
5	Factorise	
6	Factorise quadratics	

Number: Percentages

1	One quantity as a % of another	
2	% increase and decrease	
3	Find a %	
4	Compound interest	

Ratio and Proportion: Ratio

1	Relationship between fractions and ratio	
2	Direct proportion	

Geometry: **A**rea and **P**erimeter

1	Circumference Perimeter	
2	Parallelogram Area	
3	Trapezium Area	
4	Triangle Area	
5	Parts of a circle	
6	Circle Area	

1. Quiz It

Use the blank knowledge organiser above to self-quiz. Complete one section at a time, using **Look, Cover, Write, Check**

2. Link It

Choose three items from your knowledge organizer and write three sentences to explain how they link together.

1.

2.

3.

3. Map It

Use the space on the next page to create a mind-map or diagram to illustrate the knowledge from this topic.

4. Shrink It

Summarise this topic into 5 key bullet points

1.

2.

3.

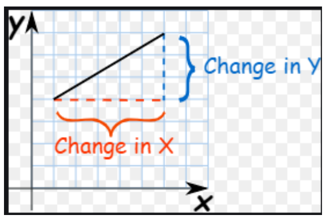
4.

5.

3. Map it

Use this space to create a mind-map or diagram to illustrate the knowledge from this topic.

Subject: Maths	Term: Half term 2 Page 2	Year Group: 11F

Algebra: Linear graphs		
1	Draw the graph y=3x+4	X: -2, -1, 0, 1 y: -2, 1, 4, 7
	y = mx + c	m = gradient ie. How steep the curve is c = y intercept ie. Where the graph crosses the y axis
2	Gradient of a line	y=mx+c (m is the gradient)  To calculate the gradient: m=y/x
3	Parallel lines	If m is the same. The lines are parallel

Statistics: Averages		
1	Mode	Most common number in a data set
2	Median	The middle number when all numbers are in order
3	Mean	Add all the data up and divide by how many there are
4	Range	Highest value – lowest value
5	Mean from a frequency table	Create a fX column and multiply x by the frequency Add the answers together then divide by the total frequency

Key Vocabulary		
1	Rhombus	A rhombus looks like a square that has fallen over.. All sides have equal length. Opposite sides are parallel, and opposite angles are equal (it is a Parallelogram).
2	Quadrilateral	The name given to any 4 sided 2D shape.
3	Interior	Inside Interior angle: angle inside the shape.
4	Polygon	Any 2D shape with straight lines
5	Sum	Another word for add
6	Expression	Combination of different terms with no equal sign
7	Quadratic	Contains the term x^2
8	Proportion	Part of a whole.

Subject: Maths	Term: Half term 2 Page 2	Year Group: 11F

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Algebra: Linear graphs		
1	Draw the graph y=3x+4	
	y = mx + c	
2	Gradient of a line	
3	Parallel lines	

Statistics: Averages		
1	Mode	
2	Median	
3	Mean	
4	Range	
5	Mean from a frequency table	

Key Vocabulary		
1	Rhombus	
2	Quadrilateral	
3	Interior	
4	Polygon	
5	Sum	
6	Expression	
7	Quadratic	
8	Proportion	

1. Quiz It

Use the blank knowledge organiser above to self-quiz. Complete one section at a time, using **Look, Cover, Write, Check**

2. Link It

Choose three items from your knowledge organizer and write three sentences to explain how they link together.

1.

2.

3.

3. Map It

Use the space on the next page to create a mind-map or diagram to illustrate the knowledge from this topic.

4. Shrink It

Summarise this topic into 5 key bullet points

1.

2.

3.

4.

5.

3. Map it

Use this space to create a mind-map or diagram to illustrate the knowledge from this topic.

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Subject: Maths	Term: HT2 September Part 1	Year Group: 11 Higher

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Algebra Iteration / Linear Graphs

1 Growth/decay & compound interest

Emily invests £8000 in the bank for 4 years.
It earns compound interest of 3% per year. $\times 1.03$

Calculate the total amount of money that Emily has in the bank after 4 years.

initial $\times$ multiplier$^{\text{time}}$

8000×1.03^4

£9004.07

8000×1.03^4
9004.07048

2 Approx. solution using iteration: using the previous answer to find the next answer.

Starting with $x_0 = 0$, use the iteration formula $x_{n+1} = \frac{1}{3} - \frac{x_n^2}{3}$ three times to find x_1, x_2 and x_3

$x_1 = \frac{1}{3} - \frac{0^2}{3} =$

X1=0
X2=1/3

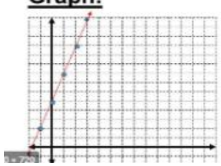
3 Linear graphs

Equation: Y = 3x + 5

Table:

X	-1	0	1	2
Y	2	5	8	11

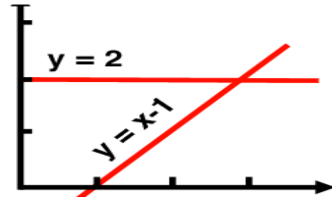
Graph:



When the function is linear, then there is a common difference between each of the y values

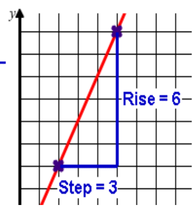
4 Solve where 2 lines intersect

Solution (3,1)



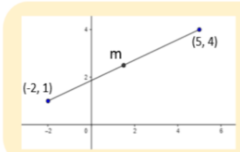
5 Gradient of a straight line

Gradient = $\frac{\text{Rise}}{\text{Step}}$
$= \frac{6}{3}$
$= 2$



6 Midpoint of a straight line

Midpoint = $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$



$m = \left(\frac{-2+5}{2}, \frac{1+4}{2}\right)$
$= \left(\frac{3}{2}, \frac{5}{2}\right)$
$= (1.5, 2.5)$

7 Linear equation from 2 points

$(2, -4)$ ^ $(3, 6)$
$x_1\ y_1 \quad x_2\ y_2$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6-(-4)}{3-2} = \frac{10}{1}$

$y - y_1 = m(x - x_1)$

$y - (-4) = 10(x - 2)$

$y + 4 = 10x - 20$

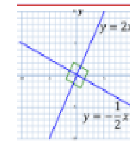
$\boxed{y = 10x - 24}$

8 Equation of parallel line through a given point

Eg. A straight line has the equation y = -2x-3. Find the equation of the parallel line passing through the (1,3)

$y - y_1 = m(x - x_1)$
$y - 3 = -2(x - 1)$
$y - 3 = -2x + 2$
$+3 \quad +3$
$\boxed{y = -2x + 5}$

9 Use y = mx + c to identify perpendicular lines

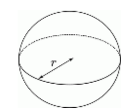


Gradients that are negative reciprocals of each other.

$m_1 \times m_2 = -1$

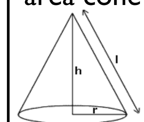
Key Vocabulary

1 Surface area sphere



s/a = $4\pi r^2$

2 Surface area cone



$Full\ surface\ area = \pi r l + \pi r^2$

$Curved\ surface\ area\ only = \pi r l$

REMEMBER: sometimes you may need to calculate the slant of the cone (l) using Pythagoras.

3 Volume Pyramid

$\frac{1}{3}\ x\ (base\ area) x\ heigh$

Beckfoot

Subject: Maths	Term: HT2 September Part 1	Year Group: 11 Higher

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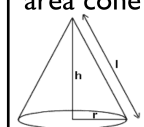
Algebra Iteration / Linear Graphs		
1	Growth/decay & compound interest	
2	Approx. solution using iteration: using the previous answer to find the next answer.	
3	Linear graphs	

4	Solve where 2 lines intersect Solution (3,1)	
5	Gradient of a straight line	
6	Midpoint of a straight line	
7	Linear equation from 2 points	

8	Equation of parallel line through a given point	
9	Use y = mx + c to identify perpendicular lines	

Key Vocabulary		
1	Surface area sphere	
2	Surface area cone 	
3	Volume Pyramid	

1. Quiz It

Use the blank knowledge organiser above to self-quiz. Complete one section at a time, using **Look, Cover, Write, Check**

2. Link It

Choose three items from your knowledge organizer and write three sentences to explain how they link together.

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3. Map It

Use the space on the next page to create a mind-map or diagram to illustrate the knowledge from this topic.

4. Shrink It

Summarise this topic into 5 key bullet points

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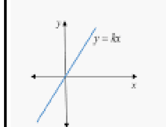
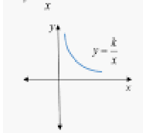
Use this space to create a mind-map or diagram to illustrate the knowledge from this topic.

Beckfoot	Subject: Maths	Term: HT2 September Part 2	Year Group: 11 Higher

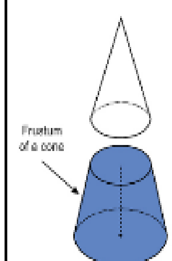
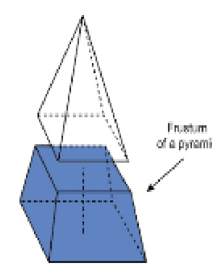
Number Surds / Percentages

1	Rationalise: x top & bottom by the surd	$\frac{3}{\sqrt{5}} = \frac{3}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$ ($\sqrt{5} \times \sqrt{5} = \sqrt{25} = 5$)
2	Expand brackets	$2(5+\sqrt{3})$ $10+2\sqrt{3}$
3	Geometric sequences with surds $\sqrt{2}, 2, 2\sqrt{2}, 4, ?$	$n=1 \rightarrow (\sqrt{2})^1 = \sqrt{2}$ ✓ $n=2 \rightarrow (\sqrt{2})^2 = \sqrt{2}\times\sqrt{2} = 2$ ✓ $n=3 \rightarrow (\sqrt{2})^3 = \sqrt{2}\times\sqrt{2}\times\sqrt{2} = 2\sqrt{2}$ ✓ $n=4 \rightarrow (\sqrt{2})^4 = \sqrt{2}\times\sqrt{2}\times\sqrt{2}\times\sqrt{2} = 4$ ✓ $n=5 \rightarrow (\sqrt{2})^5 = \sqrt{2}\times\sqrt{2}\times\sqrt{2}\times\sqrt{2}\times\sqrt{2} = 4\sqrt{2}$ ✓
4	% increase / decrease	$\text{Percent Increase} = \frac{[\text{new value}] - [\text{old value}]}{[\text{old value}]}$ $\text{Percent Decrease} = \frac{[\text{new value}] - [\text{old value}]}{[\text{old value}]}$
5	Multiplier in successive percentages	**Successive Percentage Changes** An amount is increased by 20% then increased again by 30% Find the overall percentage change. → × 1.2 → × 1.3 → → × 1.56 → Equivalent to a 56% increase overall.

Ratio & Proportion

1	Set up & solve growth/ decay problems	W is **directly proportional** to F and when $W = 24$, $F = 6$. Find the value of W when $F = 10$. $W = kF$ Substitute $W = 24, F = 6$ $24 = 6k$ $4 = k$ $W = 4F$ $W = 4F$ When $F = 10$, $W = 4 \times 10$ $W = 40$
2	Direct and Indirect Proportion graphs	Direct Proportion $y \propto x$ $y = kx$ for a constant k  Inverse Proportion $y \propto \frac{1}{x}$ $y = \frac{k}{x}$ for a constant k 
3	Fraction - ratio	In a class there are 5 boys and 8 girls. Express this as a ratio and fraction. boys girls 5 : 8 $\frac{5}{13}$ are boys $\frac{8}{13}$ are girls

Geometry Area & Volume

1	Convert area units	$Km^2 \xrightarrow{\times 1000^2} m^2 \xrightarrow{\times 100^2} cm^2 \xrightarrow{\times 10^2} mm^2$ $mm^2 \xrightarrow{\div 10^2} cm^2 \xrightarrow{\div 100^2} m^2 \xrightarrow{\div 1000^2} Km^2$ $5km^2 = ?\ m^2$ Need to x 1000^2 $5 \times 1000 \times 1000 = 5\,000\,000\ m^2$ ✓
2	Convert volume units	$Km^3 \xrightarrow{\times 1000^3} m^3 \xrightarrow{\times 100^3} cm^3 \xrightarrow{\times 10^3} mm^3$ $mm^3 \xrightarrow{\div 10^3} cm^3 \xrightarrow{\div 100^3} m^3 \xrightarrow{\div 1000^3} Km^3$ $1200cm^2 = ?\ m^2$ Need to $\div 100^2$ $1200 \div 100 \div 100 = 0.12\ m^2$ ✓ $3m^3 = ?\ cm^3$ Need to x 100^3 $3 \times 100 \times 100 \times 100 = 3\,000\,000\ cm^3$ ✓
3	Surface area of prisms	Find the area of all the faces & add them up!
4	Frustum volume or surface area	 

Beckfoot

Subject: Maths	Term: HT2 September Part 2	Year Group: 11 Higher

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Number Surds / Percentages		
1	Rationalise: x top & bottom by the surd	
2	Expand brackets	
3	Geometric sequences with surds $\sqrt{2},\ 2,\ 2\sqrt{2},\ 4,\ ?$	
4	% increase / decrease	
5	Multiplier in successive percentages	

Ratio & Proportion		
1	Set up & solve growth/ decay problems	
2	Direct and Indirect Proportion graphs	
3	Fraction - ratio	

Geometry Area & Volume		
1	Convert area units	
2	Convert volume units	
3	Surface area of prisms	
4	Frustum volume or surface area	

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Beckfoot

English Literature	An Inspector Calls	Year Group: 10

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Plot

1	Act 1	The Birlings are celebrating Sheila and Gerald's engagement, Birling makes a speech to the men, the Inspector arrives, Birling confesses he fired Eva, Sheila confesses that she was responsible for Eva's dismissal from Milwards.
2	Act 2	Gerald admits to 'rescuing' Eva and then leaves to clear his head, Mrs Birling admits to refusing Eva aid, Mrs Birling argues that the father should be brought to justice (Eric is the father), Eric enters the room.
3	Act 3	Eric admits to drinking and forceful sex with Eva, Eric admits he stole £50 from Birling, the Inspector delivers a polemic speech to the Birlings and exits. Gerald returns, Sheila and Eric feel guilty, Mr and Mrs Birling refuse to take responsibility, the Birlings and Gerald convince themselves the inspection was a hoax. The telephone rings, the Birlings are informed that a young girl has committed suicide and an inspector is on his way.

Context

1	Priestley	Fought in WW1. Socialist and member of the Labour Party. Concerned about social inequalities. Influential in developing the idea of the welfare state.
2	Historical	Set in 1912 at the end of the Edwardian era. Titanic sank in 1912. WW1: 1914-1918. WW2: 1939-45. First performed 1945 in Soviet Union. First performed 1946 in Britain.
3	Political	Liberal party in power in 1912. Labour party in power in 1945. Formation of the 'Welfare State' 1945-1951. In 1912 only men over 21 with property could vote. 1903-1914 saw the rise of the Suffragette movement. 1918 all men over 21 and women over 30 who met a property qualification could vote. 1928: All people over 21 could vote.
4	Social	1912: 10% of the population owned 90% of the wealth. No government assistance available. Charities were the only source of help for the poor.
5	Literary	Fits three possible genres: Morality play, Well-made-play, Crime thriller (see Bitesize)

Characters

1	**Inspector**	Authoritarian, omniscient, influential, socialist , moralist.
2	**Mr Birling**	Haughty, greedy, ignorant, obstinate, egotistical .
3	**Mrs Birling**	Conceited, prejudiced, callous, obstinate, arrogant.
4	**Gerald**	Charming, deceitful, manipulative, ingratiating, static.
5	**Sheila**	Envious, petulant, impressionable, repentant.
6	**Eric**	Reckless, dishonest, culpable, repentant.
7	**Eva**	Vulnerable, impoverished, exploited, symbolic, victim.

Themes

1	Social responsibility	"If I could help her now, I would." (Sheila) "We did her in all right" (Eric) "We are responsible for each other." Inspector Goole
2	Age	"The famous younger generation who know it all." (Birling) "Why, you hysterical young fool - get back - or I'll -" (Birling) "We often do on the young ones. They're more impressionable" (Inspector)
3	Class	"As if a girl of that sort would ever refuse money!" (Mrs B) "If you don't come down sharply on some of these people, they'd soon be asking for the earth."(Birling) "He's a notorious womaniser as well as being one of the worst sots and rogues in Brumley." (Gerald)
4	Gender	"I hate those hard-eyed dough-faced women." (Gerald) "...not only something to make 'em look prettier - but - well, a sort of sign or token of their self-respect." (Birling) "And you think young women ought to be protected against unpleasant and disturbing things? (Inspector)
5	Socialism	"The money's not the important thing." (Eric) "We are members of one body." (Inspector) "Why shouldn't they try for higher wages? We try for the highest possible prices." (Eric) Key images: Beehive, chain
6	Capitalism	"It's my duty to keep labour costs down." (Birling) "A man has to make his own way – has to look after himself" (Birling) "Probably a socialist or some sort of crank" (Birling) Key image: Titanic

Dramatic Devices

1	Dramatic Irony	The audience knows more than characters.
2	Sounds	Doorbell, telephone interrupt the Birlings comfort and complacency.
3	Lighting	"pink and intimate" to "brighter and harder" when the Inspector arrives. Interrogating morals, cutting through the lies and pretence.
4	Entrances/ Exits	Increase tension e.g. Eric walks in just as the audience realise that he is the father. Gerald's 'exit' in Act 2 prevents his remorse developing.
5	Props	Photograph: All Eva? Symbolic of the faceless poor that the wealthy pretend not to see. Sheila's ring as a symbolic of patriarchal control.
6	Stage directions	Indicate character attitudes, development, relationships setting and mood.

Key Vocabulary

1	Socialism (Political theory)	Collective ownership of resources.
2	Capitalis t	Private ownership of resources.
3	Didactic	Direct moral instruction.
4	Polemic	Verbal or written attack.
5	Patriarchal	Society controlled by men.
6	Fourth wall	The space between the actors and the audience.
8	Morality	Principles of right and wrong.
9	Caricature	Exaggeration of characteristics usually to ridicule.

English Literature	An Inspector Calls	Year Group: 10

Plot

1	Act 1	
2	Act 2	
3	Act 3	

Context

1	Priestley	
2	Historical	
3	Political	
4	Social	
5	Literary	)

Characters

1	Inspector	
2	Mr Birling	
3	Mrs Birling	
4	Gerald	.
5	Sheila	
6	Eric	
7	Eva	

Themes

1		Social responsibility	
2		Age	
3		Class	
4		Gender	
5		Socialism	
6		Capitalism	

Dramatic Devices

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Beckfoot

English Literature	Power and Conflict Poetry	Year Group: 10 & 11

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The Poems:

1	**'Ozymandias' Percy Shelley**	Narrator meets a traveller who tells him about a statue of Pharaoh Rameses II that has been destroyed by nature over time. Highlights the temporary nature of power.
2	**'London' William Blake**	Narrator walks round London and describes the misery he sees brought about by the corrupt power of institutions (church, monarchy) over their subjects.
3	**'The Prelude' William Wordsworth**	Narrator takes a boat out on the lake. Sees a mountain appear and is overwhelmed by the power of nature compared to humans.
4	**'My Last Duchess' Robert Browning**	Duke shows portrait of his former wife who is now dead. The Duchess was flirtatious and displeased the Duke. We realise he probably had the Duchess killed. The Duke is planning his next marriage.
5	**'The Charge of the Light Brigade' Alfred Lord Tennyson**	Tribute to British cavalry who died during Crimean War. An incorrect order meant the cavalry charged into battle with swords, to be met by the Russians who were armed with guns.
6	**'Exposure' Wilfred Owen**	Winter on the front line in WW1. Nature personified as the main enemy and the men can only wait to die. Poem stresses insignificance of humans compared to nature.
7	**'Storm on the Island' Seamus Heaney**	A community are waiting to be hit by a storm. The power of the storm creates feelings of fear and trepidation.
8	**'Bayonet Charge' Ted**	Single soldier's experience of a charge towards enemy lines. The soldier fears for his life & the patriotic ideals that

The Poems:

9	**'Remains' Simon Armitage**	A group of soldiers shoot a man who's running away from a bank raid. The narrator doesn't know if the man was armed or not and can't get the man's death off his mind. When back at home, the solider suffers PTSD.
10	**'Poppies' Jane Weir**	A mother describes her son leaving home to join the army. She fears for his safety and visits a familiar place that reminds her of him.
11	**'War Photographer' Carol Ann Duffy**	In his dark room, a war photographer develops pictures taken in different warzones. He contrasts his experiences to rural England and people who seem oblivious to war torn places.
12	**'Tissue' Imtiaz Dharker**	Tissue is an extended metaphor for the fragility of life. Literal uses of paper are also discussed, such as recording names in the Koran, as well as the fact we are made from tissue, emphasising we are fragile.
13	**'The Emigree' Carol Rumens**	Speaker recalls a city she left as a child. The city has changed and perhaps was a scene of conflict but she protects the memory of her city. It might not be a real place but represents a time/emotion/speaker's childhood.
14	**'Checking Out Me History' John Agard**	In school the narrator was taught British history & not about his Caribbean roots. He contrasts nonsense topics he was taught with admirable figures excluded from history.
15	**'Kamikaze' Beatrice Garland**	A Japanese kamikaze pilot aborts his mission and when he returns home is shunned. His daughter imagines her father was reminded of his childhood and beauty of nature & life whilst on the mission.

Key Vocabulary:

1	**Monologue**	A monologue poem features a single speaker who is a fictional character
2	**Caesura**	Punctuation marks indicate a break in the line of poetry. Usually occurs in the middle of a line.
3	**Enjambment**	The continuation of a sentence without a pause beyond the end of a line/stanza
4	**Free Verse**	A poem without consistent metre patterns or rhyme scheme.
5	**Rhyme**	Correspondence of sound between words or ending of words.
6	**Volta**	In a sonnet, the volta is the turn of thought or argument.
7	**Couplet**	Pair of successive lines, typically rhyming and of the same length.
8	**Sonnet**	One stanza, 14-line poem written in iambic pentameter.
9	**Refrain**	A line or set of lines that repeatedly occurs in a poem.
10	**Stanza**	A group of lines in a poem.

Comparisons:

1	**Power of Nature**	Ozymandias, The Prelude, Exposure, Storm on the Island, Tissue & Kamikaze.	6	**Identity**	My Last Duchess, The Charge of the Light Brigade, Poppies, Tissue, The Emigree, Kamikaze, Checking Out Me History.
2	**Power of Humans**	Ozymandias, London, My Last Duchess, Tissue, Checking Out Me History.	7	**Place**	London, The Prelude, The Emigree, Kamikaze.
3	**Effects of Conflict**	The Charge of the Light Brigade, Exposure, Bayonet Charge, Remains, Poppies, War Photographer, Kamikaze.	8	**Powerful Individuals**	Ozymandias, My Last Duchess
4	**Reality of Conflict**	The Charge of the Light Brigade, Exposure, Bayonet Charge, Remains, War Photographer.	9	**Political Power**	Storm on the Island, London, The Charge of the Light Brigade
5	**Individual Experiences**	London, The Prelude, Bayonet Charge, Remains, Poppies, War Photographer, The Emigree, Kamikaze.	10	**Memory**	The Prelude, My Last Duchess, Remains, Poppies, War Photographer, The Emigree, Kamikaze.

Beckfoot

English Literature	Power and Conflict Poetry	Year Group: 10 & 11

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The Poems:

1	'Ozymandias' Percy Shelley	
2	'London' William Blake	
3	'The Prelude' William Wordsworth	
4	'My Last Duchess' Robert Browning	
5	'The Charge of the Light Brigade' Alfred Lord Tennyson	
6	'Exposure' Wilfred Owen	
7	'Storm on the Island' Seamus Heaney	
8	'Bayonet Charge' Ted	

The Poems:

9	'Remains' Simon Armitage	
10	'Poppies' Jane Weir	
11	'War Photographer' Carol Ann Duffy	
12	'Tissue' Imtiaz Dharker	
13	'The Emigree' Carol Rumens	
14	'Checking Out Me History' John Agard	
15	'Kamikaze' Beatrice Garland	

Comparisons:

1	Power of Nature		6	Identity	
2	Power of Humans		7	Place	
3	Effects of Conflict		8	Powerful Individuals	
4	Reality of Conflict		9	Political Power	
5	Individual Experiences		10	Memory	

Key Vocabulary:

1	Monologue	
2	Caesura	
3	Enjambment	
4	Free Verse	
5	Rhyme	
6	Volta	
7	Couplet	
8	Sonnet	
9	Refrain	
10	Stanza	

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Beckfoot

English Literature	Unseen Poetry	Year Group: 10 & 11

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Assessment Criteria

1	AO1	Assessed on unseen poem analysis only. Read, understand and respond to texts. Use textual references, including quotations, to support and illustrate interpretations.
2	AO2	Assessed on unseen poem analysis and unseen poem comparison question. Analyse the language, form and structure used by a writer to create meanings and effects, using relevant subject terminology where appropriate.

Poetic Language

1	**Simile**	A comparison made using the words "like" or "as."
2	**Metaphor**	A comparison – made directly or indirectly – without using "like" or "as."
3	**Personification**	Giving human characteristics to something which is not human.
4	**Onomatopoeia**	Words which attempt to imitate sounds.
5	**Alliteration**	A repetition of consonant sounds.
6	**Assonance**	A repetition of vowel sounds
7	**Juxtaposition**	Two things being placed close together for contrasting effect.
8	**Semantic field**	A set of words relating to the same topic. "Foul" and "Shot" would appear in the semantic field of sports.
9	**Persona/ narrative voice**	The voice/speaker of the poem who is different from the writer.
10	**Oxymoron**	A figure of speech in which two contradictory things are placed together in a way which makes peculiar sense. For example, "friendly fire."

Poetic Structures and Forms

1	**Stanza**	A group of lines separated from others in a poem.
2	**Rhyme**	The repetition of syllable sounds – usually at the ends of lines, but sometimes in the middle of a line (called internal rhyme).
3	**Couplet**	A pair of rhyming lines which follow on from one another.
4	**Enjambment**	The running over of a sentence from one line to the next without a piece of punctuation at the end of the line.
5	**Caesura**	A stop or a pause in a line of poetry – usually caused by punctuation.
6	**Blank verse**	Poetry written in non-rhyming, ten syllable lines.
7	**Dramatic monologue**	A poem in which an imagined speaker address the reader.
8	**Lyric**	An emotional, rhyming poem, most often describing the emotions caused by a specific event.
9	**Sonnet**	A fourteen line poem, with variable rhyme scheme, usually on the topic of love for a person, object or situation.
10	**Free verse**	Non-rhyming, non-rhythmical poetry which follows the rhythms of natural speech.

How to approach an unseen poem

1	**What**	What is the poem about? What happens? What is the topic/theme?
2	**How**	How is this communicated? What language/structural techniques does the poet use to present this?
3	**Effect**	What is the effect on the reader? What response do they have to the poem? What do they learn/understand?

Key Vocabulary

1	**Poet**	The author of the poem.
2	**Speaker**	The voice of the poem – this may or may not be the poet themselves.
3	**Reader**	Who the poem is written for. Some poems are written with a specific reader in mind.
4	**Form**	The type of poem, i.e. lyric or sonnet.
5	**Structure**	How the poem has been put together – couplet, rhyme scheme, stanzas etc.
6	**Language**	Techniques such as metaphor, personification etc. used by the poet to present the subject matter
7	**Interpretation**	A reader's understanding of and response to a poem.
8	**Comparison**	Comparing the methods two poets use to present their ideas in their poems.

English Literature	Unseen Poetry	Year Group: 10 & 11

Assessment Criteria

1	AO1	
2	AO2	

Poetic Language

1	Simile	
2	Metaphor	
3	Personification	
4	Onomatopoeia	
5	Alliteration	
6	Assonance	
7	Juxtaposition	
8	Semantic field	
9	Persona/ narrative voice	
10	Oxymoron	

Poetic Structures and Forms

1	Stanza	
2	Rhyme	
3	Couplet	
4	Enjambment	
5	Caesura	
6	Blank verse	
7	Dramatic monologue	
8	Lyric	
9	Sonnet	
10	Free verse	

How to approach an unseen poem

1	What	
2	How	
3	Effect	

Key Vocabulary

1	Poet	
2	Speaker	
3	Reader	
4	Form	
5	Structure	
6	Language	
7	Interpretation	
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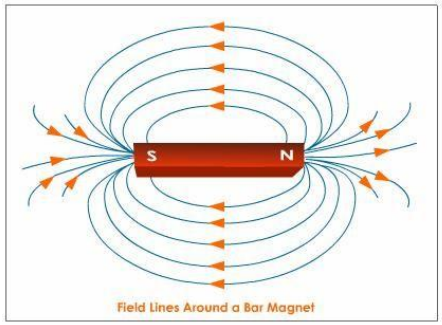
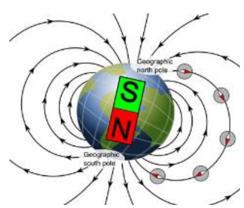
Subject: Science	Topic: Magnetism and Electromagnetism	Year Group: 10

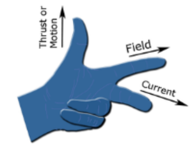
Magnets

1	Permanent magnets produce their own field
2	Induced magnets become magnets when placed into another field, but lose this quickly when removed
3	Materials that are magnetic: i) Iron ii) Steel iii) Nickel iv) Cobalt They are always attracted to a magnet
4	A compass contains a small bar magnet that lines up with the Earth's magnetic field
5	To show a magnetic field pattern around a bar magnet: i) Scatter iron filings on a piece of paper and they will line up with the field. ii) Use a compass to plot the direction of the field in different positions around the magnet

Fields

1	Field lines always point away from a North pole and towards a South Pole
2	
3	Where the field lines are closer together, the field is strongest i.e. at the poles
4	
5	Earth's magnetic field looks like a bar magnet

Electromagnets

1	Current flowing in a wire produces a magnetic field
2	Strength of an electromagnet is affected by: i) Current ii) No. of turns of wire iii) Iron core
3	Fleming's Left hand rule: • First Finger = Field • Second Finger = Current • Thumb = Thrust 
4	Force = Magnetic Flux Density x Current x Length of wire F = BIL
5	A coil of wire in a magnetic field will start to rotate. This is how a motor works.

Key Vocabulary

1	Magnetic field	A region where a magnetic material experiences a force
2	Solenoid	A wire coiled around an iron core
3	Magnetic Flux Density	How strong a magnetic field is
4	Motor effect	The electromagnetic force on a wire
5	Induced	Produced/made a magnetic field or current

Subject: Science	Topic: Magnetism and Electromagnetism	Year Group: 10

Magnets

1	________________
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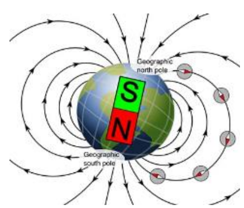
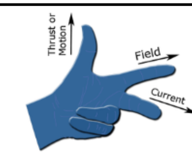
3	
4	
5	

Fields

1	Field lines always point away from a ___________________________________
2	Draw a the magnetic field lines around a magnet.
3	Where the field lines are closer together, the field _________________________________
4	
5	Earth's magnetic field looks like a bar magnet

Electromagnets

1	Current flowing in a wire produces a _________________
2	Strength of an electromagnet is affected by:
3	Fleming's Left hand rule: 
4	Force = F = BIL
5	A coil of wire in a magnetic field will start to rotate. This is how a ________________

Key Vocabulary

1	Magnetic field	
2	Solenoid	
3	Magnetic Flux Density	
4	Motor effect	
5	Induced	

1. Quiz It

Use the blank knowledge organiser above to self-quiz. Complete one section at a time, using **Look, Cover, Write, Check**

2. Link It

Choose three items from your knowledge organizer and write three sentences to explain how they link together.

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3. Map It

Use the space on the next page to create a mind-map or diagram to illustrate the knowledge from this topic.

4. Shrink It

Summarise this topic into 5 key bullet points

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Use this space to create a mind-map or diagram to illustrate the knowledge from this topic.

Beckfoot

Subject: Science (Chemistry)	Topic: Quantitative Chemistry	Year Group: 11

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Calculation Types I

1	Relative atomic mass (A_r)	$A_r = \dfrac{\text{sum of (isotope abundance x isotope mass no.)}}{\text{sum of abundances of all the isotopes}}$ Example: ^{35}Cl 75% abundance & ^{37}Cl 25% abundance (35 x 75) + (37 x 25) ÷ 100 = **35.5 A_r of Chlorine**
2	Relative formula or molecular mass (M_r)	Sum of the relative atomic masses of all the atoms shown in the formula Example $MgSO_4$ contains: 1 x Mg: 1 x 24 = 24 1 x S: 1 x 32 = 32 4 x O: 4 x 16 = 64 So the relative formula mass = 24 + 32 + 64 = **120**
3	% mass of an element in a compound	$\dfrac{A_r \times \text{No. of atoms of that element}}{M_r \text{ of the compound}} \times 100$ Example: Find the % mass of O in Na_2O A_r of Na is 23; A_r of O is 16 1 x O atom so 1 x16 = 16 M_r of Na_2O so (2 x 23) + (1 x 16) = 62 % mass = A_r ÷ M_r x 100 so 16 ÷ 62 x 100 = **26%**
4	The mole & A_r / M_r	The mass of one mole of a substance in grams is equal to its relative atomic mass or relative formula mass. **Number of moles = $\dfrac{\text{mass in g (of an element or compound)}}{M_r \text{ (of the element or compound)}}$** Example: how many moles is 48 g of sulfur? A_r of S is 32 So mass in g divided by A_r is 48 ÷ 32 = **1.5 moles**

Calculations Types II

5	**HT Only**: The mole & Avogadro's Constant	A mole of a substance **ALWAYS** contains the same number of molecules/ions/particles/atoms – this is called Avogadro's Constant: 1 mole = 6.02×10^{23} $\text{number of moles} = \dfrac{\text{number of particles}}{6.02 \times 10^{23}}$ Example: How many atoms are in 11.5 g of sodium? • Calculate number of moles first = 11.5 ÷ 23 = 0.5 moles • No. of moles (0.5) x 6.02×10^{23} = **3.01×10^{23} atoms**
6	Concentration	Concentration is the amount of substance in a specific volume of a solvent. It can be expressed as mass (in g) per unit volume, g/dm^3 or g dm^{-3} **or** moles in a specific volume of solvent, mol/dm^3 or mol dm^{-3} (**Chemistry only**). *You can increase the concentration of a solution by adding more solute/solid or reducing the volume of solvent.* Concentration (g/dm^3) = $\dfrac{\text{mass (g)}}{\text{volume (dm}^3\text{)}}$ Examples: What volume of water do I need to add to 25 g of common salt to get a concentration 0.65 g / dm^3? Volume = mass ÷ concentration so 25 ÷ 0.65 = **38.5 dm^3** **Chemistry Only**: Concentration (mol/dm^3) = $\dfrac{\text{number of moles}}{\text{volume (dm}^3\text{)}}$ Calculate the number of moles in a 0.55 dm^3 solution with a concentration of 0.35 mol/dm^3 No. of moles = concentration x volume 0.35 x 0.55 = **0.19 moles**

Key Vocabulary

1	Law of Conservation of Mass	No atoms can be created or destroyed in a chemical reaction so the total mass of reactants must equal the total mass of the products
2	Relative atomic mass (A_r)	Average mass of an element taking into account the mass & amount of each isotope it contains on a scale where the mass of a ^{12}C atom is 12
3	Relative formula (or molecular) mass (M_r)	The sum of the relative atomic masses of all the atoms shown in the formula
4	**HT only:** Mole	Measurement of the amount of substance / mass of a substance that contains 6.02×10^{23} particles
5	**HT only:** Avogadro's constant	The number of atoms, molecules or ions in one mole of a given substance (6.02×10^{23}). *One mole of any substance contains the same number of particles as the number of atoms in one mole of carbon 12.*
6	Uncertainty	The range of values within which the true value is expected to lie. So, for example, a volume of gas collected would be 10cm^3 plus or minus 1cm^3 so expressed as 10cm^3 +/- 1cm^3 so true value is anywhere between 9-11cm^3

Subject: Science (Chemistry)	Topic: Quantitative Chemistry	Year Group: 11

Calculation Types I

1	Relative atomic mass (A_r)	A_r = Example: ^{35}Cl 75% abundance & ^{37}Cl 25% abundance **= 35.5 A_r of Chlorine**
2	Relative formula or molecular mass (M_r)	Example $MgSO_4$ contains: So the relative formula mass = 24 + 32 + 64 = **120**
3	% mass of an element in a compound	Example: Find the % mass of O in Na_2O
4	The mole & A_r / M_r	Number of moles = $\frac{\text{mass in g (of an element or compound)}}{M_r \text{ (of the element or compound)}}$ Example: how many moles is 48 g of sulfur?

Calculations Types II

5	**HT Only**: The mole & Avogadro's Constant	A mole of a substance **ALWAYS** contains the same number of molecules/ions/particles/atoms – this is called Avogadro's Constant: 1 mole = 6.02×10^{23} $\text{number of moles} = \frac{\text{number of particles}}{6.02 \times 10^{23}}$ Example: How many atoms are in 11.5 g of sodium?
6	Concentration	Concentration is the amount of substance in a specific volume of a solvent. It can be expressed as mass (in g) per unit volume, g/dm^3 or g dm^{-3} **or** moles in a specific volume of solvent, mol/dm^3 or mol dm^{-3} (**Chemistry only**). *You can increase the concentration of a solution by adding more solute/solid or reducing the volume of solvent.* Concentration (g/dm^3) = $\frac{\text{mass (g)}}{\text{volume } (dm^3)}$ Examples: What volume of water do I need to add to 25 g of common salt to get a concentration 0.65 g / dm^3? **Chemistry Only**: Concentration (mol/dm^3) = $\frac{\text{number of moles}}{\text{volume } (dm^3)}$ Calculate the number of moles in a 0.55 dm^3 solution with a concentration of 0.35 mol/dm^3

Key Vocabulary

1	Law of Conservation of Mass	
2	Relative atomic mass (A_r)	
3	Relative formula (or molecular) mass (M_r)	
4	**HT only:** Mole	
5	**HT only:** Avogadro's constant	
6	Uncertainty	

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Beckfoot

Subject: Science (Chemistry)	Topic: Quantitative Chemistry	Year Group: 11

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Calculations Types III

5	**Chemistry Only** Percentage yield (%)	The amount of product formed in a reaction compared to the maximum theoretical mass that could be produced as a percentage $\text{percentage yield} = \frac{\text{mass of product actually made}}{\text{maximum theoretical mass of product}} \times 100$ Example: 25g of salt was produced in a reaction but the expected mass was 80g. What is the % yield? 25 ÷ 80 x 100 = **31.3%**
6	**Chemistry Only** Atom economy	A way of measuring what percentage of the mass of all the atoms in the reactants ends up in the desired product $\text{atom economy} = \frac{\text{relative formula mass of desired product}}{\text{relative formula mass of all reactants}} \times 100$ Example: The reaction below is used to produce calcium oxide (CaO). Calculate the atom economy of the reaction: $CaCO_3 \rightarrow CaO + CO_2$ M_r of CaO = 40 + 16 = 56 (desired product) M_r of $CaCO_3$ = 100 (Formula mass of all reactants) Therefore, 56 ÷ 100 x 100 = **56%**
	Chemistry Only Gas volumes	1 mole of a gas at room temperature (20^{o}C) and pressure (1 atm) occupies a volume of 24dm^3 in dm^3 $\text{Volume of gas} = \frac{\text{Mass of gas}}{M_r \text{ of gas}} \times 24$ in g Example: What volume will 88g of CO_2 gas occupy at room temperature & pressure? Volume = mass ÷ M_r x 24 so 88 ÷ 44 = 2 x 24 = **48 dm^3**

Mass Conservation in Chemical Reactions

1	The law of mass conservation in terms of a chemical reaction…	The total number of each type of atom in a chemical reaction is the same before and after the reaction
2	How can we show conservation of mass in a chemical equation?	The total M_r of all the reactants will be equal to the total M_r of all the products
3	Why might mass appear to go up in a reaction?	Due to one or more reactants being a gas found in air, that 'adds on' to the substance
4	Why might mass appear to go down?	One of the products is a gas that escapes

HT only: Reacting Mass Calculations: the steps

1	Example question	*What mass of calcium chloride ($CaCl_2$) is produced when 3.7g of calcium hydroxide ($Ca(OH)_2$) reacts with an excess of hydrochloric acid (HCl)?*
2	Write out the balanced equation & identify what we know & don't know	$Ca(OH)_2 + 2HCl \longrightarrow CaCl_2 + 2H_2O$ 3.7g ?
3	Work out the moles of what you know	$Ca(OH)_2 + 2HCl \longrightarrow CaCl_2 + 2H_2O$ Remember moles = mass ÷ Mr 3.7 ÷ 74 Mr of $Ca(OH)_2$ is 74 = 0.05 mol
4	Check ratio in the balanced equation	1 unit of $CaCl_2$ is formed from 1 unit of $Ca(OH)_2$ So whatever moles of what you have worked out ($Ca(OH)_2$) will make the same moles of what you need to work out (calcium chloride)
5	Calculate the number of moles of what you don't know	We will make 0.05 moles of $Ca(OH)_2$ as the ratio of both compounds in the equation is 1:1
6	Calculate the mass of what you don't know	So in the last step we are converting moles to a mass in grams Mass = M_r x Moles M_r of $CaCl_2$ is 111 111 x 0.05 = **5.6g**

Key Vocabulary

7	Thermal decomposition	Reaction where heat causes a substance to break down into simpler substances
8	**HT only**: Limiting reactant / reagent	The reactant in a reaction that determines the amount of products formed. Any other reagents are in excess & some of them will be left over, unreacted
9	**HT only**: Excess	When the amount of a reactant is greater than the amount that can react
10	**Chemistry Only:** Yield	The amount of product formed in a reaction
11	**Chemistry Only:** Titration	A technique used to find the concentration of a solution using a solution of known concentration
12	**Chemistry only:** Concordant	Two or more results from titration where the values are very close together (within 0.10cm^3)
13	**Chemistry only:** End point	The moment when the indicator changes colour in a titration showing that the moles of acid & alkali are equal

Beckfoot

Subject: Science (Chemistry)	Topic: Quantitative Chemistry	Year Group: 11

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Calculations Types III

5	**Chemistry Only** Percentage yield (%)	The amount of product formed in a reaction compared to the maximum theoretical mass that could be produced as a percentage $\text{percentage yield} = \frac{\text{mass of product actually made}}{\text{maximum theoretical mass of product}} \times 100$ Example: 25g of salt was produced in a reaction but the expected mass was 80g. What is the % yield?
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Mass Conservation in Chemical Reactions

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3	Work out the moles of what you know	
4	Check ratio in the balanced equation	
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6	Calculate the mass of what you don't know	So in the last step we are converting moles to a mass in grams Mass = M_r x Moles M_r of $CaCl_2$ is 111

Key Vocabulary

7	Thermal decomposition	
8	**HT only**: Limiting reactant / reagent	
9	**HT only**: Excess	
10	**Chemistry Only:** Yield	
11	**Chemistry Only:** Titration	
12	**Chemistry only:** Concordant	
13	**Chemistry only:** End point	

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Titration Method (Chemistry only)

A student investigated the volume of hydrochloric acid that reacted with 25 cm^3 potassium hydroxide. Describe a titration method the student could use in this investigation.

- Measure 25 cm^3 potassium hydroxide using a pipette
- Place the potassium hydroxide into a conical flask
- Fill the burette with hydrochloric acid and record the starting volume
- Add a suitable indicator to the conical flask, e.g., Phenolphthalein
- Place a white tile under flask
- Add the hydrochloric acid until the indicator changes colour
- Add acid slowly and dropwise whilst at the same time swirling the flask
- Phenolphthalein will change from pink to colourless permanently at the endpoint
- Record the volume of hydrochloric acid added
- The tire value is the difference between the initial and final burette reading
- Repeat until you get 2 concordant titres/within 0.1 cm^3 of each other

Titration Calculation – the steps (Chemistry only)

In a different titration, a student used 25.00 cm^3 of potassium hydroxide, KOH. This volume reacted with exactly 26.00 cm^3 of 0.100 mol dm^{-3} sulfuric acid. The equation for the reaction is: $2KOH + H_2SO_4 \rightarrow K_2SO_4 + 2H_2O$. What is the concentration of the potassium hydroxide solution in mol dm^{-3}?

1	Calculate the moles of the reactant that you have the volume and concentration for (in this case it is the sulfuric acid). Remember, moles = volume (dm^3) x concentration (mol dm^{-3}) (26.00 / 1000) x 0.100 = 0.00260 mol
2	Now determine the moles of potassium hydroxide you have. Look at the equation. You can see you have a 2:1 ratio. This means you have double the moles of KOH. 2 x 0.00260 = 0.0052 mol
3	Now you can work out the concentration of KOH using concentration (mol dm^{-3}) = moles / volume (dm^3) 0.0052 x (25/1000) = 0.208 mol dm^{-3}

Subject: Science (Chemistry)	Topic: Quantitative Chemistry	Year Group: 11

Titration Method (Chemistry only)

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1	Calculate the moles of the reactant that you have the volume and concentration for (in this case it is the sulfuric acid). Remember, moles = volume (dm^3) x concentration (mol dm^{-3})
2	Now determine the moles of potassium hydroxide you have. Look at the equation. You can see you have a 2:1 ratio. This means you have double the moles of KOH.
3	Now you can work out the concentration of KOH using concentration (mol dm^{-3}) = moles / volume (dm^3)

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Subject: Trilogy Science (Biology)	Topic: **Inheritance, Variation & Evolution**	Year Group: 11

Knowledge: Mitosis Vs Meiosis

	Mitosis (for growth & repair)	Meiosis (makes gametes)
1	Produces two daughter cells	Produces four daughter cells
2	Daughter cells are genetically identical	Daughter cells are not genetically identical
3	The cells divide once	The cells divides twice
4	The chromosome number of the daughter cell is the same as the parent cell. In humans this is 46 chromosomes.	The chromosome number is reduced by half. In humans, this is 23 chromosomes.
5	Used for growth and repair, and asexual reproduction.	Produces gametes for sexual reproduction.

Human genome project:
- Study of the whole human genome

Importance of this project:
- Search for genes linked to different types of disease
- Understanding and treatment of inherited disorders
- Use in tracing human migration patterns from the past.

Key Vocabulary

1	Allele	An alternative form of a gene
2	Asexual reproduction	The production of offspring from a single parent by mitosis. Offspring are clones of the parent.
3	Chromosome	Structure that contains the DNA of an organism, found in the nucleus
4	DNA	A polymer that is made up of two strands that form a double helix
5	Dominant	An allele that is always expressed, even if only one copy is present
6	Gene	A small section of DNA that codes for a specific protein
7	Genome	The entire genetic material of an organism

Key Vocabulary

8	Genotype	The combination of Alleles
9	Heterozygous	A genotype that has two different alleles, one dominant one recessive
10	Homozygous	A genotype that has two of the same alleles, either two dominant or two recessive
11	Mutation	A change in DNA
12	Phenotype	The characteristic expressed because of the combination of alleles
13	Recessive	An allele that is only expressed if two copies of it are present
14	Sexual reproduction	The production of offspring by combining genetic information from the gametes of two parents. Leads to variation in offspring

Subject: Trilogy Science (Biology)	Topic: **Inheritance, Variation** & Evolution	Year Group: 11

Knowledge: Mitosis Vs Meiosis

	Mitosis (for growth & repair)	Meiosis (makes gametes)
1		
2		
3		
4		
5		

Human genome project:
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Key Vocabulary

1	Allele	
2	Asexual reproduction	
3	Chromosome	
4	DNA	
5	Dominant	
6	Gene	
7	Genome	

Key Vocabulary

8	Genotype	
9	Heterozygous	
10	Homozygous	
11	Mutation	
12	Phenotype	
13	Recessive	
14	Sexual reproduction	

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Subject: Trilogy Science (Biology)	Topic: Inheritance, Variation & **Evolution**	Year Group: 11

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Knowledge: Fossils

Fossils could be:

1	The actual remains of an organism that has not decayed
2	Mineralised forms of the harder parts of an organism, such as bones
3	Traces of organisms such as footprints or burrows

Many early life forms were soft bodied so have left few traces behind.

Fossils help us understand how much or little organisms have changed as life developed on earth

Knowledge: Classification

1	Linnaeus classified living things into Kingdom, Phylum, Class, Order, Family, Genus and Species
2	Organisms are named by the binomial system of genus and species
3	Due to evidence from chemical analysis, there is now a 'three-domain system' developed by Carl Woese –Bacteria, Archaea, Eukaryota

Knowledge: Evolution

All species of living things have evolved from simple life forms by natural selection

1	If a variant/characteristic is advantageous in an environment, then the individual will be better able to compete
2	This means they are more likely to survive and reproduce
3	The offspring will inherit the advantageous allele

Knowledge: Variation

May be due to differences in:

1	The genes that have been inherited (genetic causes)
2	The conditions in which they have developed (environmental causes)
3	A Combination of genes and the environment

Knowledge: Reducing antibiotic resistance

1	Antibiotics should only be used when really needed and for serious bacterial infections only (not viral)
2	Patients should complete their courses of antibiotics, even if they feel better.
3	The agricultural use of antibiotics should be restricted.

Key Vocabulary

1	Evolution	A change in the inherited characteristics of a population over time through natural selection
2	Extinction	The permanent loss of all members of a species
3	Natural selection	The process by which organisms that are better suited to an environment are more likely to survive and reproduce
4	Speciation	Two species evolve from one organism but can no longer breed to produce fertile offspring

Additional Information: The process of Genetic Engineering, The process of Selective Breeding, The process of Antibiotic resistance

Beckfoot

Subject: Trilogy Science (Biology)	Topic: Inheritance, Variation & **Evolution**	Year Group: 11

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Knowledge: Fossils

Fossils could be:	
1	
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Knowledge: Classification

1	
2	
3	

Knowledge: Evolution

All species of living things have evolved from simple life forms by natural selection	
1	
2	
3	

Knowledge: Variation

May be due to differences in:	
1	
2	
3	

Knowledge: Reducing antibiotic resistance

1	
2	
3	

Key Vocabulary

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Beckfoot

Subject: Triple Science (Biology)	Topic: Inheritance, Variation & **Evolution**	Year Group: 11

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Advantages/disadvantages of the 2 types of reproduction

Sexual reproduction	
1	produces variation in the offspring
2	if the environment changes variation gives a survival advantage by natural selection
3	natural selection can be speeded up by humans in selective breeding to increase food production.
Asexual reproduction	
1	only one parent needed
2	more time and energy efficient as do not need to find a mate
3	faster than sexual reproduction
4	many identical offspring can be produced when conditions are favourable.

You can use the converse of these statements to describe the disadvantages of each type of reproduction.

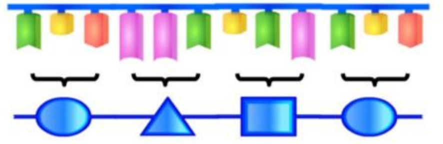
Sexual OR asexual

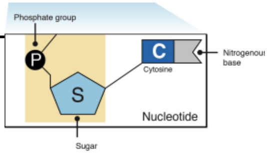
Some organisms reproduce by both methods depending on the circumstances.

1	Malarial parasites reproduce asexually in the human host, but sexually in the mosquito.
2	Many fungi reproduce asexually by spores but also reproduce sexually to give variation.
3	Many plants produce seeds sexually, but also reproduce asexually by runners such as strawberry plants, or bulb division such as daffodils.

Structure of DNA

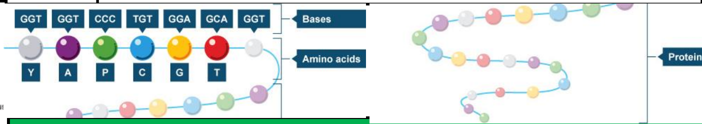
Made up of nucleotides which consist of a common sugar and phosphate group with one of four different bases attached to the sugar.

1	The sugar and phosphate alternates in the backbone.
2 Complementary pairing	4 bases – A, G, C, T A pairs with T C pairs with G
3	3 bases code for an amino acid. Amino acids join together to make proteins.
Diagram	
Mutations – changes in DNA sequence/genes	May influence phenotype: a) in coding DNA by altering the activity of a protein: and b) in non-coding DNA by altering how genes are expressed.



Protein synthesis

1	DNA is copied to make a template strand. This needs to happen as DNA is too large to leave the nucleus.
2	Template strand moves to the ribosomes where it binds.
3	Carrier molecules bring amino acids to the template strand for every 3 bases.
4	Amino acids join together in a chain which will eventually form a protein.
5	The protein is released from the ribosome and the protein folds up to form a unique shape. This unique shape enables the proteins to do their job as enzymes, hormones or forming structures in the body such as collagen.



Mutations – changes to the base sequence

1	Mutations occur continuously. Most do not alter the protein, or only alter it slightly so that its appearance or function is not changed.
2	A few mutations code for an altered protein with a different shape. An enzyme may no longer fit the substrate binding site or a structural protein may lose its strength.
3	Not all parts of DNA code for proteins. Non-coding parts of DNA can switch genes on and off, so variations in these areas of DNA may affect how genes are expressed.

Beckfoot	Subject: Triple Science (Biology)	Topic: Inheritance, Variation & **Evolution**	Year Group: 11	enjoy learn succeed

Advantages/disadvantages of the 2 types of reproduction

Sexual reproduction	
1	
2	
3	

Asexual reproduction	
1	
2	
3	
4	

You can use the converse of these statements to describe the disadvantages of each type of reproduction.

Sexual OR asexual

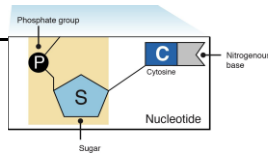
Some organisms reproduce by both methods depending on the circumstances.

1	
2	
3	

Structure of DNA

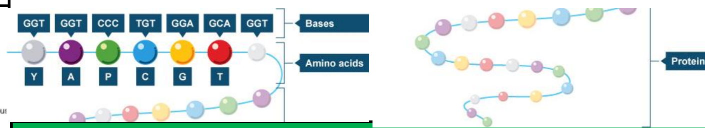
Made up of nucleotides which consist of a common sugar and phosphate group with one of four different bases attached to the sugar.

1	
2 Complementary pairing	
3	
Diagram	
Mutations – changes in DNA sequence/genes	



Protein synthesis

1	
2	
3	
4	
5	



Mutations – changes to the base sequence

1	
2	
3	

1. Quiz It

Use the blank knowledge organiser above to self-quiz. Complete one section at a time, using **Look, Cover, Write, Check**

2. Link It

Choose three items from your knowledge organizer and write three sentences to explain how they link together.

1.

2.

3.

3. Map It

Use the space on the next page to create a graphic organiser to illustrate the knowledge from this topic.

4. Shrink It

Summarise this topic into 5 key bullet points

1.

2.

3.

4.

5.

3. Map it

Use this space to create a mind-map or diagram to illustrate the knowledge from this topic.

Read Like a Beckfooter

Vocabulary

Do you understand the words of the text?

Highlight any you're unsure of, then ask yourself these questions:

1.Can you work out the word from its context? What does it seem like it means?

2. Does it look like any other words you know? Could it mean something similar?

3. If you can't figure it out for yourself, look the word up in a dictionary or online

Comprehension

This means understanding a text. There are two things to think about:

1. Do you understand what it means literally?

2. Can you see what's implied?

To achieve these things:

1. Slow down your reading – many people miss key parts in texts because they go too fast

2. Look carefully at punctuation, which is designed to help you take pauses in the right places

3. Ask a trusted adult to read the text to/with you

Remember: not every text has implied meaning.

In English there will be lots, but there will be very little in many Science and Maths texts.

Summarising

A good summary expresses what really matters about a text as briefly as possible. If you can summarise a text, you must have understood it.

Follow these steps:

1.Summarise the text in five words

2.Summarise the text in twenty words

3.Summarise the text in fifty words

Each time you will have added more information, but you won't have included everything.

By following the process, you've decided what matters and what doesn't.

Revise Like a Beckfooter

Summary: How to flash cards

1 Identify knowledge

What are you creating flash cards on?

Do you have your knowledge organizer?

Use your book to look at previous misconceptions from whole class feedback.

2 Colour coding

Use different coloured flash cards for different topics. This helps with organization NOT recall

3 Designing

1 Question per flashcard.

Making them concise and clear.

Use a one word prompt, so that you can recall as much as you can.

No extended answer questions.

4 Using

Write your answers down, then check. Or say your answers out loud. This really clearly shows the gaps in your knowledge.

Do not just copy & re-read.

Shuffle the cards each time you use them.

Use the Leitner system to use flash cards everyday.

5 Feedback

How have you performed when you look back at your answers?

Is there anything you need to revisit in more detail?

Is your knowledge secure? If so, move onto applying knowledge in that area in specific extended exam questions.

Avoid answering the questions in your head: research shows that when you read a question and answer it in your head, you aren't actually testing your knowledge effectively. Say the answer out loud or write it down before checking it against the card, so you are truly testing if you can explain the answer properly

Summary: How to create a mind map

1 Identify knowledge

Select a topic you wish to revise. Have your class notes/knowledge organisers ready.

2 Identify sub topics

Place the main topic in the centre of your page and identify sub topics that will branch off.

3 Branch off

Branch of your sub topics with further detail.

Try not to fill the page with too much writing.

4 Use images & colour

Use images and colour to help topics stick into your memory.

5 Put it somewhere visible

Place completed mind maps in places where you can see them frequently.

Avoid using too much information: mind maps are designed to summarise key information and connect areas of a topic/subject. If you overcrowd the page, you lose the point of the mind map and will find it harder to visualise the information when trying to recall it

Summary: Self Quizzing

1 Identify knowledge

Identify knowledge/content you wish to cover.

2 Review and create

Spend around 5-10 minutes reviewing content (knowledge organisers/class notes/text book)

Create x10 questions on the content (If your teacher has not provided you with questions)

3 Cover and answer

Cover up your knowledge and answer the questions from memory.

Take your time and where possible answer in full sentences.

4 Self mark & reflect

Go back to the content and self mark your answers in **green** pen.

5 Next time

Revisit the areas where there were gaps in knowledge, and include these same questions next time.

Ensure that you complete all subjects and all topics – not just the subjects you enjoy the most of find easiest.
Practice makes perfect!

Summary: Brain dumps

1 Identify knowledge

Identify the knowledge/topic area you want to cover.

2 Write it down

Take a blank piece of paper/white board and write down everything you can remember about that topic. (with no prompts)

Give yourself a timed limit (e.g. 10 minutes)

3 Organise information

Once complete and you cannot remember any more use different colours to highlight/underline words in groups.

This categories/links information.

4 Check understanding

Compare your brain dump to your K/O or book and check understanding.

Add any key information you have missed (key words) in a different colour.

5 Store and compare

Keep your brain dump safe and revisit it.

Next time you attempt the same topic try and complete the same amount of information in a shorter period of time or add more information.

Brain dumps are a way of getting information out of your brain.

Revise Like a Beckfooter

Summary: Dual Coding

Dual coding is the process of blending both **words** and **pictures** while learning. Viewing those two formats gives us **two different representations** of the **same** piece of information.

1. Drawings

These boost learning by getting you to think deeply about information.

2. Diagrams

These are helpful for breaking down complex concepts or processes to make them easier to understand.

3. Posters

These are great for combining writing, pictures and diagrams all within one page of information.

4. Timelines

These can be used of information that happens in a particular order or sequence.

5. Graphic organisers

These organise verbal and visual information by the relationships between different concepts. Examples include tree diagrams, mind maps and Venn diagrams.

4 Key Principles for using dual coding

Cut - Reduce the amount of content, be selective and only use the most important information.

Chunk - Divide the content into groups of related information;

Align - Make sure that words and pictures are neatly ordered, making them easier to read;

Restrain - Avoid "overdoing" it. In other words, don't go crazy with different colours and fonts.

As well as knowing the most effective techniques for revision, it is really important that you consider the best times for you to revise each topic/subject. The two strategies below, (spacing and interleaving) will help you to put together a revision timetable that will help you to strengthen your memory and choose what you revise and when.

Summary: Spacing

- Spacing is regularly revisiting material so that you are doing little and often instead of all at once.
- Doing a little amount regularly is more effective than doing a lot all at once. We do this so that we don't get swamped and overwhelmed

To commit something to memory, it takes time and repetition.

WHY? This is because the time in between allows you to forget and re-learn the information, which cements it in your **long-term memory**

Optimum Spacing

- Research suggests there is an 'optimal gap' between revision sessions so you can retain the information.
- If the test is in a month, you should review the information around once a week. If the test is in a week, create time once a day.

Why use Spacing?

- Doing something little and often – spacing – beats doing it at once, or cramming
- The time in between revision allows you to forget and re-learn the information, which cements it in your long-term memory
- It cements information into your long-term memory
- We can learn more information over time than in one longer session
- It helps you revise more efficiently

Time to the test	Revision Gap
1 Week	1-2 days
1 Month	1 week
3 Months	2 weeks
6 Months	3 weeks
1 Year	1 month

Summary: Interleaving

Interleaving is a theory that revising more than one topic in each session will help you make better links between them.

A ⇨ B ⇨ C ⇨ D

B ⇨ D ⇨ A ⇨ C

1. Switch

Switch between topics during each session.

It allows you to think about what you are doing with your time when you are revising.

2. Review in different orders

When reviewing make sure you do it in a different order that you learnt them, or previously revised them.

By revisiting material from each topic several times, in short bursts, this **increases the amount of information you can recall in your exams.**

3. Make links to remember more.

Try to make links between ideas and review your revision notes.

This helps you make connections between topics and forces you to think harder about which strategies need to be applied to which problems.

Applying interleaving to your revision

1. Break units down into small chunks and split these over a few days rather than revising one whole topic all at once.
2. Decide on the key topics you need to learn for each subject.
3. Create a revision timetable to organise your time and space your learning.

Additional Revision Strategies

Brain Dump

Choose a topic and write down as much as you can remember, without referring to your notes. Check your notes and see what you missed then try fill the gaps without the notes. Check your notes a third time and add the missing information.

Flash cards

Write flash cards for each topic, in all subjects, then mix them up for the most effective revision. Check out the Leitner System for effective spacing and interleaving. Keep your flash cards simple – one question, one answer per card.

Map it out

Take an essay question or writing question and map out your answer, without writing a full response. Look at the mark scheme and deicide if you plan meets the criteria. DO this for a number of questions, then choose one and write the full response.

Past papers

Ask your teacher for practice questions or exam papers. Complete them without notes in the exam conditions, then check you answers and identify the gaps in your knowledge, so you can target your revision.

Quizzes

Write a set of questions and answers and ask someone to test you. Its important to either write or say your answers loud. Reading through quizzes in your head can give you a false sense of security.

Thinking hard: Reduce

Read a section of your notes then put them aside and reduce what you need into 3 bullet points, each one no more than 10 words. Look back at the notes and decide if you missed anything important. Hide the notes and write a fourth bullet point.

Practice Introductions

For essay subjects, tale a past exam question and practice writing effective introductions and conclusion. Look back at your notes and remind yourself of the important things to remember. Practice for different topics, texts and papers.

Thinking hard: Transform

Read a paragraph from your notes or a text book, and transform it into a diagram, chart or sketch – no words allowed. OR Look a diagram in science, for example, and transform it into a paragraph of explanation.

Thinking hard: Connect

For each subject, consider the exam paper and group together questions that require the same technique to answer. Write down the requirements for each type. Find a previous example you have completed and identify where you've met the criteria.

Key vocabulary

For a particular topic, make a list of key vocabulary, then do the following: define each word; use each term in a sentence; create a question where the key word is the answer; identify other words which connect to each of the words in your list.

Revision Timetable Date

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:30-9:30	LESSON	LESSON	LESSON	LESSON	LESSON		
9:30-10:30	LESSON	LESSON	LESSON	LESSON	LESSON		
10:30-10:55	Tutor Time	Tutor Time	Tutor Time	Tutor Time	Tutor Time		
10:55-11:20	BREAK	BREAK	BREAK	BREAK	BREAK		
11:20-12:20	LESSON	LESSON	LESSON	LESSON	LESSON		
12:20-1:20	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH		
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Reflect Like a Beckfooter

As Knowledgeable and Expert Learners, we are great at being reflective. We ask ourselves lots of questions before, during and after a task, not just at the end! This helps us to make good choices about what we need to do, and the best way to do it. It also helps us to stay motivated, even when things get tough. Finally, it helps to make sure we always complete learning tasks to the very best of our ability.

Before a task, ask yourself:

Comprehension

What is this task about?

What do I understand about it?

What am I being asked to do?

Connection

What do I already know about this?

Have I seen anything like this before?

How is this similar or different to other tasks I have done?

Strategy

Do I know any strategies that would be appropriate for this task?

Which strategy would be most helpful to me now? Have I used this strategy before?

Was it successful?

How can I ensure I am successful this time?

During a task, ask yourself:

Reflection (during the task)

How is this going?

What mistakes do I often make in this kind of task?

How can I avoid making those mistakes?

What am I finding difficult right now?

What am I doing well?

How do I know?

How do I feel about the work?

Am I motivated to complete this task to a high standard?

What can I do to improve my motivation level right now?

After a task, ask yourself:

Reflection (after the task)

Does my finished work look successful?

Does it make sense?

How do I know?

Could I have done this a different way?

Is this work better than I have done in the past?

How do I know?

How did my motivation level affect my performance in the task?

What emotions did I experience during the task?

Why?

How can I motivate myself in a different way in the future? Explain

Communication Pages

Date	To	From	Message	Please sign to acknowledge