Knowledge Organiser
Year 9 Spring 1 2026

BELPER SCHOOL and Sixth Form Centre

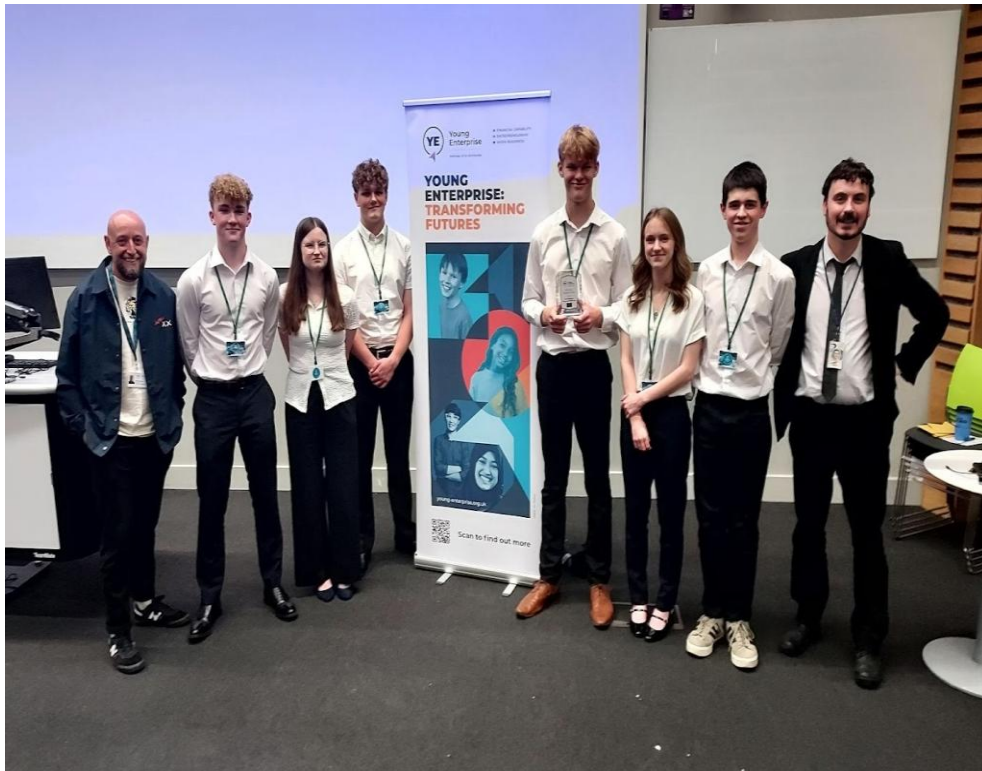*Create Your Future*

Harry Smith   Abi Dawson   Owen Siddall
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Year 12 Young Enterprise Team

Name:

Tutor Group:

"Success stories are like meal deals – everyone's is different"

Contents Page

Science, PE and Technology are on a rotation so have multiple pages in this booklet. Your teacher will direct you to the appropriate pages when setting work.

Timetable

Week 1	1	2	3	Lunch extra-curricular club	4	5	After school extra-curricular club
Monday							
Tuesday							
Wednesday							
Thursday							
Friday							

Week 2	1	2	3	Lunch extra-curricular club	4	5	After school extra-curricular club
Monday							
Tuesday							
Wednesday							
Thursday							
Friday							

In Class Expectations

Create Your Future

BE CURIOUS
BE RESPECTFUL
BE RESILIENT
BE CONFIDENT
BE THE BEST VERSION OF YOURSELF
BE BELPER

Out of Class Expectations

Create Your Future

BE INVOLVED
BE KIND
BE BRAVE
BE PROUD
BE THE BEST VERSION OF YOURSELF
BE BELPER

Being in school and being on time is crucial for success and preparing for the future.
Lost learning can lead to additional anxiety and pressure to catch up work and risks the student falling even further behind.

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Create Your Future

BE PRESENT
BE PUNCTUAL

THERE ARE 175 NON-SCHOOL DAYS DURING THE YEAR TO SPEND ON FAMILY TIME, VISITS, HOLIDAYS, SHOPPING, HOUSEHOLD JOBS AND OTHER APPOINTMENTS

DAYS OFF SCHOOL ADD UP TO LOST LEARNING

BE BELPER

100%
OUR TARGET FOR ALL STUDENTS

97%
6 DAYS ABSENCE
30 HOURS LOST LEARNING
EXCELLENT OR GOOD ATTENDANCE
BEST CHANCE OF ACADEMIC SUCCESS

95%
10 DAYS ABSENCE
50 HOURS LOST LEARNING
WORRYING
AT RISK OF MAKING IT HARDER TO PROGRESS

90%
19 DAYS ABSENCE
95 HOURS LOST LEARNING
CONCERN
LESS CHANCE OF SUCCESS AND SIGNIFICANTLY REDUCES LEARNING

Attendance

- 90% attendance is half a day missed every week

- 90% attendance in one school year is 4 whole weeks of lessons (100 lessons) missed in that year.

- 90% attendance over 5 years of secondary school is half a year of school missed.

- Evidence suggests that, on average, every 17 days of school missed by a student equates to a drop of 1 GCSE grade.

Punctuality

- 10 minutes late each day = 50 minutes of lessons missed each week

- 10 minutes late each day = 2000 minutes (33.3 hours, 5.5 days) every academic year

- 10000 minutes (166.5 hours, 27.5 days) of missed learning from year 7 to year 11.

"Everyday you show up, you're investing in your future self. Don't underestimate the power of attendance."

Attendance this half term

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8

Guided Reading Tracker

Date	Title and author	Summary of reading (+interesting or new vocabulary learned)	Signed:	

As part of your library lessons, you are expected to complete **at least 20 minutes** of reading once a fortnight.

To track your reading, you need to complete a row of the table before each library lesson to show details of the book you have read.

Your table also needs to be signed by someone who has witnessed you reading. This will most likely be a parent/guardian but it can alternatively be signed by your tutor, classroom teacher, buddy reader, TA or Sarah in the library.

English: Animal Farm by George Orwell

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Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Dystopian Fiction	An imagined world or society in which people lead wretched, dehumanised, fearful lives
Propaganda	Information, especially of a biased or misleading nature, used to promote a political cause or point of view
Oppression	Prolonged cruel or unjust treatment by an authority
Corruption	Dishonest or fraudulent conduct by those in power
Totalitarianism	A system of government that is dictatorial and requires complete subservience from its people
Dictatorship	A government which has one leader who is very authoritative and is usually obtained by force
Manifesto	A written statement declaring publicly the intentions, motives, or views of its issuer

Tier 2 vocabulary	Definition
Infer	To work something out based on evidence from the text.
Reiterates	Reinforcing an idea within a text.
Connotation	What a word or phrase makes you think of.
Satire	The use of humour, irony, exaggeration or ridicule to expose and criticise people's stupidity or vices
Allegory	A story that can be interpreted to reveal a hidden meaning, typically a moral or political one

Section 2: Persuasive writing techniques – speeches

DIRECT ADDRESS:
When the text addresses the reader directly.
"That is my message to you, comrades: Rebellion!"

RHETORICAL QUESTIONS:
A question asked in order to create a dramatic effect or to make a point rather than to get an answer.
"Is it not crystal clear, then, comrades, that all the evils of this life of ours spring from the tyranny of human beings?"

HYPERBOLE:
Exaggerated language used for effect.
"The life of an animal is misery and slavery"

EMOTIVE LANGUAGE:
Vocabulary to make the audience/reader feel a particular emotion.
"We are born, we are given just so much food as will keep the breath in our bodies, and those of us who are capable of it are forced to work to the last atom of our strength; and the very instant that our usefulness has come to an end we are slaughtered with hideous cruelty."

IMPERATIVE COMMAND:
Instructional language.
"And above all, pass on this message of mine to those who come after you, so that future generations shall carry on the struggle until it is victorious. "

REPETITION
The use of a word or phrase numerous times.
"No animal in England knows the meaning of happiness or leisure after he is a year old. No animal in England is free."

TRIPLETS/TRICOLON
Three points to support an argument.
"The soil of England is fertile, its climate is good, it is capable of affording food in abundance to an enormously greater number of animals than now inhabit it."

Section 3: Context and further reading

CONTEXT: THE AUTHOR

Orwell was a socialist. A socialist believes that all people in any society are of equal worth and value because we are all human beings. Everyone should be given equal opportunity and society have a duty and responsibility to make sure that all its members have reasonable standards of care and help.

CONTEXT: THE NOVEL
- Animal Farm was published in 1945.
- The majority of the characters and events in Animal Farm are linked to what happened before, during, and after the Russian Revolutions.
- As a communist turned socialist, and as a journalist too, Orwell wanted to attack and highlight the history, rhetoric and excesses of Soviet Communism whose leaders abused their power using this political ideal.
- The Russian Revolution took place in 1917, during the final phase of World War I. It removed Russia from the war and brought about the transformation of the Russian Empire into the Union of Soviet Socialist Republics (USSR), replacing Russia's traditional monarchy with the world's first ever Communist state.

KEY THEMES IN THE NOVEL
Leadership, Control, Lies and Propaganda, Violence, Pride and Belonging, Dreams and Hopes

IF YOU ENJOYED ANIMAL FARM THEN READ THESE NEXT:
1984 – *George Orwell*
Fahrenheit 451- *Ray Bradbury*
Lord of the Flies – *William Golding*
Never Let Me Go – *Kazuo Ishiguro*

English: Romeo and Juliet by William Shakespeare

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Patriarchy	A system of society or government in which men hold the power and women are largely excluded from it
Symbolism	The idea that words, phrases and images can represent other things
Authority	The power or right to give orders, make decisions, and enforce obedience
Maternal	Having the stereotypical characteristics of a mother
Determinism	The theory that everything in life is pre-decided and pre-planned.
Unrequited Love	Unrequited love or one-sided love is love that is not openly reciprocated or understood as such by the beloved
Elizabethan Era	The time in the Tudor period of the history of England during the reign of Queen Elizabeth I

Tier 2 vocabulary	Definition
Foreshadowing	To hint at something that will happen later in the play
Stage Directions	An instruction in the text of a play indicating the movement, position, or tone of an actor
Sonnet	A poem of 14 lines, in English typically having ten syllables per line
Prologue	An opening speech that introduces key themes within the play
Soliloquy	A speech delivered by a character that the other characters do not hear

Section 2: Key Skills/Strategies

Use the CPEAT format to write analytically about Shakespeare's play.

C	CONNECTIVE	Firstly, moreover, furthermore, in conclusion.
P	POINT	Use the wording of the question and identify what your paragraph will explore.
E	EVIDENCE	Find a relevant quotation and identify a language or structural device in it...
A	ANALYSIS	... and then explore the deeper meaning of this quote/technique and how it links to the question.
T	THINK INTENTION AND IMPACT	Explore the intentions of the author and the effect/impact of this on the reader.

FEATURES OF A TRAGEDY

Tragedy: A play dealing with tragic events and having an unhappy ending, especially one concerning the downfall of the main character/s.

The Tragic Hero:
The tragic hero describes a virtuous character who must face adversity, either caused by their flawed persona or sealed by fate. Ultimately, they pay the price with their lives, but after recognising their mistake.

The Fatal Flaw: *Hamartia*
The tragic hero's flaw, that leaves them vulnerable and causes their disastrous end.

Tragic Waste:
Often the inevitable deaths of pivotal characters in the play.

Catharsis:
The audience's immersion in the play leads to an emotional roller coaster, with mixed feelings for the hero and their antagonists. The ending of the play leads to a release of often very conflicting emotions for the audience.

Section 3: Context and Themes

VERONA
R&J is set in Verona, Italy in the fourteenth century. Verona was a rich, lively, cultured city but it had been affected by violence for centuries. Political and religious leaders clashed over power, wealth and status and often the citizens had to take sides.

WOMEN & GENDER ROLES
Society was patriarchal: men were dominant and women were seen as inferior and expected to marry as young as twelve years old. Noblewomen like Juliet would have received some education but there was little freedom of choice in life for most women.

QUEEN ELIZABETH I
The Queen while Shakespeare was writing. Elizabeth I made Protestantism the official religion of England, which angered many Catholics, and led to much conflict. Shakespeare may be referencing this in 'Romeo and Juliet', with the two warring families.

NURSES
Nurses were employed by wealthy families to feed and care for their children.

FATE
The belief that your life is mapped out for you, or 'written in the stars'. Many Elizabethans believed God decided your fate, and that astrology could help you identify your course in life.

KEY THEMES IN THE PLAY
Conflict, Power, Fate, Loyalty, Family, Religion, Love, Hatred, Violence, Death

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Autobiography	A self-written account of one's life
Bias	A disproportionate weight in favour of or against an idea or thing
Emotive language	Word choices that are intended to get an emotional reaction
Exposure	The state of having no protection from something harmful
Graphology	The visual appearance of a text
Survival	The state of continuing to live or to exist, especially after a dangerous event
Tabloid	A newspaper which uses informal language and many pictures

Tier 2 vocabulary	Definition
Alliteration	Using the same letter at the start of closely connected words
Hyperbole	Language used to exaggerate information
Metaphor	A comparison where something is described to be something it is not
Secondary story	A less important story featured on the front cover of a newspaper
Sensationalism	The presentation of stories in a way that is intended to provoke the reader

Section 2: New Key Skills/Strategies

This will help you understand and explore key questions.

P	Purpose	Is the writer trying to inform, entertain, explain, persuade or argue?
A	Audience	Who is the target audience? Who would this text appeal to?
F	Format	What are the key conventions of the text?
T	Tone	What is the general attitude or mood of the writing?

When comparing the similarities and differences of non-fiction texts, you will need to use comparative phrases to structure your response:

Similarities	Differences
Similarly	Alternatively
In addition to	However
Furthermore	Nevertheless
Moreover	In contrast to
This is mirrored in	Conversely
Likewise	On the contrary
A common feature is	On the other hand

TOP TIP: Use a table format to plan your comparison of two non-fiction texts and consider the following features:
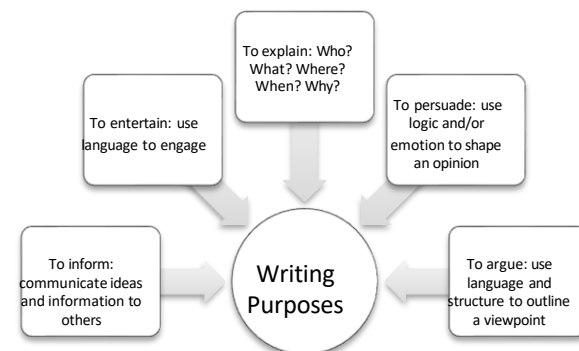
Text A	Text B

Language Audience
Graphology Tone
Structure Purpose

Section 3: Reading and Analysing Non-Fiction Texts

Writing Purposes
When reading and analysing non-fiction texts, you will need to consider the purpose in which they are written.

To explain: Who? What? Where? When? Why?

To entertain: use language to engage

To persuade: use logic and/or emotion to shape an opinion

To inform: communicate ideas and information to others

To argue: use language and structure to outline a viewpoint

Writing Purposes

Newspaper Report Layout

9

English: Much Ado about Nothing

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Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Subordinate	To treat someone as lesson important than someone else.
Patriarchy	A system of society or government in which men hold the power.
Satire	The use of humour, irony, exaggeration or ridicule to expose and criticise people.
Inferior	Lower in rank, status or quality
Antagonistic	Showing or feeling active opposition or hostility towards someone or something.

| Tier 2 vocabulary	Definition
Comedy	fiction that is light, funny and generally has a happy ending.
Tragedy	Based on human suffering, and the terrible or sorrowful events that befall a main character. Usually, the protagonist is brought down by his/her own flaws.
Conflict	A struggle between two opposing forces – two characters, a character and nature or even an internal struggle.
Dramatic Irony	A situation in which the audience or reader has a better understanding of events than the characters do.
Antagonist	The principle opponent or foil of the main character.
Dynamic Character -	A character who undergoes some important change in the course of the story.

Section 2: New Key Skills/Strategies

CPEAT writing skills

<u>What are Beatrice's attitudes towards Benedict at the start of the play?</u>

Initially, Beatrice shows a dislike towards Benedick in her statement: "he is no less than a stuffed man" The noun 'stuffed man' has negative **connotations** of him being worthless and **infers** that he is of no importance. Beatrice's attitude defies gender expectations of the time; women were expected to be submissive to men, yet here she is shown to stand up to him in a very assertive way.

Section 2: New Skills/Strategies

revisionworld
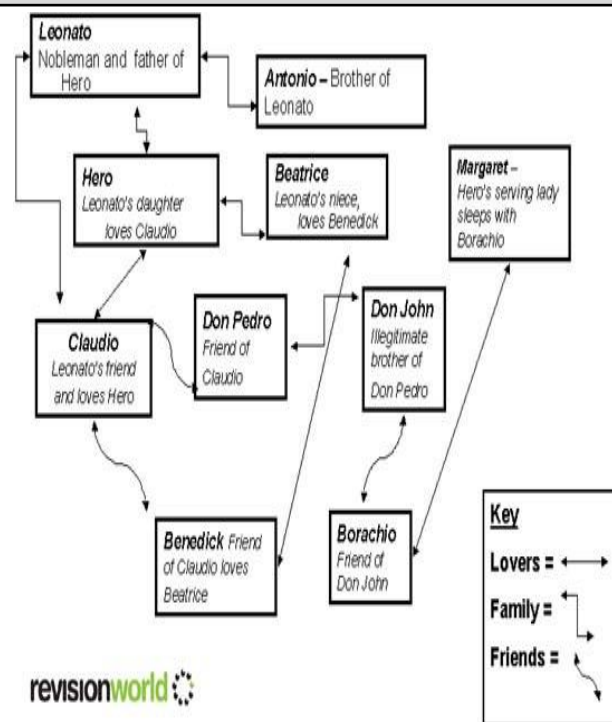
Section 3: Shakespeare's Life and Times

Key Themes

Appearance and reality
Shakespeare uses this play to show how appearance and reality are not always the same thing.

Love
Love is the main idea in this play and is shown through the partnerships between Claudio and Hero, Benedick and Beatrice and also through the paternal love that Leonato shows for his daughter and niece.

Nothing and 'noting'
The title of the play refers to one of its main themes. 'Nothing' implies that the concerns of the play are trivial. The word 'nothing' in Shakespearean times was pronounced 'noting' and so the title itself is a pun.

Context.

Gender
Women had little power in Elizabethan society. They lived in a patriarchal society and life was controlled by men. Women had a strict expectation to follow and were expected to remain 'pure' and virgins until marriage.
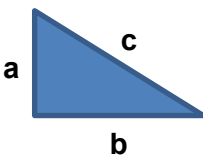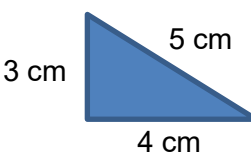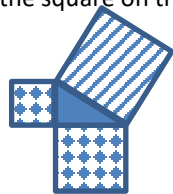
Comedy
The play is considered one of Shakespeare's best comedies. In a comedy, there's normally a problem at the beginning of the play that is solved by the end of it – the audience are confident that everything will end well.
The play contains a lot of features commonly used in his comedies, including: A happy ending, disguises, music and dancing, young lovers, marriage and puns and wordplay.

Marriage
Marriages were rarely about love and were often arranged to bring financial or social benefit to both families. People were expected to get married, the characters are very concerned with finding partners for themselves and others.
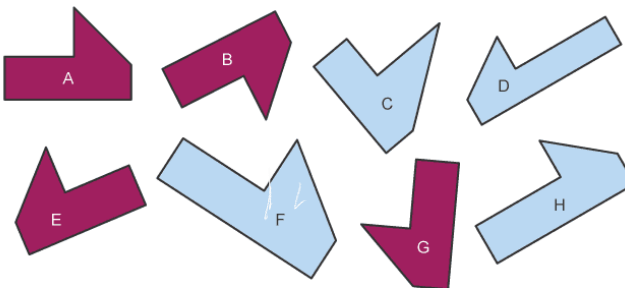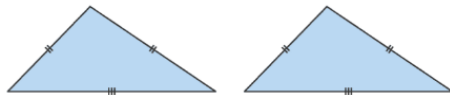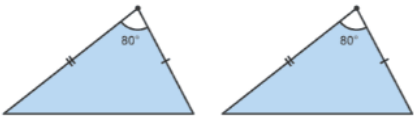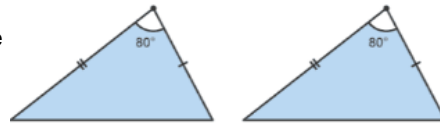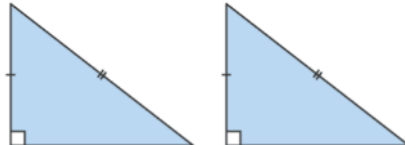
Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Hypotenuse	The longest side of a right angled triangle
Right-angled triangle	A triangle which has a 90° angle
Square or **square number**	The product of a number multiplied by itself e.g. 4 x 4 = 16, so 16 is a square number, and 16 is the square of 4
Square root	The number that multiplies by itself to make a square number e.g. 4 x 4 = 16, so 4 is the square root of 16 …represented with the symbol √ so √16 =4 (find the square root button on your calculator)

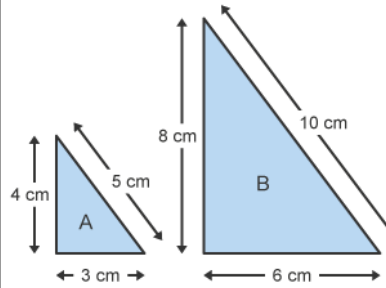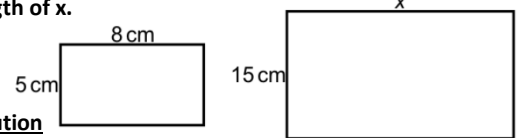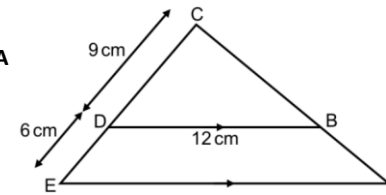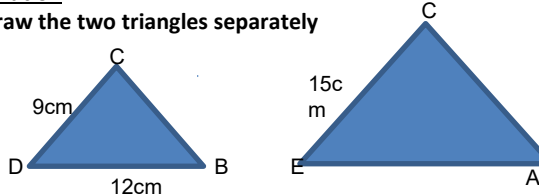| Tier 2 vocabulary	Definition
Triangle	…a 2D (two-dimensional) shape with three sides and three angles
Theorem	…a mathematical rule which can be shown to be true and used to find things we don't know
Triple	…a set of three numbers
Integer	…a whole number

Section 2: New Knowledge/Skills

In this topic we will find out how to find the third side-length of a right-angled triangle if we know the other two side-lengths

Pythagoras Theorem states that :
…if we have a right-angled triangle with sides of length a, b and c, where c is the longest side, then…

$$a^2 + b^2 = c^2$$

We can think of this as…
"the sum of the squares of the shortest sides of a right-angled triangle is equal to the square of the hypotenuse"

…in other words…
- work out the squares of the three sides of the right-angled triangle
- now add the two smallest squares together – they should add up to the square of the hypotenuse

```
3 x 3 =  9
4 x 4 =16    +
         25

and

5 x 5 = 25
```

!!THIS **ALWAYS** WORKS FOR **ALL** RIGHT-ANGLED TRIANGLES!!

Section 2 (cont.): New Knowledge/Skills

If we draw squares on the sides of the triangle, the **combined** area of the **smaller** squares is the same as the area of the square on the hypotenuse (biggest square)

Section 3: Using Pythagoras Theorem

1. We can find the hypotenuse if we know the two shorter sides [$a^2 + b^2 = c^2$]
2. We can find one or both of the shorter sides if we know the hypotenuse [$a^2 = c^2 - b^2$] or [$b^2 = c^2 - a^2$]
3. We can test a triangle to see if it has a right-angle by testing whether Pythagoras Theorem works for that triangle.

Section 4: Pythagorean Triples

- Right-angled triangles do not all have side-lengths which are integers, but those whose side-lengths *are all* integers are known as Pythagorean Triples.
- The example in Section 3 is an example of a Pythagorean Triple
- We can represent the triple in Section 3 as (3,4,5)

Now it's your turn!
1. Can you use the Triple in Section 3 to find any other triples?
2. Using a list of the first 100 squares (google it!), can you find any other Triples?
3. List as many as you can
4. Can you group them into 'families'? Explain how you've grouped them.

Section 5: Handy Hint

!!ALWAYS REMEMBER!!
No matter which side-lengths are given in a question, it's the two SHORTEST sides whose squares are added together – NEVER add the square of the hypotenuse to one of the other squares

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Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Congruent	The same shape and size. All side lengths and angles are the same
Proportional	Having the same ratio
Scale Factor	When an enlargement takes place, the side lengths are multiplied by the same number called the scale factor
Hypotenuse	The longest side in a right angle triangle

Tier 2 vocabulary	Definition
Similar	Two shapes are similar if they have been enlarged by the same scale factor
Enlargement	A change in size. It can make a shape bigger or smaller
Corresponding	Equivalent

Section 2: Congruency

Shapes are said to be congruent if they are the same shape and the same size. In the diagram above A, B, E and G are all congruent.

Congruent Triangles Two triangles are said to be congruent if any one of the following 4 conditions are met.

Condition 1: Side, side, side (SSS)

All three corresponding sides are equal

Condition 2: Angle, angle, side (AAS)

Two angles and a corresponding side are equal

Condition 3: Side, angle, side (SAS)

Two corresponding sides and the angle between them are equal

Condition 4: Right angle, hypotenuse, side (RHS)

A right angle, the hypotenuse and a corresponding side are all equal

Section 3: Similarity

Triangle B is an enlargement of triangle A by a scale factor of 2. Each side length in triangle B is twice as long as in triangle A. The size of the angles has not changed. This means A and B are similar.

Example 1
These rectangles are mathematically similar. Find the length of x.

Solution
5x3 = 15, so the scale factor of enlargement is 3.
This means that x = 8x3 = __24cm__

Example 2
Find the length EA

Solution
Draw the two triangles separately

Work out the scale factor of enlargement:
$9 \times ? = 15$
$? = 15 \div 9$
$? = \frac{5}{3}$

So EA $= 12 \times \frac{5}{3} = $ __20cm__

12

Maths: Probability

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Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Sample Space	The collection of all possible outcomes
Conditional Probability	The probability of something happening based on the occurrence of another event
Dependent events	Those which depend on what happened in a previous event
Independent events	Those which do not depend on an event which has happened before
Mutually Exclusive Events	Events which cannot happen at the same time for example getting a Head and a Tail at the same time

| Tier 2 vocabulary	Definition
Probability	The chance of something happening
Fair	Outcomes have an equal chance of happening
Combined events	Two or more events that are considered to happen together either at the same time or in succession
Desired outcome	The result that is wanted
Listing	Writing down all the options/information.

Section 2: Representations and procedures

The probability scale:

Impossible	Unlikely	Even chance	Likely	Certain
0		½		1
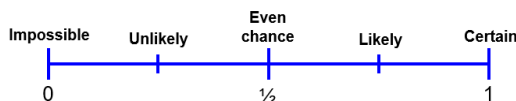
Probability of a single event:

$$\text{Probability} = \frac{\text{Number of desired outcomes}}{\text{Number of possible outcomes}}$$

the probability of rolling an even number on a fair dice

Desired outcomes are even numbers 2, 4 and 6 (**three** of them)

Possible outcomes are the numbers 1 to 6 (**six** of them)

so Probability $= \frac{3}{6}$, which simplifies to $\frac{1}{2}$

Listing strategies

Systematic listing strategies are ways of writing outcomes from an event in an organised way with none of the possibilities missed out or repeated.

To do this we need to use a method which makes listing items easier. A good method to use is to fix certain values, making only small changes between each item in the list.

A meal deal consists of a drink and a bag of crisps.

Drinks – O and A

The drinks available are orange juice or apple juice.

Crisps – B, C and P

The crisp flavours are bacon, cheese or plain.

Start by fixing the choice of drink to O and then change the crisp flavour.
Now change the drink flavour and repeat the crisp flavours in the same order as before.

O, B	A, B
O, C	A, C
O, P	A, P

This gives us 6 combinations in total.

Probability of two or more events:

To determine the probability of two independent events, we have to **multiply** the probability of the first event by the probability of the second event.

$$P(A \text{ and } B) = P(A) \times P(B)$$

Sample space diagrams

Sample space diagrams are useful for listing all possible outcomes of two events.

This sample space diagram shows the possible outcomes when 2 dice are rolled and are added together.

Space Diagram — 1st Die / 2nd Die

	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

$P(4) = \frac{3}{36}$ ← There are 36 possible outcomes, three of the outcomes are 4

Venn diagrams

Ven diagrams help us to organise information that overlaps.
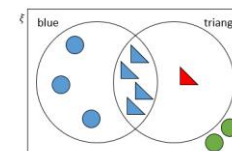
A shape is selected at random.
What is the probability that the shape is blue?

$P(\text{blue}) = \frac{7}{10}$ ← There are 10 shapes, 7 of them are blue.

Probability of blue

Science : Biology - Enzymes

Tier 3 vocabulary	Definition
Catalyst	A substance the speeds up the rate of a reaction without being used up itself
Enzyme	A protein produced by living things that speeds up reactions without being used up itself (catalyst)
Sustrate	A substance that is changed during a reaction
Active site	The space in an enzyme where the substrate fits during an enzyme controlled reaction
Product	A substance formed in a reaction
Monomer	A small molecule that can join with other molecules like itself to form a polymer
Polymer	A long-chain molecule made by joining molecules (monomers) together
Denatured	A denatured enzyme is one where the shape of the active site has changed so much that its substrate no longer fits and the reaction can no longer happen
Lock and key model	A model that describes the way an enzyme catalysis a reaction when the substrate fits within the active site
Optimum	The best conditions at which an enzyme's rate of reaction happens at the highest rate
Limiting factor	When the rate of reaction can not get any faster despite increasing one variable, because another variable is now holding it back

Section 2: New Knowledge/Skills

Lock and key mechanism

enzyme

active site

two different substrate molecules

The active site holds the substrate molecules tightly in the right position for bonds to form between them and make a product molecule.

one product molecule

The product molecule is a slightly different shape to the substrate molecules so it no longer fits tightly in the active site and is released.

Factors affecting enzyme activity

optimum pH

Rate of reaction

pH

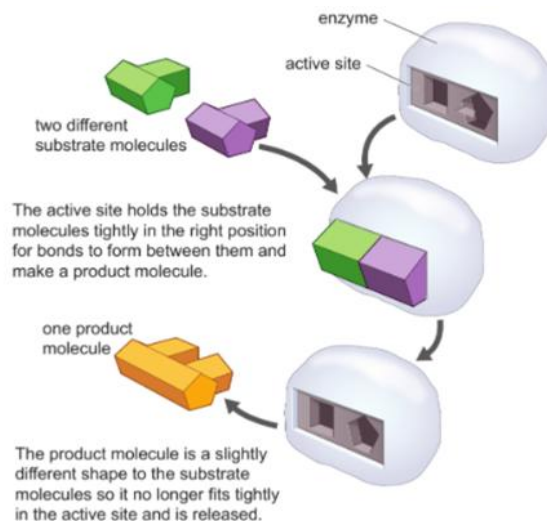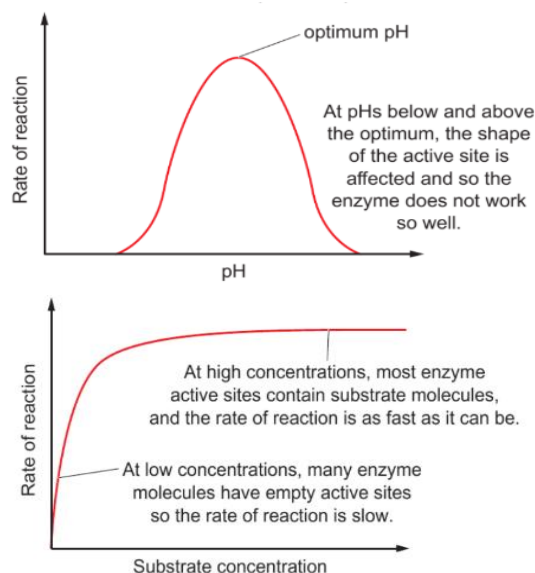At pHs below and above the optimum, the shape of the active site is affected and so the enzyme does not work so well.

Rate of reaction

Substrate concentration

At high concentrations, most enzyme active sites contain substrate molecules, and the rate of reaction is as fast as it can be.

At low concentrations, many enzyme molecules have empty active sites so the rate of reaction is slow.

Section 3 - core practical

Aim To investigate the effect of pH on the rate of digestion of starch by amylase.

Amylase is an enzyme made in the salivary glands in your mouth and in the pancreas. It catalyses the breakdown of starch into smaller sugar molecules. The iodine test identifies the presence of starch, but does not react with sugar.

A Drop one drop of iodine solution into each depression of the dimple tile.
B Measure 2cm³ of amylase solution into a test tube using a syringe.
C Add 1cm³ of your pH solution to the test tube using a second syringe. Record the pH.
D Using a third syringe, add 2cm³ starch solution to the mixture and start the stop clock. Use the pipette to stir the mixture.
E After 20 seconds, take a small amount of the mixture in the pipette and place one drop of it on the first iodine drop on the tile.
F If the iodine solution turns black, then there is still starch in the mixture and you should repeat step E (after 10 seconds). If it remains yellow, then all the starch is digested and you should record the time taken for this to happen

A blue/black colour indicates the presence of starch.
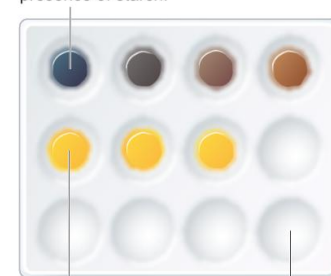
A yellow/orange colour that no longer changes indicates that the reaction is complete.

well tray

B iodine solution is used to indicate the presence of starch

Time taken to complete breakdown of substrate (s) vs pH

— bacterium A
— bacterium B

Science : Biology - Transport
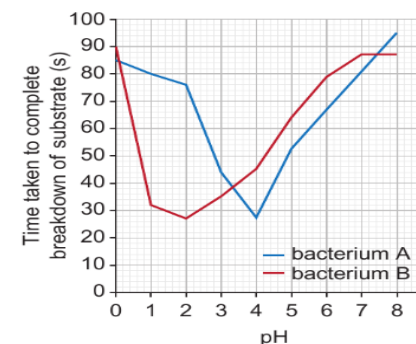
Tier 3 vocabulary	Definition
Diffusion	The movement of free moving particles from an area of a high concentration to an area of a low concentration
Osmosis	The movement of water molecules from an area of high water concentration to an area of low water concentration across a partially permeable membrane
Concentration gradient	The difference between two concentrations
Solute	A substance that dissolves in a liquid to make a solution
Solvent	A liquid in which a substance dissolves to make a solution
Partially permeable	A membrane that will allow certain particles to pass through it but not others. Another term for semi-permeable.
Active transport	The use of energy to transport substances against a concentration gradient (from a low concentration to a high concentration).
Passive transport	The transport of substances without the use for energy
Section 2:	New knowledge/skill

$$\text{percentage change in mass} = \frac{(\text{final mass} - \text{initial mass})}{\text{initial mass}} \times 100$$

Section 2: New Knowledge/Skills

Diffusion

The number of particles *decreases* as you go *down* a concentration gradient.

higher concentration — diffusion — lower concentration

Osmosis

The diffusion of small molecules of a solvent (water) across a semi-permeable membrane

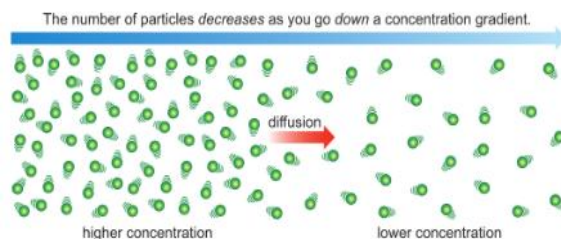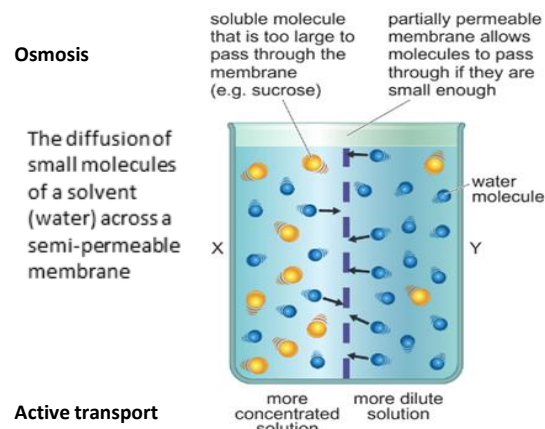soluble molecule that is too large to pass through the membrane (e.g. sucrose)

partially permeable membrane allows molecules to pass through if they are small enough

water molecule

more concentrated solution — more dilute solution

Active transport

cell membrane — transporter protein — energy — concentration gradient

A molecule sticks to the transport protein

The transporter protein changes shape and carries the molecule across the cell membrane

A willow tree grows from 2.27kg to 76.74kg . Calculate the percentage change in mass.

Section 3: Core practical

Aim To investigate how solution concentration affects percentage change in mass of potato strips due to osmosis. *(note other vegetables may be used)*

A Using the waterproof pen, label each tube with the name of one of the solutions. Place the boiling tubes in the rack.

B Dry a potato strip carefully by blotting it with a paper towel. Measure its mass on the balance.

C Place the potato strip into one of the tubes. Record the label on the tube and the mass of the strip in your results table (see next page).

D Repeat steps B and C until all strips have been measured and placed in tubes.

E Carefully fill each tube with the appropriate solution, so that the potato is fully covered. Leave the tubes for at least 15 minutes.

F For each potato strip, use the forceps to remove it from its tube, blot dry on a paper towel and measure its mass again. Record all the masses in the results table.

Write a conclusion for the results in the table and the graph

— potato
— halophyte

Tube	A	B	C	D
Sucrose concentration (%)	0	10	30	50
Mass of potato at start (g)	4.81	5.22	4.94	4.86
Mass of potato at end (g)	4.90	4.96	4.39	3.69

Science: Chemistry - Atomic Structure
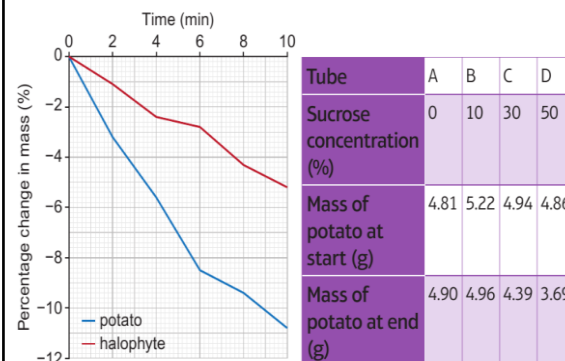
Section 1: Key Vocabulary

| Tier 3 vocabulary	Definition
Abundance	Amount
Atomic number	The number of protons in the nucleus of an atom (symbol Z)
Mass number	The total number of protons and neutrons in the nucleus of an atom (symbol A).
Isotopes	Atoms of an element with the same number of protons (atomic number) but different mass numbers due to different numbers of neutrons.
Relative atomic mass (RAM)	The mean mass of an atom relative to the mass of an atom of carbon-12, which is assigned a mass of 12. The RAM of an element is the mean relative mass of the isotopes in the element.
Electron	Tiny particle with a negative charge that is found in shells around the nucleus of an atom
Electron shell	Area around a nucleus that can be occupied by electrons, usually drawn as a circle
Neutron	Electrically neutral subatomic particle found in the nucleus of most atoms.
Proton	A positively charged subatomic particle in the nucleus of all atoms.
Subatomic particles	The smaller particles that make up atoms – protons, neutrons and electrons.
Electron configuration	The arrangement of electrons in shells around the nucleus of an atom.

Section 2: New Knowledge/Skills

Atomic Structure
The nuclei of atoms contain subatomic particles called protons and most also contain neutrons.
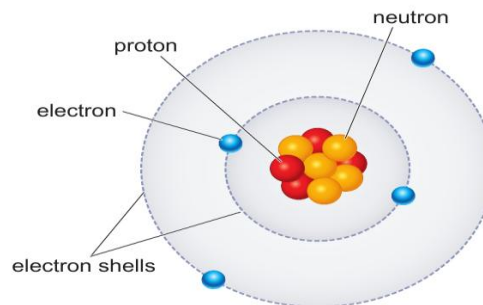

The masses of subatomic particles are very tiny. Instead of writing their actually masses in kilograms, we often use their relative masses. The mass of electrons is very small compared with protons and neutrons. Since a nucleus contains protons and neutrons, most of the mass of an atom is concentrated in its nucleus.

Subatomic particles	Relative mass	Relative charge	Position in atom
Proton	1	+1	Nucleus
Neutron	1	0	Nucleus
Electron	1/1835	-1	Shells

Calculating numbers of subatomic particles
The symbol for an atom can written to show its mass number at the top
and its atomic number at the bottom.
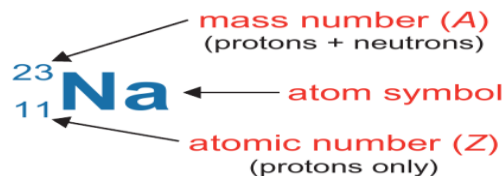
To calculate the numbers of subatomic particles in an atom use its atomic number and mass number

Number of protons = atomic number
Number of electrons = atomic number
Number of neutrons = mass number - atomic number

Section 3 Calculate Relative Atomic Mass

Chlorine naturally exists as two isotopes, chlorine-35 and chlorine-37. The abundance of chlorine-35 is 75% and the abundance of chlorine-37 is 25%.

To calculate the relative atomic mass of chlorine:

$$RAM = \frac{total\ mass\ of\ the\ atoms}{the\ number\ of\ atoms}$$

$$= \frac{(75 \times 35) + (25 \times 37)}{100} \quad 35.5$$

The answer is closer to 35 than to 37. This is because the chlorine-35 isotope is much more abundant than the chlorine 37 isotope.

Electron configuration

Electrons occupy shells starting with the innermost one

Electron shell	Max number of electrons
First	2
Second	8
Third	8

The electron configuration of sodium, Na is 2.8.1. This shows that it is in period 3 because it has 3 shells. It is in group 1 because it has 1 electron in the outer shell.

Science: Physics – Forces and Motion

BELPER SCHOOL and Sixth Form Centre

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Scalar quantity	A quantity that has a magnitude (size) but not a direction
Vector quantity	A quantity that has both a size and a direction
Velocity	The speed of an object in a particular direction.
Speed	A measure of the distance an object travels in a given time.
Displacement	The distance travelled in a particular direction.
Acceleration	A measure of how quickly the velocity of something is changing.
Momentum	A measure of motion, mass multiplied by velocity. Momentum is a vector quantity.

Tier 2 vocabulary	Definition
Magnitude	The size of something, such as the size of a force or the measurement of a distance
Gradient	A way of describing the steepness of a line on a graph in numbers

Section 2: New Knowledge/Skills

All measurements are either scalar or vector quantities

Measurement	Scalar	Vector
Distance	Y	
Speed	Y	
Velocity		Y
Acceleration		Y
Weight		Y
All forces		Y
Energy	Y	

Calculating speed and acceleration

$$\text{(average) speed (m/s)} = \frac{\text{distance (m)}}{\text{time taken (s)}}$$

Acceleration

$$\text{acceleration (m/s}^2\text{)} = \frac{\text{change in velocity (m/s)}}{\text{time taken (s)}}$$

When objects fall they accelerate due to the gravitational field on Earth. The values for these quantities are

Acceleration due to gravity is $10 \, \text{m/s}^2$

Gravitational field strength is $10 \, \text{N/kg}$

Section 3: Skills

Using a Distance / time graph
Alice is walking in the park. Alice stops to chat. Alice in now late
She travels 80m in 100s to a friend for 100s so she has to jog
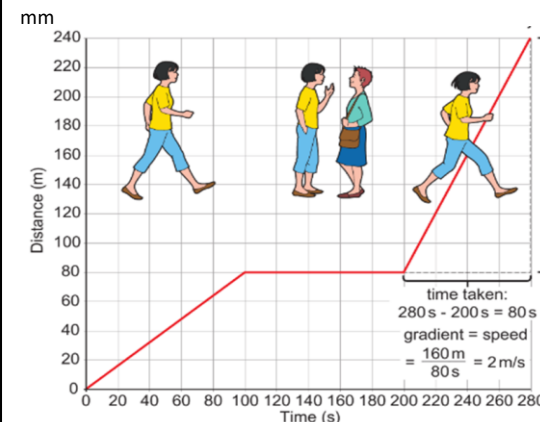
Reading a Velocity / Time graph
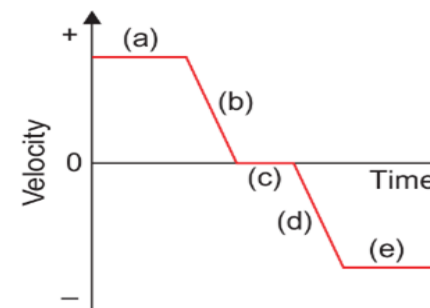
The graph shows a lift moving up at a constant speed (a), slowing to a stop (b) and waiting at a floor (c) then accelerating downwards (d) and then travelling downwards at a constant speed (e)

Distance travelled

The distance travelled can be worked out from a velocity - time graph by calculating the area under the graph for the period you are measuring.

Tier 3 vocabulary	Definition
Climate change	How the long term average atmospheric conditions change over time.
Conservation	Managing nature to protect it from harm or putting it back how it was (restoration).
Ecosystem	The living and non-living parts of an environment and how they are connected.
Endangered	When a species is threatened and at risk of becoming extinct.
Enhanced greenhouse effect	How people's activities add gases to the atmosphere and this causes the climate to change.
Global warming	The gradual increase in the temperature of the Earth's atmosphere.
Greenhouse effect	The process whereby gases trap heat in the Earth's atmosphere, causing temperatures to increase.
Habitat	The place where an animal lives.
Non-renewable energy	Power sources that will run out e.g. fossil fuels such as coal.
Recycling	Reprocessing a product or some of its parts to make something else.
Renewable energy	Alternatives to fossil fuels e.g. solar, wind. These won't run out.

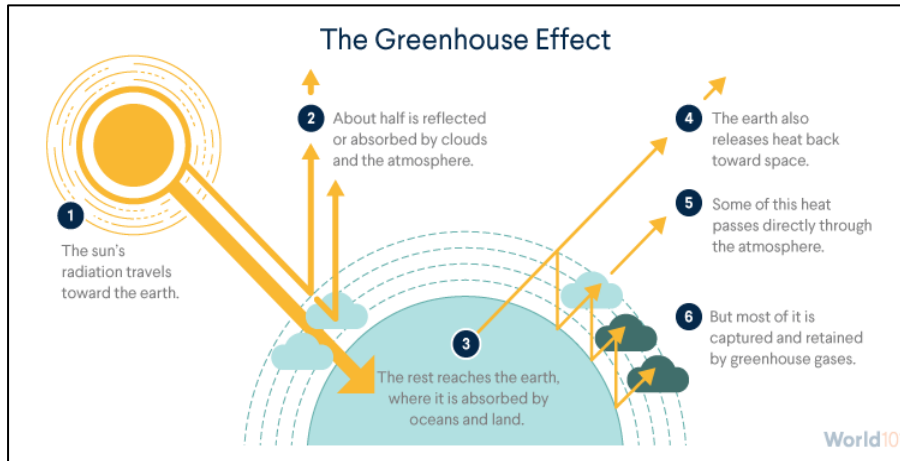| Tier 2 vocabulary	Definition
Sustainability	The practice of using natural resources responsibly, so they can support both present and future generations.
Social	Things affecting people and their community.
Economic	Things relating to money.
Environmental	Things relating to our surroundings.

Section 2: New Knowledge

The Greenhouse Effect

1. The sun's radiation travels toward the earth.
2. About half is reflected or absorbed by clouds and the atmosphere.
3. The rest reaches the earth, where it is absorbed by oceans and land.
4. The earth also releases heat back toward space.
5. Some of this heat passes directly through the atmosphere.
6. But most of it is captured and retained by greenhouse gases.

World101

Palm oil
+ Makes lots of money, creates jobs and provides money for governments and businesses.

- Destroys the natural rainforest and the habitats of animals e.g. orangutans. Takes away the biodiversity and replaces it with monoculture (one type of plant).

Fracking
For –Gas supply
Relatively cheap
Creates jobs
Make places more independent.

Against - Water pollution
Earthquake risk
Destroys habitats
Locals may not benefit.
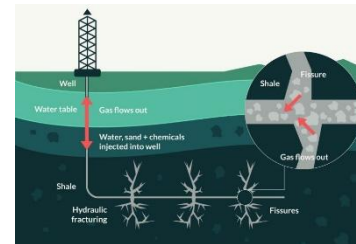
Renewable energy in Germany

Solar power in Freiburg e.g. panels on football stadium and houses.
Wind power in Feldheim e.g. 55 turbines.

Endangered animals
Loss due to hunting, for medicines, deforestation, climate change.

Coral reefs

Healthy coral   Bleached coral

polyps

zoo-xanthellae
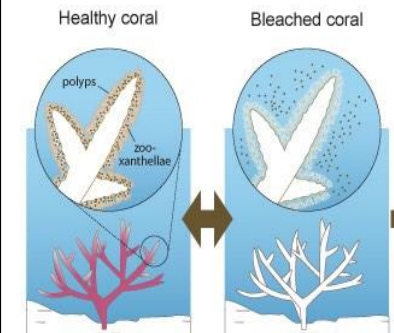
E.g. Great barrier Reef, Australia

At risk due to :
Fishing, shipping, climate change, tourism and crown of thorns starfish.

Section 3: Geographical Skills

A geographical investigation has seven stages: 1. Decide on the hypothesis. 2. Plan the data collection. 3. Collect the data. 4. Present the results. 4. Analyse the results. 6. Conclusion. 7. Evaluation.

History: WW2 and The Holocaust

Section 1: Key Vocabulary	
Tier 3 vocabulary	**Definition**
Aryan	People who settled in northern Europe thousands of years ago. Nazis believed they were the 'master race'
Antisemitism	Being hostile or prejudice to Jews
Holocaust	Usually used to describe the murder of millions of Jews by the Nazis
Concentration Camps	Places where large numbers of people were kept as prisoners under armed guard.
Death camp	Killing centres established by the Nazis
Ghetto	Areas in towns or cities where Jews were separated by force.
Einsatzgruppen	Special units that conducted mass shootings of Jews
Euthanasia Programme	Secret programme conducted by the Nazis to murder anyone that wasn't Aryan.
Work Camps	Where prisoners were forced to work as slave labourers.

Tier 2 vocabulary	Definition
Prejudice	An unfair opinion or judgement or feelings towards someone
Scapegoat	Blaming someone for something that wasn't their fault

Section 2: Unit Summaries

1. What events would be considered turning points of WW2?

In September 1939, Hitler's Nazi Germany invade Poland. This is the start of World War 2. There are many important events that happened during World War 2 but can all of them be considered a turning point? We will learn about events such as the evacuation of Dunkirk, the Battle of Britain and D-Day and assess which of these events can be considered to be a turning point of the Second World War.

Evacuation of Dunkirk - The Battle of Dunkirk was the defence and evacuation of British and other Allied forces to Britain from 26 May to 4 June 1940.

The Battle of Britain - The Battle of Britain was a military campaign of the Second World War, in which the Royal Air Force and the Fleet Air Arm of the Royal Navy defended the United Kingdom against large-scale attacks by Nazi Germany's air force.

2. How did antisemitism turn into mass murder?

This unit looks at the development of the Holocaust across different times and different places. We will begin looking at Jewish life in Nazi Germany in 1933 and how this changed over time. We will look at the events from Kristallnacht until the liberation of the concentration camps at the end of the Second World War. Did people have the same experience during the Holocaust? What factors might have changed their experience?

19

Religious Ethics and Big Questions
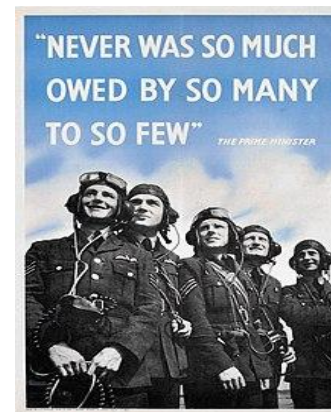
Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Vegetarian	Person who eats no fish or meat products.
Death Penalty	State execution as a punishment for specific crimes.
Euthanasia	Deliberate ending of the life of a person who is terminally ill, or for whom life has become unbearable due to suffering.
Abortion	The deliberate termination of a pregnancy with the intention that there should be no baby born.
Quality of life	Standard of health, comfort and happiness enjoyed by an individual; defined in terms of health and happiness rather than wealth.
Sanctity of life	The principle that human life has unconditional value.
Dominion	The responsibility and control that humans have over the earth.
Addiction	Being unable to stop doing something: having a dependence on something e.g. alcohol.

Tier 2 vocabulary	Definition
Oppression	Cruel treatment which goes on for a long time.
Justice	Fairness, bringing greater equality to the lives of people.
Discriminate	To act on prejudice, often negatively against someone or a group of people.
Compassion	Empathy for the suffering of others.
Creation	The living world: for most religions, this is considered to have been created by God.

Section 2: New knowledge/key

This term we are continuing our unit on Ethics and big questions which explores the following:

Views about life.
Different views on afterlife
Sanctity of life
Abortion
Euthanasia
Limits of medicine
Reasons for funerals.
Buddhists beliefs about life and death
Humanists views on death.

Section 2: New knowledge/key

Knowledge - what do you know?

Impact - how does someone's belief impact on their choices or behaviour?

Source of Authority - quotes from religious text or important people/organisations.

Specialist terms - subject specific words.
Judgement - is the point valid/invalid/strong/weak?

Opinion - considering differing points of view.

Section 3: Abortion

UK LAW - legal up to 24 weeks (in some circumstances) with the agreement of two doctors.
Christianity - some argue we should be compassionate and permit abortion if the mother's life is in danger. Other Christians say it is a moral evil because every life is a gift from God and only God determines life and death.

Euthanasia

UK Law - Illegal and considered either murder or manslaughter and carries a life in prison penalty.
Hospices and palliative care offer pain relief and comfort as end of life care.
Christians generally against Euthanasia - "Do not commit murder" but some argue "the most loving action" as an act to stop suffering.

Sources of authority

John 5:24-25	John 5:28-29
John 14:1-7	Corinthians 15:51-576
Revelations 21:1-4	

Section 1: Key Vocabulary/Questions

Tier 3 vocabulary	Definition
Perfect tense	a verb tense that describes completed actions in the past, e.g. 'I said', 'she played'
Past participle	is a verb form primarily used to create compound tenses like the *passé composé* (perfect tense). It functions similarly to the "-ed" or "-en" forms in English
Past participle agreement	when the ending of a past participle matches the subject of the verb in gender and number
Adverb	a word that describes a verb, an adjective, or another adverb, providing more information about where, when, or how something is done.
Regation	two elements e.g. **ne … pas** around the main verb expressing negative meaning
Preposition	links a noun, pronoun, or phrase to other words in a sentence
Main clause	a clause that makes complete sense on its own.
Relative pronoun	connects a main clause to a subordinate relative clause, providing extra information about a noun
Relative clause	adds extra, specific information about a noun in the main clause. e.g. Le garçon **qui porte des lunettes** est Antoine

Questions	Translation
1. Qu'est-ce que tu as fait ?	What did you do? What have you done?
2. Est-ce que tu as mangé de la pizza ?	Did you eat pizza? Have you eaten pizza?
3. Est-ce que tu as déjà voyagé à l'étranger ?	Have you **ever** travelled abroad?
4. Qu'est-ce que tu as fait pour fêter le Réveillon ?	What did you do to celebrate the New Year?

Section 2: Grammar

The perfect tense with auxiliary avoir and regular past participles

avoir as auxiliary	-er ➡️ é jou**er** > jou**é**	-ir ➡️ i fin**ir** > fin**i**	-re ➡️ u vend**re** > vend**u**

j'**ai**
tu **as**
il **a**
elle **a**   jou**é**   fin**i**   vend**u**
nous **avons**
vous **avez**
ils **ont**
elles **ont**

Irregular past participles

prendre (to take) ➡️ **pris**   faire ➡️ **fait**
apprendre (to learn) ➡️ **appris**   dire ➡️ **dit**
comprendre (to understand) ➡️ **compris**   boire ➡️ **bu**
         avoir ➡️ **eu**

To ask a question in the **perfect tense**, use **intonation** : Tu as joué au foot ?
You can also add **est-ce que** : Est-ce que tu as joué au foot ?

The perfect tense with ÊTRE as the auxiliary

The present tense has one conjugated verb; the perfect tense has two verbs, a part of 'avoir' or 'être' + a past participle. Use a conjugated form of 'avoir' with most verbs but 'être' with movement verbs, and past participles must agree in gender and number.

Most verbs use avoir to make the first part of the perfect tense:
Hier, j'ai fait mes devoirs.

Some verbs take **être** instead of avoir in the perfect tense:
aller   je **suis** allé(e)   I went
arriver   tu **es** arrivé(e)   You went
rester   elle **est** arrivée   She went

These verbs express movement or a change of state, except for 'rester'
Add 'e' to the past participle of verbs that take **être** if the subject is feminine.
Most verbs take '**a**voir' in the perfect tense, but movement verbs and 'r**e**ster' take 'ê**t**re'.

Movement verbs such as 'entrer', 'tomber' and 'monter' use 'être' in the perfect tense before the past participle. Past participles used with 'être' must **agree** in gender and number with the subject of the verb. Add 's' for plural subjects.

Déjà means already but in perfect tense questions it means ever.
e.g. Est-ce que tu as **déjà** habité à l'étranger ?   Have you ever lived abroad?

The **perfect tense** can be translated into the simple past
or the present perfect in English depending on the context.
e.g. **I played** or **I have played**
Hier, j'ai joué. Yesterday, **I played**. **Aujourd'hui**, j'ai joué. Today, I **have played**.

Section 3: WAGOLL & grammar

Salut Amir !

Je pense aux vacances de février. Je veux réussir au ski ! Mon ami a peur du froid ! Il va emprunter un manteau au professeur **qui** fait souvent du ski. J'envoie une lettre à l'hôtel. J'**écris** à la directrice. Ils décrivent la piste sur internet. Peux-tu montrer la page à la professeure **qui** organise les voyages scolaires ? Je vais donner l'information aux étudiants de l'université. Peux-tu répondre au message ce samedi ? Merci !

Abdel

Negatives in the perfect tense
Non, je n'ai pas joué au foot.
In negative sentences, ne … pas wraps around the part of 'avoir'!

Negatives
ne..pas not, don't
ne…jamais never e.g. Je n'ai jamais pris de café.

Remember the negative **de.**
The **partitive article** changes to 'de' after a quantity and in negatives.
e.g. j'ai fait **du** ski. ➡️ je n'ai pas fait **de** ski

The relative pronoun **qui** introduces a relative clause to give more information about a noun. Translate **qui** as **who/that** for describing people and **which/that** when describing animals/things.

Adverbs that tell us when and where are usually positioned at the start or end of the sentence. E.g. **Hier**, j'ai fêté la Fête nationale.

How (often) adverbs usually go after the first verb but longer -ment adverbs usually go at the end or even the start, although this can change the sentence emphasis and style.

Adverbs that tell us how (often) are usually positioned straight after the first verb in the sentence. E.g. Il boit **vite** du thé.

French verbs can be followed by the **prepositions à** or **de** plus a noun. 'à' and 'de' link to the article before the noun.

Use 'jouer **de**' to talk about playing an instrument: Je joue **du** piano.
Use 'jouer **à**' to talk about playing a sport: Je joue **au** football.

'De' is 'du' before masculine nouns, 'de la' before feminine nouns, 'des' before plural nouns and 'de l'' before a noun starting with vowel. 'À' is 'au', 'à la', 'aux' or 'à l'' before a vowel.

Verbs
The present endings for verbs like 'entendre' are -s, -s, -, -ons, -ez, -ent. 'mettre' drops a 't' in the singular forms and the remaining 't' is a silent final consonant.

The endings for verbs like '**écrire**' are 's', 's' and 't', 'vons', 'vez' and 'vent'.
(see the next page for the full paradigm)

9Fr Spr1 W1A	revision on Languagenut
9Fr Spr1 W1B	revision on Languagenut
9Fr Spr1 W2A	revision on Languagenut
9Fr Spr1 W2B	revision on Languagenut
9Fr Spr1 W2C	revision on Languagenut

9Fr Spr1 W3	
entrer	to enter, entering
monter	to go up, going up
retourner	to return, returning
tomber	to fall, falling
l'après-midi	afternoon
l'attente	wait
le corps	body
le doigt	finger
le dos	back
le médicament	medicine
le pied	foot
la santé	health
la situation	situation
le soir	evening
l'urgence	emergency
faible	weak
seulement	only
trop	too

9Fr Spr1 W4	
blesser	to hurt, hurting
jeter	to throw, throwing
laisser	to leave behind, leaving behind
l'amour	love
l'envie	desire
la mer	sea
le prix	price
le sens	sense, meaning
tellement	so much, so many

9Fr Spr1 W5A	revision on Languagenut
9Fr Spr1 W5B	revision on Languagenut
9Fr Spr1 W5C	revision on Languagenut
9Fr Spr1 W5D	revision on Languagenut
9Fr Spr1 W5E	revision on Languagenut
9Fr Spr1 W5F	revision on Languagenut

9Fr Spr1 W6	
approcher	to approach, approaching
téléphoner	to telephone
téléphoner à	to telephone (someone), telephoning
voler	to steal
voler à	to steal from, stealing from
moi	me, myself
toi	you, yourself (s informal)
la fréquence	rate
la sécurité	safety
la responsabilité	responsibility
criminel	criminal (m)
une chose criminelle	a criminal thing
le crime	crime
besoin de	need for
proche	close to, near
selon	according to
après	after
avant	before
le vol	theft

French culture

All French people have a 'Carte Vitale', necessary to use French health services. Call the SAMU in a medical emergency.

À and **de** link differently to the definite article, depending on the noun's gender and number.

Here are the different forms:

à	
au	before a masculine noun
à la	before a feminine noun
à l'	before a noun starting with a vowel
aux	before a plural noun

de	
du	before a masculine noun
de la	before a feminine noun
de l'	before a noun starting with a vowel
des	before a plural noun

French phonics			
tion	pronounced as in 'atten**tion**' [**tion**] words are always feminine.	**a**	**a**nimal tu **a**s il **a** elle **a**
è/ê	pronounced as in 't**ê**te' tu **e**s, il/**e**lle **e**st contain [**è/ê**].	**au**	**gau**che **au** revoir
'e' is pronounced like 'je' in most words but as [**è/ê**] before double consonants e.g. 'v**e**rre' or the letters c/l at the end of a word e.g. 'av**e**c'.			
's' at the beginning of a word is soft 's' (sont) but a single 's' between vowels is a hard 's', including in **liaison** between words. (vou**s ê**tes).			
Vowels with circumflex accents often show removal of letters from French words of Latin origin. In French, the letter 's' is often replaced with '**ê**' but the 's' is retained in English e.g. f**ê**te/feast.			

	entendre-to hear	**mettre-to put**	**écrire-to write**
je/j'	entend**s**	met**s**	écri**s**
tu	entend**s**	met**s**	écri**s**
il/elle/on	entend	met	écri**t**
nous	entend**ons**	mett**ons**	écri**v**ons
vous	entend**ez**	mett**ez**	écri**v**ez
Ils/ elles	entend**ent**	mett**ent**	écri**v**ent

German: New Year Resolutions/Family/Past lives

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Word order 3	after certain conjunctions, the verb is sent to the end of the clause
Relative clause	adds information about the noun in the main clause
Relative pronoun	pronoun that introduces a relative clause, 'who', 'that', 'which'
Perfect tense	verb tense that describes completed actions in the past
Transitive verb	a verb requiring an object to make sense, e.g. 'to say', 'to tell'
Intransitive verb	a verb which does not require an object to make sense, e.g. 'to speak', 'to live'
Separable verb	a verb with a separable prefix, such as '<u>auf</u>machen'
Modal verb	verb of necessity or possibility, used with a 2nd verb in the infinitive, which goes to the end
Imperfect tense	German single word past tense used mainly to narrate past events in writing, e.g. 'war', 'hatte', 'gab'

Months and Dates
- Calendar years in German are said as long numbers, e.g., 'neunzehnhundertfünf' = 1905. Calendar years 2000+ are said 'zweitausend-', e.g., 'zweitausendeins' = 2001.
- Add -te to form **ordinal numbers** 1-19 and -ste for 20+.
  Exceptions are 'erste', 'dritte', 'siebte'.
- Use '**am**' with dates to say 'on the' and add -n to the **ordinal number**, e.g., '**am** zehnten Juli'.
- Months of the year are masculine in German and in sentences they are usually used with an article, e.g., 'der Mai'.

Section 2: Grammar

Conjunctions
Conjunctions like **denn** and **aber** do not cause a change in word order.
→ Ich gehe gern in die Schule, **denn** <u>ich liebe</u> meine Freunde.
Conjunctions like **weil** and **obwohl** are followed by **word order 3**: the verb moves to the end of the clause.
→ Ich gehe gern in die Schule, **weil** <u>ich</u> meine Feunde <u>liebe</u>.
Where **WO3 conjunctions** are followed by a two-verb structure, the short form verb moves to the end, after the infinitive.
→ Ich gehe gern in die Schule, **weil** <u>ich</u> meine Freunde sehen <u>kann</u>.

Relative clauses
Relative clauses add information about the noun in the main clause, without starting another sentence. English uses **relative pronouns** 'who', 'that', 'which', while German uses the definite article 'der', 'die', 'das', 'die' that matches the noun. In German the **relative pronoun** kicks the verb to the end of the **relative clause**; this word order is called **word order three** (**WO3**).

Der Hund, **der** im Garten <u>spielt</u>, gehört mir.
The dog **that** <u>is playing</u> in the garden belongs to me.

Frau Spies ist *eine* Person, **die** viel Geld <u>hat</u>.
Ms Spies is *a* person, **who** <u>has</u> a lot of money.

Mein Haus, **das** in Belper <u>liegt</u>, ist neu.
My house, **which** <u>is</u> in Belper, is new.

Future Intentions
Future intentions can be expressed using 'werden', modal, and other verbs like 'vorhaben' and 'planen', plus infinitive.

Verbs like 'vorhaben', 'planen' and 'es ist' plus adjective need a comma and then **zu** before the second (infinitive) verb.
→ Ich habe vor, ins Kino **zu** <u>gehen</u>.
→ Wir planen, nach Italien **zu** <u>fliegen</u>.
→ es ist wichtig, meine Arbeit **zu** <u>mögen</u>.

'Werden' and modal verbs like 'wollen', 'können', 'dürfen' and 'müssen' do not need **zu** before the second verb.
→ Man muss seine Arbeit <u>mögen</u>.
→ Wir wollen ins Kino <u>gehen</u>.
→ Meine Freunde werden nach Italien <u>fliegen</u>.

Section 3: Grammar

Imperfect Tense of haben/sein

	was/were	had
ich	war	hatte
du	warst	hattest
er/sie	war	hatte
wir	waren	hatten
ihr	wart	hattet
Sie	waren	hatten
sie	waren	hatten

Imperfect tense of modal verbs
Modal verbs are used with a 2nd verb in the infinitive, which comes at the end of the sentence.
The imperfect tense of **modal verbs** is commonly used when speaking, as well as when writing.
Add -te to the verb stem of a **modal verb** for the 1st and 3rd person singular **imperfect tense**, e.g. 'er **musste**'.
Add -test to the verb stem of a **modal verb** for the 2nd person singular **imperfect tense**, e.g., 'du **wolltest**'.
Remove any umlauts from the stem of a **modal verb** and add '-te' to form the 1st and 3rd person singular imperfect tense, or '-test' to the stem to form the 2nd person singular imperfect tense.

	wanted	could/ was able	was allowed	had to
ich	wollte	konnte	durfte	musste
du	wolltest	konntest	durftest	musstest
er/sie	wollte	konnte	durfte	musste
wir	wollten	konnten	durften	mussten
ihr	wolltet	konntet	durftet	musstet
Sie	wollten	konnten	durften	mussten
sie	wollten	konnten	durften	mussten

9Gr Spr1 W1A	revision on Languagenut

9Gr Spr1 W1B	revision on Languagenut

9Gr Spr1 W1C	revision on Languagenut

9Gr Spr1 W1D	revision on Languagenut

9Gr Spr1 W2	
niemand	no-one, nobody
jemand	someone, somebody
gucken	to look, watch
wachsen	to grow, growing
die Blume	flower
der Gegenstand	object
Juni	June
der Meter	metre
die Person	person
der Zentimeter	centimetre
aktiv	active
beliebt	popular
meistens	most, usually
ungefähr	approximately, about

9Gr Spr1 W3A	revision on Languagenut

9Gr Spr1 W3B	revision on Languagenut

9Gr Spr1 W3C	revision on Languagenut

9Gr Spr1 W3D	revision on Languagenut

9Gr Spr1 W3E	revision on Languagenut

9Gr Spr1 W4A	
auftauchen	to appear, show up
aufwachsen	to grow up, growing up
ich wurde geboren	I was born
du wurdest geboren	you were born (s informal)
er wurde geboren	he was born
sie wurde geboren	she was born
es wurde geboren	I, he, she, it was born
gestorben	died (pp)
gewesen	been (pp)

9Gr Spr1 W4B	
geworden	become, became (pp)
der Dichter	poet
Februar	February
Italien	Italy
Januar	January
Oktober	October
berühmt	famous
historisch	historical
unbekannt	unknown

9Gr Spr1 W5A	
einschlafen	to fall asleep, falling asleep
mitnehmen	to take along (with)
ich konnte	I was able, could
du konntest	you were able, could (s informal)
er konnte	he was able, could
sie konnte	she was able, could
es konnte	it was able, could
ich musste	I had to
du musstest	you had to (s informal)
er musste	he had to
sie musste	she had to
es musste	it had to

9Gr Spr1 W5B	
ich wollte	I wanted
du wolltest	you wanted (s informal)
er wollte	he wanted
sie wollte	she wanted
es wollte	it wanted
April	April
Mai	May
September	September
November	November
der Zahn	tooth
wach	awake

9Gr Spr1 W6A	revision on Languagenut

9Gr Spr1 W6B	revision on Languagenut

9Gr Spr1 W6C	revision on Languagenut

9Gr Spr1 W6D	revision on Languagenut

Separable verbs
Form past participles of **separable verbs** by adding the prefix before ge-, e.g., **eingeladen**, **aufgemacht**.
Understanding separable prefixes and the base verb meanings allows you to predict most meanings of unfamiliar **separable verbs**.

→ Ich habe meine Freunde ein**ge**laden. *I invited my friends*
→ Er hat das Fenster auf**ge**macht. *He opened the window*
→ Ich bin schnell auf**ge**wachsen. *I grew up quickly.*

In **word order three** clauses, present tense separable prefixes rejoin the verb.

→ Ich mache eine große Party. Ich **lade** viele Freunde **ein**.
→ Ich mache eine große Party, <u>weil</u> ich viele Freunde **einlade**.

→ Es gibt viele Kinder. Sie **bringen** das Essen **mit**.
→ Es gibt viele Kinder, <u>die</u> das Essen **mitbringen**.

Computing: The Integrated Project

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Audience	The person/people who the document is aimed at.
Fitness for Purpose	The design and production of a document which meets the needs of the person who needs it.
Content	The pieces of information within a document. These could be text, image, diagram, maps, sound.
House Style	The layout, fonts, colour and images chosen by a particular business or organisation to represent its identity.
Alignment	The position of text, images and content within a document.
Proofreading	The task of checking through a document for any errors before submitting it to print/handing in.
Orientation	The direction the document is displayed in. Landscape (Sideways) Portrait (Lengthways)
Line Spacing	The amount of white space between typed text on a document.
Publication	The type of document that must be produced
Canvas	The area to produce a digital file on.

Tier 2 vocabulary	Definition
Check	To identify any issues and errors with work.
Compose	To produce a document piece of work.
Obtain	To look/gather and use information.
Repeat	To copy a similar action from before.
Research	To gather knowledge about a subject.

Section 2: New Knowledge

Word Processing
Word Processing - This is the name given to a document which is created on a computer, usually using a piece of software such as Microsoft Word or Google Docs. Word processed documents contain primarily text-based characters.
Fonts - Fonts are the name for characters word processed onto a document. Arial and Times New Roman are types of font.
Font Sizes - Word processed documents are written in fonts no bigger than size 12.
Formatting Tools - Word processed documents can be enhanced using formatting tools. These included *Italics*, **Bold** and underlining.
Spell Checking - all word-processed documents should be checked for any spelling errors before submitting to final publication.
Margins - Margins are areas of blank space at the horizontal and vertical edges of word-processed documents. These make the document easier to read.

Presentation
Slides - A slide is the name of the blank space which information goes onto in a presentation.
Layout - Slides can be set into different design choices dependent on the content. This is called the layout.
Animations - This is the name given to content, typically images that move on a slide.
Transitions - Transitions are effects put onto slides to make content move automatically based on different timings. Transitions keep the viewer's attention.

Graphics
Pixels - Graphic images are produced using tiny dots of colour which are called pixels.
Transparency - Graphic images can be set up on canvas setups with no background colour. These are known as transparencies.
File Format - this is the name of the type of graphic file and what it is saved as. JPEG, PNG and BMP are typical graphical file formats.

Desktop Publishing (DTP)
WYSIWYG - **W**hat **Y**ou **S**ee **I**s **W**hat **Y**ou **G**et, is a term in Desktop Publishing (DTP) for showing what is on screen is what it will look like when it is printed or exported.
Publishing Formats - DTP files can be saved as images or exported as a PDF ready for printing or viewing online.

Section 3: Useful Subject Information

Useful keyboard shortcuts for the project tasks:

In Desktop Publishing (DTP), Word processing and Graphics we work with images. The quality of images depends on the resolution of the image used. High resolution images are often better quality as they contain more detail, but they create larger file sizes through increased memory usage. Lower quality images take up less memory on the computer, but they lack the detail.

low resolution ------------------ high resolution
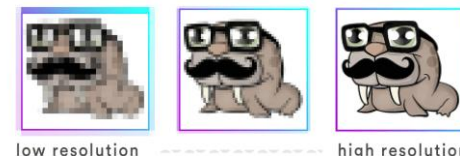
Key Timelines in the History of Word Processing, Desktop Publishing (DTP) and Graphics:

Word Processing
1978 - first commercial word processing package formally released called WordStar.
1990 - Microsoft Office suite released on sale.
2006 - Google Docs suite released online.
Graphics Software
1985 - Microsoft Paint first formally released as part of Windows 1.0.
1990 - Photoshop 1.0 first formally released on sale.
Desktop Publishing
1991 - Microsoft Publisher desktop publishing package goes on sale.

PE: Netball

Section 1: Key Vocabulary	
Tier 3 vocabulary	**Definition**
Holding Space	Using your body to protect a space you want to move into.
Interception	Deflecting or catching the ball whilst it is on route to another player.
Repossession	Catching, dropping and then re-catching the ball.
Rebounding	Trying to reclaim the ball after an attempted shot at goal.
Driving onto the ball	Sprinting towards the ball when receiving a pass.
Throw-up	Method used to restart the game after two players simultaneously commit a foul.
Double Lead	Two players running out at an angle in different directions to give two passing options to a player in possession of the ball.

Section 2: New Knowledge/Skills

Within the netball module you will learn about :

Tactics used at the centre pass – both in terms of attacking and defending the centre pass in order to try and maintain/win possession of the ball. Think about why it is important to keep possession of the ball during your own team's centre pass.

The correct technique for defending a shot at goal. Know where to move to in order to rebound a shot and then try to regain possession of the ball. Why is this important?

Holding space – you will be able to demonstrate the correct technique and know when to throw the ball to a player who is holding space. Can you identify when this technique would be effectively used?

Intercepting the ball - focusing on the correct technique and being able to intercept a pass without causing contact. Can you identify key points of how to carry out this technique?

Driving effectively onto the ball by running out at an angle, using a change of speed and direction and looking at double leads to help maintain possession of the ball.

PE: Hockey

Section 1: Key Vocabulary	
Tier 3 vocabulary	**Definition**
Penalty corner	An attacking set piece with the attackers lined up outside the circle and the defenders on the goal line.
Injection	Passing the ball into play from the penalty corner.
25m hit	Hockey's version of football's corner when a defender hits the ball behind their own goal line.
Jab tackle	A one-handed effort to reach in and knock the ball away from a dribbling player.

Section 2: New Knowledge/Skills

In Year 9 Hockey, you will be working towards playing the full **11 v 11** version of the game with some of the more advanced rules such as **penalty corners** and **25m restarts**.

You will develop your range of skills by considering different ways to **score** when you get in and around the **shooting circle**.

Part of your development in hockey will include leadership and you may be asked to set up a practice for your teammates, captain a team or umpire a game.

As you go through the lessons, you should be able to answer some of these questions:

- Explain the difference between the jab tackle and the block tackle?
- Why is a penalty corner awarded and how do the players line up for it to be taken?
- Where (exactly) is a 25m hit take from?
- What are your options if you find yourself dribbling towards the keeper and how would you choose which one to use?
- Name 5 rules you would be looking out for if you were umpiring a hockey game.
- Describe a playing formation you might use to set your team up if you were captain.

PE: Volleyball

Section 1: Key Vocabulary	
Tier 3 vocabulary	**Definition**
Set	Passing the ball from in front of the forehead using the fingers and thumbs of both hands.
Dig	Passing the ball with the forearms - between the wrists and the elbows.
Spike	Volleyball's version of the smash - hitting the ball firmly over the net making it difficult for the opponents to return.
Block	The best defence against the spike is to jump up with both hands at the net to try to stop the ball coming over to your side.
Serve/service	The start of the rally can be done underarm or overarm. It must be taken by the player at the back right side corner.
Sideout	This is when the service transfers to the other team and the players move to a new position by rotating in a clockwise direction.

Section 2: New Knowledge/Skills

The Year 9 Volleyball module will provide an introduction to a sport which is hugely popular among Key Stage 4 students.
You will learn the key rules and skills to enable you to take part in a 4v4 game.

You should be able to answer these questions as you go through your volleyball module:

Give 3 points of technique for performing a set.

Why should a player try to set the ball rather than dig it? Give 3 points of technique for the dig?

How many shots is a team allowed to get the ball over the net? How many players are there in a volleyball team?

Who takes the next serve in a game of volleyball?

Suggest 5 ways a volleyball rally comes to an end.

PE: Rugby

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Touch judge	An important officiating role which you may need to take on in lessons.
Gain line	An imaginary line across the pitch where the breakdown occurs.
Conversion	Kicking over the bar for after a try is scored.
Drop kick	A half-volley kick to start the game.
Drop goal	A drop kick over the posts.
Kick for touch	Kicking the ball off the side of the pitch when your team is under pressure.
Props	Two forwards that support the hooker in a scrum.
Hooker	The forward who goes in the front middle of the scrum and tries to hook the ball with their feet.
Fly-half	A back who receives the ball from the scrum-half and decides how the backs will attack.

Section 2: New Knowledge/Skills

In Year 9 rugby we are working towards playing the full 15-a-side version of the games with everyone able to contribute as a back or a forward in a specific position.

Try the following questions to check your knowledge of 15-a-side rugby:

Can you explain the full scoring system in rugby?

How many of the 15 positions on the field can you name?

What is the importance of the 'gain-line'?

How many players make up a full scrum?

Which players do most of the kicking in a game of rugby?

When might a team try for a drop goal?

Where is a conversion taken from?

PE: Table Tennis

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Back spin	Hitting down the back of the ball to make it travel more slowly over the net - a defensive tactic.
Top spin	Hitting over the top of the ball to give it topspin will cause it to dip as it goes over the net - an attacking tactic.
Variation	Doing different things to keep your opponent guessing - playing different shots to different parts of the table for example.
Attack	One playing is usually on the offensive, trying to hit the winning point.
Defence	If your opponent is on the offensive, you made need to adjust your position and your shot selection to effectively defend their shots.
Shot selection	The skill of knowing what shot to use at any point in the game.
Block	A defensive tactic of just putting your bat out to bounce the ball back over the net.
Loop	Playing the ball back high over the net when defending to give yourself time to get ready to defend the next shot.
Backhand flick	An attacking version of the backhand push. Just flick the wrist to add power.

Section 2: New Knowledge/Skills

Year 9 table tennis will provide plenty of opportunity for you to compete with your classmates. As you compete more, you will develop tactical 'answers' to what is happening in the game.

You should be able to recognise when you are in attack and when you are in defence and start to change your shot selection and your positioning.

You will be expected to umpire and keep score for your classmates, being confident in stopping rallies when faults occur.

PE: Gymnastics

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Partners/Pairs	Performing with 1 other student.
Trios/Groups	Performing in a group of 3 or more.
Cannon/ Mirror/ Unison	Performing 1 after the other/performing in time in opposition/performing in time.
Counter balance	Leaning inward or towards a partner or group to support or maintain a balance.
Counter tension	Leaning outward or away from a partner or group to support or maintain a balance.
Weight bearing	Acting wholly or partially as the base of support in a pair or group balance.

Section 2: New Knowledge/Skills

In Year 9 gymnastics, you will be challenged to develop more complex sequences with more people involved and more complex moves. This will not only develop your gymnastic skills, you will need to use good leadership and communication skills to get your group to work as a unit to create and perform the sequence.

Try these questions to check your understanding of Year 9 gymnastics:

Describe a weight-bearing balance as a trio?

Describe a counter-tension position for a group?

Explain how a group of 4 people could perform a counter-balance position?

What qualities does a leader need in order to organise a group into an effective sequence?

PE: Basketball

Section 1: Key Vocabulary	
Tier 3 vocabulary	**Definition**
Rebound	Catching the ball after a missed shot.
Offensive rebound	Taking a rebound when your team is in attack giving your team another chance to score.
Defensive rebound	Taking a rebound when you are in defence, preventing the other team from having another shot.
Assist	Setting a teammate up to score a basket.
Outlet pass	Making a quick pass out from under your own basket to set up an attack after you have taken a rebound.
Breakout dribble	Making a quick dribble out from under your basket (2 or 3 bounces) to set up an attack for your team.
Officiating crew	The team of officials needed to run a basketball game including a referee, an umpire, a scorer and a timekeeper.
Half court defence	Running back after your team lose possession to defend close to your own hoop.

Section 2: New Knowledge/Skills

In basketball this year, you will be working towards playing the full court version of the game, with some of the more advanced rules and tactics. Hopefully, after your lessons, you will be able to answer some of the following questions:

What is the backcourt rule?

What are some of the time limits that players have to be aware of in a game of basketball?

Why is half-court defence played most of the time?

When might a team use full-court defence?

What makes a good rebounder and why are they so important to a team's success?

PE: Health and Fitness

Section 1: Key Vocabulary	
Tier 3 vocabulary	**Definition**
Components of fitness	Our fitness can be broken down into 11 components of fitness which we all possess. Examples include speed, strength, agility.
Effects of exercise	The short term effects of exercise are changes in the body which occur as a result of physical activity. We should know why they occur.
Fitness testing	Each component of fitness can be measured by a test. Using fitness tests can help performers to see if their training is having a positive effect on their fitness.
Circuit training	A method of training which involves exercising at a station then having a rest before moving to the next station.
Weight training	Using a resistance such as a dumbbell to exercise a specific muscle.
Heart rate	How fast our heart beats can be a good measure of how hard we are working and a good measure of how fit we are.

Section 2: New Knowledge/Skills

The Health and Fitness module will give students a good foundation for taking responsibility for their own fitness.

You will look at a variety of ways to measure your own fitness and a variety of ways to improve your own fitness.

Many of the exercises and activities we do can be repeated at home with little or no equipment - you take responsibility!

The unit also provides a taste of some of the content students will experience should they opt for exam PE in KS4.

Try these questions as you complete this module:
How many of the major muscles can you name?
Can you link 5 components of fitness with their fitness test?
Can you list 10 exercises you can do with a pair of dumbbells?
Can you list 10 exercises you can do without any equipment?
Which heart rate is an important measure of your health?

PE: Running

New Knowledge/Skills

You will use the same running route (3 laps/2200m) to work on endurance and work towards a **personal best** time. You will set your own targets based on previous times and set yourself **interim targets** (lap times and split times) to help you reach your goal.

We will continue to develop our **mental approach** to running by looking at some basic **tactics** (strategies) - when to run faster or when to conserve energy.

To improve our performance we will look at two **training methods** which can be used to improve running: **fartlek and interval.**

Fartlek training means running at different speeds for varying distances whereas interval training involves running a set distance or for a set time and then having a period of rest.

PE: Health and Fitness

New Knowledge/Skills

Our focus on health and fitness across the sports will be on the **components of fitness** and how they are required in different activities.

Question: Can you list the 11 components of fitness?

Hopefully, you will be able to identify the main components of fitness used in any sport you do.

PE: Leadership

New Knowledge/Skills

You will be challenged at times to take on the role of captain and help influence your team's performance.

You may be asked to lead a warm up in front of the class to help develop your confidence to stand in front of and speak to a large group of people.

You will also be given time in some activities to create your own practices for a group of classmates.

Art: Insects

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Critically	Doing something in a way that involves analysis of the merits and faults of something.
Enquiry	The study of something in a way that enhances understanding.
Flora and fauna	Plant and animal life.
Gouache	Opaque watercolour paint.
Invertebrate	Animal without a backbone.
Iridescent	Featuring bright colour that changes depending on the viewing angle.
Kaleidoscopic	Having a complex pattern that multiplies the appearance of symmetry, similar to the way the children's toy the kaleidoscope works.

Tier 2 vocabulary	Definition
Assumption	Something a person believes to be true without good evidence or proof.
Controversial	Causing disagreement and fierce discussion.
Illustrator	An artist that produces work for a commercial purpose, e.g. as part of a graphic layout.
Symmetry	Displaying self-similarity through reflection or rotation.
Watercolour	Art medium that uses pigment suspended in a water soluble binder, such as gum arabic.

Section 2: Illustrating nature, questioning ideas

Ernst Haeckel was a German biologist and artist. Haeckel drew from direct observation of samples of plant and animal life that he had collected himself, revealing detail that was previously unseen or overlooked. Haeckel used pencil, pen and watercolour to produce his intricate illustrations of flora and fauna. His often richly coloured illustrations reveal symmetrical invertebrate body structures. His carefully observed illustrations straddle the line between art and science.

Haeckel made valuable contributions to science and art, but some of his views, particularly those about human races, were based on false assumptions. These assumptions are now considered scientifically incorrect. This reminds us that it is important to critically evaluate historical figures, and to understand how ideas evolve over time.

While Ernst Haeckel took a highly detailed approach to illustrating insects and other small animals, focussing on scientific inquiry, other artists have taken a more fanciful or playful approach.

Left: By Ernst Haeckel

Below: by Damien Hirst

In his 'Entomology' series, Damien Hirst has used actual insect bodies to create assemblages. Presented as kaleidoscopically arranged specimens on flat boards, the iridescent, jewel-like bodies of exotic beetles and other invertebrates glimmer under a thick protective layer of varnish. Damien Hirst creates provocative and sometimes controversial art, and some people question the ethics of using real insects and other animals as part of a work of art.

Section 3: Artists and techniques

Lucy Arnold combines multiple individual illustrations of insects in a variety of ways. These range from insects carefully arranged in symmetries very similar to Damien Hirst's Entomology works, to chaotic overlapping insect bodies that vie for attention and bustle with colour and energy. Arnold works in a wide variety of media, but is known foremost as a painter.

Above: by Lucy Arnold

Left: by Caroline Kaufmann

Caroline Kaufman's insects look plausible at first glance, but closer inspection reveals asymmetrical geometric patterns that defy nature. These playful creations embellish the natural forms and symmetry of insects with surface patterns more often seen in clothing. Kaufmann is a textile artist, but has created this series of insects using gouache on paper.

Music: Mastering Performance – Strike a Chord

BELPER SCHOOL and Sixth Form Centre

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Chord	Two or more notes played together.
Scale	A series of notes played in order, ascending and descending.
Root	The first note of the scale.
Third	The third note of the scale.
Fifth	The fifth note of the scale.
Seventh	The seventh note of the scale.
Concord	A chord where all the notes seem to agree with each other, creating a sense of completeness and rest.
Discord	A combination of notes that sound unpleasant when played together.

Tier 2 vocabulary	Definition
Triad	In music a triad chord contain three notes; the first, third and fifth notes of the scale.
Chord Pattern	A set of chords played in a particular sequence.
Fluency	Playing in time with a beat.
Ensemble	A musical group.

Section 2: New Knowledge/Skills

Chords form the foundation of most Western music, providing structure to melodies and melodic development.

All music is grounded in a **tonality**. This gives us the available chords to use within the piece of music. We number the notes of the scale 1-8. A major scale is created by using the following pattern:
Tone, tone, semitone, tone, tone, tone, semitone

Chords are build by using notes 1, 3 and 5 (sometimes a 7). This is the same on any instruments; it just will look different as each instrument is played differently.
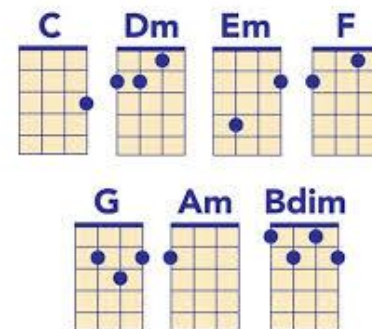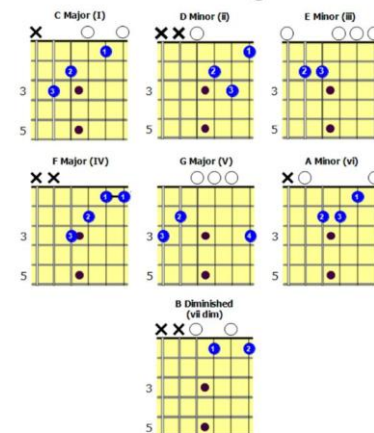

CHORDS FOR C MAJOR
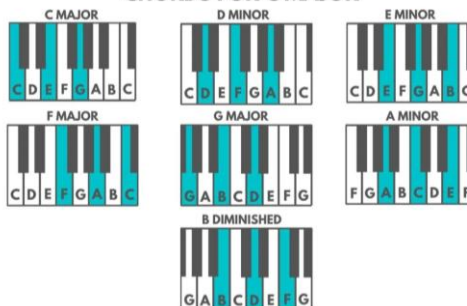
Section 3:

Chords In C Major Family

The **four chord trick** uses chords I, IV, V and Vi – playing these in different combinations can create some very effective **chord patterns**.

Chord ii can be added, as well as 7th chords to add more interest.

ROMAN NUMERALS

I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8

Links to prior learning: Y8 The four chord trick, keyboard skills, Off beat

Drama: Brecht

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Epic Theatre	A range of theatrical devices used to make the audience think.
Didactic Theatre	Theatre that educates and send a message to the audience.
Bertolt Brecht	A German Theatre Practitioner and playwright.
Gestus	A clear character gesture or movement used by the actor that captures a moment or attitude rather than delving into emotion.
Alienation	Familiar contents are presented in an unfamiliar way so that the audience does not empathise with the story of a drama.
Episodic Structure	Scenes are **episodic**, which means they stand alone and are constructed in small chunks, rather than creating a lengthy and slow build of tension.
Multi-Role	Actors play multiple characters within the same piece of theatre.

Tier 2 vocabulary	Definition
Socio-Political Issues	Issues and political decisions that effect the peoples lives and the world.
3rd Person Narration	Commenting upon a character as an actor is a clear way of reminding the audience of theatricality.
Direct address	The actors speak directly to the audience, sometimes in the form of questions, this reminds the audience that what they are seeing isn't real and forces them to think about what they are watching. This is called 'breaking the fourth wall'.

Section 2: Who is Brecht?

Bertolt Brecht (1898-1956) was a famous German playwright and poet.

"Art is not a mirror with which to reflect reality but a hammer with which to shape it."
Bertolt Brecht

What is the Alienation effect?
The idea of Alienation or the Verfremdungseffekt was to constantly remind the audience they were in a theatre, watching a play.

These techniques break the illusion of drama. We do not get lost in the story or the characters.

Instead we are constantly reminded that these are actors communicating ideas and situations to us.

How did Brecht make the audience step back and view the message rather than the spectacle?

This short video explains the ideas of Epic Theatre.

Epic Theatre provokes the audience to think. It often uses a parable, a story with a wider meaning as a vehicle to address social issues or viewpoints and opinions.

Epic Theatre plays with short 'stand alone' scenes, the structure often ignores the usual constraints of linear timelines. These short contrasting scenes create humour, provoke thought and make the audience reflect.

Section 3: Exploring Social Issues

An Example of a socio-political Issues Mind Map
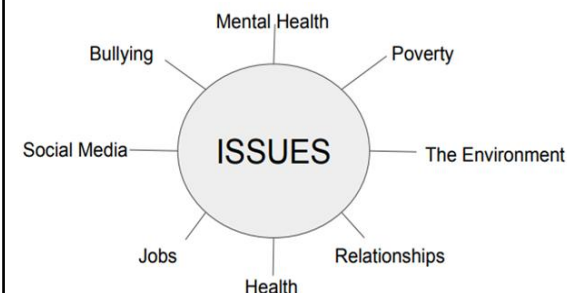
Pendulums Emporium is a production by local theatre company Maison Foo.

The production explores a wide range of social issues.

Section 3: Links to Prior Learning

In year 7 you studied Greek Theatre and were taught about the role of the narrator. In year 8 you studied Bullying and in year 9, Gangs. You were taught how to explore these issues through different drama techniques. In year 8 you were taught about abstract theatre when devising pieces of theatre about cyber bullying.

D&T FOOD: Nutrition and Diet

Tier 3 vocabulary	Definition
Macronutrients **Vs** **Micronutrients**	The nutrients needed in larger quantities within the diet. Carbohydrates, proteins and fats. The nutrients needed in smaller quantities within the diet. Vitamins and minerals.
Deficiency disease	A health issue related to a lack of one or more nutrients in the diet. E.g. Kwashiorkor, Rickets and Anaemia.
Dietician	An individual who promotes good dietary health and treats nutritional problems by providing practical advice about food choices, based on scientific research.
Complex/Starchy Carbohydrates **vs** **Simple/Sugary Carbohydrates**	These should make up the majority of a person's carbohydrate intake. Providing slow-release energy. These should be consumed as a smaller proportion of the carbohydrate intake. Providing fast-release energy.
Proteins	A nutrient provided by meat, fish, diary, nuts. Peas, beans and lentils. Protein is required for growth and repair.
Saturated Fat **vs** **Unsaturated Fat**	A unhealthier type of fat which can be linked to higher risk of obesity, CHD and type II diabetes if consumed in larger quantities. Predominantly from animal sources. A type of fat containing a high proportion of fatty acid molecules with at least one double bond, considered to be healthier than saturated fat. Predominantly from plant sources.
Dietary recommendations	The daily nutritional requirements of individuals that vary depending on a number of factors including age, physical activity level, sex & body size.

| Tier 2 vocabulary	Definition
Obesity	The state of being grossly overweight.
Symptom	a physical or mental feature which is regarded as indicating a condition of disease
Disease	a disorder of structure or function in a human, animal, or plant, especially one that has a known cause and a distinctive group of symptoms, signs, or anatomical changes.
Diet	the regularly consumed food and drink of an individual.
Dehydration	when your body does not have as much water as it needs.

Section 2: New Knowledge
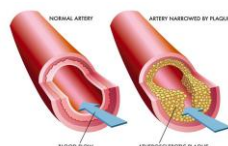
The picture to the left shows Atheroma, which is where plaque build up in the arteries and causes the walls to harden. The happens a result of a high fat and salt diet.
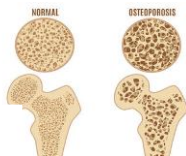
The picture to the left shows a health bone scan (left) and a bone with osteoporosis (right). The bone has lost density and is more brittle. This naturally happen in old age, but can occur earlier due to lack of vitamin D & calcium.
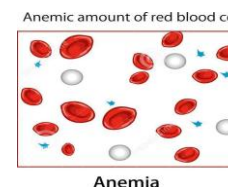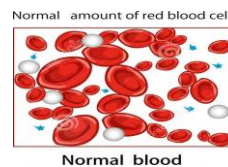
The picture to the left shows a normal red blood count (Top) and the red blood count of someone suffering from Anaemia (bottom). There are less red blood cells and they are deformed. This occurs when someone is deficient in the mineral iron.

Section 3: Food & Nutrition Skills

We use temperature probes a lot this project. The probe is used to check the core temperature of meat. The probe should reach 75C for 30 seconds or 80C for 15 seconds. It is important the probe is inserted into the centre where the meat is thickest.

Corn starch can be used to thicken sauces such as gravy and stir fry sauces. Before adding to a sauce, the cornstarch much be mixed with liquid to form a paste. If added directly, lumps can form.

Breadcrumbing/coating Ingredients such as chicken, halloumi and fish can be coated. The process starts with coating the protein in plain flour, then beaten egg and then finally breadcrumbs. This process has a high risk of contamination.

D&T TEXTILES: Upcycle This

BELPER SCHOOL and Sixth Form Centre

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Aesthetics	What a product looks like, Colour, shape, style etc
Components	Anything in the textile product that is not made of fabric. Eg. Zip, button, press stud
Embellishment	The application of stitching, trimmings, threads, braid, ribbons and beads to decorate a fabric or textile.
Pattern	Paper templates that show the shape of the fabric pieces that must be cut out to make a product
Context	The setting for an event, statement, or idea.
Couching	The process used to secure threads, fibres or yarns to a surface using hand stitching or embroidery.

Tier 2 vocabulary	Definition
Form	The shape, aesthetics. What something looks like.
Function	How well does the product perform the job it was designed to do?
Customer	Who will use your product? What Are their needs, interests etc
Evaluation	Making a judgment about a product or design

Section 2: Skills

Surface Decoration

You have worked with many different types of surface decoration in your previous textile projects. In this project you will need to pick the most relevant ones to your design:

- Stencil
- Applique
- Block printing
- Embroidery
- Cross stitch
- Buttons/beads/sequins
- Fabric crayons
- Digital Fabric design and printing

You have also learned how to create patterns/templates and sew a zip in amongst other things! Can you explain how each of these processes work? Can you decide which are the most appropriate to use in your design?

Upcycling

Upcycling is taking an old garment and making it into something new. Often this is a garment that might be destined for landfill.
You can add decorations to hide holes or stains. Combine garments, take the sleeves from one top and sew them onto another. Or completely remake some thing ie. take an old pillowcase and make it into a top.
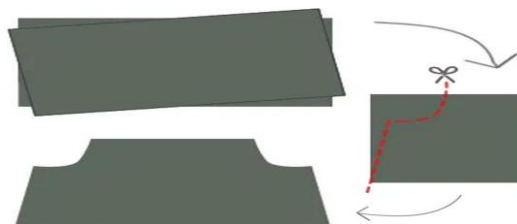
Section 3: Knowledge

Textiles and the Environment

Of all industries textiles is the second most pollutant. As designers and consumers we have a responsibility to be aware of the impact it has.

As designers we should consider the environment when picking the materials we will use to make our designs. For example considering using recycled materials, or sustainably produced fabrics.

Fast fashion has led to a huge increase in the amount of textiles that end up in landfill. There is also the impact of the manufacture and care of the garments during their life. As consumers we have a responsibility to consider the impact our purchases have on the environment.

Some facts to consider:

*2,700l of water is needed to produce 1 t-shirt. This is equivalent to enough drinking water for one person for 2.5 years.

*10% of all greenhouse gases are produced by textile production.

*0.5million tonnes of MICROFIBRES are released into the oceans each year as a result of washing SYNTHETIC textiles.

The 6 R's

Whilst we are all quite familiar with the idea of recycling materials there actually 6 different 'R' words that we can use to consider our impact on the environment.
This is a list of 6 different guidelines that people can use to help them reduce their impact on the environment. These words can be applied by the designer when the they are creating new products or the consider who is looking to decide what to do with a ripped t-shirt!

REDUCE
RECYCLE
REFUSE
RETHINK
REUSE
REPAIR

D&T Product Design – Mood Lighting Clock

Section 1: - Key Vocabulary

Tier 3 Vocabulary

Biscuit Joint	Small oval shaped piece of wood used to join two sections of larger wood together
Light Dependant Resistor	LDR – A resistor which changes it's ability to resist the flow of electricity based on the light level
Pillar Drill	A machine drill used to accurately drill holes in wood, metal and plastic
Printed Circuit Board	PCB – Plastic board which is printed with copper track and soldering pads, used to link electronic components together

Tier 2 Vocabulary

Cost	Details about the cost of materials, manufacture, and retail price of a product
Aesthetic	What the theme, colour scheme and look of a product
Function	What a product is intended to do and how
Ergonomic	Detailed about how easy it is to interact with a product, including how it feels
Quality	How well a product is made, and how it effects the durability and material choice
User	How is the intended target market of the product.
Environment	How does your product effect the environment, from raw materials to end of life

Section 2: Skills

Soldering	Being able to solder 'on and off board' components based on a schematic diagram independently Soldered joints should be neat, use the correct amount of solder, they should be shiny to avoid 'dry joints', with errors being independently identified and repaired.
Biscuit Joint	Mark out joints, then uses a biscuit jointer under close supervision to joint join 2 panels of wood
Pillar Drill	Set up, including the changing the drill bit, to cut small and large diameter holes in wood to a fixed depth and through cut
2D design software	Use CAD software create a themed design, considering suitable and secure location of the PCB, power, and the inputs & outputs
Application of laser cutting	Understand the set up requirement needed to laser cut and engrave materials, including the use of colour to define cut type, and power/speed setting requirements for different materials
Product Assembly	Create a high quality, fully functioning, electronic product from a collection of parts. Including the use of glues and fixing techniques
Health and Safety	Consistently use a wide range of tools and equipment safety, always using the correct PPE

Section 4:- WAGOLL

Section 3:- New Knowledge

Product Analysis and Evaluation

Complete an in depth evaluation of your own completed practical work, and a similar commercial product using the common evaluation techniques, including CAFEQUE and LCA

Design Theme Research

- Develop your knowledge of a well known designer or design house, being able to explain their style and ethos. Apply this design style to a product

PlaySam　　　Alessi　　　Memphis　　De Stijl

Life Cycle Assessment

Understand the concept of LCA and how it applies to every stage of a products life. Apply the concept to your product during the evaluation.

Risk Assessment

Understand the meaning off, and difference between a hazard and a risk.
Identify people at risk and control measures which can be put into place to make an activity safer
Complete a formal risk assessment for skills/tools/machines which are used to make the clock project

Processes

Be able to explain the competent safe use of the following machines using annotation and sketches.

- Pillar Drill
- Biscuit Jointer
- Strip Heater/Line Bender

PSHE: Living in the Wider World

Section 1: Key Vocabulary	
Tier 2 vocabulary	**Definition**
Digital footprint	A record of all the online activities you perform, including the information you share and the data collected about you.
Appropriate	Suitable or proper in the circumstances.
Influence	The capacity to have an effect on the character, development, or behaviour of someone or something.
Self-employment	Someone that earns income from a business they own and operate, rather than from an employer
Voluntary work	Individuals willingly dedicating their time and skills for the benefit of others without pay.
Moral dilemmas	A situation in which a difficult choice has to be made between two courses of action
Finances	The management of money and includes activities such as investing, borrowing, lending, budgeting, saving.
Tier 3 vocabulary	**Definition**
Extremism	The holding of extreme political or religious views; fanaticism.
Vocational	Work that is related to a specific career or job. It can also refer to education or training that prepares someone for a career.
Employment rights	Are both legal rights and human rights relating to labour relations between workers and employers.
Enterprise	A project or undertaking, especially a bold or complex one OR a business or company

Section 2: Key Themes:

Assessing Content Online and Staying Safe: To make informed decisions about digital content and whether it is appropriate to view, skills to act on this, a range of views can be expressed on a range of issues, including extreme one**.**

The Different Academic & Work Routes: About different routes into work including training opportunities, Both vocational and academic route that can be taken to progress towards a range of careers.

Types of Work & My Future Aspirations: The different types of work and work patterns, how careers and pathways can change throughout life and how progress can be made through a career.

Understanding Money: Values and attitudes related to debt and finances, managing emotions in their relation to money, evaluating social and moral dilemmas related to money including peer pressure and other external influences.

My Future Employment & My Rights: Understanding young people's employment rights and responsibilities, managing our emotions in relation to future employment.

Future Aspirations and Setting Myself up for Success: Setting realistic yet ambitious target and goals, learning the attributes an employr values and knowing the skills and qualities required to engage in enterprise.

Section 3: Key concepts:

Careers at Belper School
What we do:

Careers Advice & Guidance
We can support you with Year 9 Pathways, Sixth Form & College Courses. We also assist with Work Experience & Work Shadowing and organise events including Careers Inspiration Day & Mock Interviews.
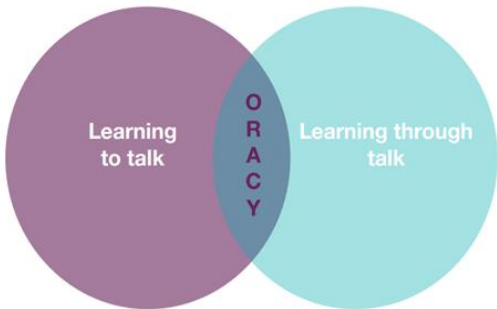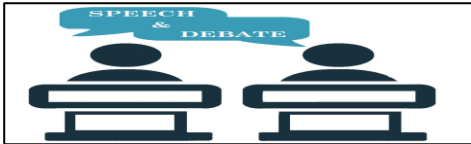
Richard Leach
Careers Coordinator
The Careers Office is located in the school library

35

Oracy

Section 1: Key Vocabulary

Tier 3 vocabulary	Definition
Register	A variety of language determined by formality, vocabulary, pronunciation and syntax.
Turn taking	The coordinated way participants alternate speaking roles, ensuring that one person speaks while others listen, and then the speaking role transitions to someone else
Articulate	The ability to express oneself clearly and effectively, or to pronounce words clearly.
Rhetoric	The art of using language effectively, especially in persuasive speaking or writing.

Tier 2 vocabulary	Definition
Instigate	Present an idea or open up a new line of enquiry
Probe	Dig deeper, ask for evidence or justification of ideas
Challenge	Disagree or present an alternative argument
Clarify	Asking questions to make things clearer and check your understanding
Summarise	Identify and recap the main ideas
Build	Develop, add to or elaborate on an idea

Section 2: The 4 Strands of Oracy You Will Cover

Physical

This is how you use your voice and body Language to communicate and can include the pace or tempo of how you talk, the tone of voice, voice projection, posture, facial expression and eye contact.

Linguistic

This how you use appropriate vocabulary choices, register, grammar, and rhetorical techniques such as questions and humour.

Cognitive

This is about the choice of content you select to present meaning to an audience. It is about how you structure and organise your talk to engage your audience. Added to that it is seeking clarification through questioning, while maintaining focus and managing time.

Social and Emotional

This is about working with others, guiding or managing interactions through turn-taking. It is about listening actively and responding appropriately. Added to that it is about confidence in speaking, self assurance and being aware of what your audience may or may not know.

Section 3: Student agreement for oracy

In order for all students to get the most from oracy lessons and activities we should always:

- Be respectful at all times
- Be supportive of others
- Consider how what you say may impact others around you
- If you disagree, make sure you do so with respect
- Actively listen
- Observe the rules of turn taking
- Be curious
- Be confident to have your opinion heard

Types of talk

Exploratory talk

A type of talk where participants critically and constructively engage with each other's ideas, often involving questioning and reasoning.

Presentational talk

Includes speeches, presentations, and other forms of one-way communication.

Debate Talk

A structured discussion with opposing viewpoints, aiming to persuade an audience or reach a conclusion.

Instructional Talk

Used to teach or explain something, often involving a teacher or expert imparting knowledge or skills.

Oracy

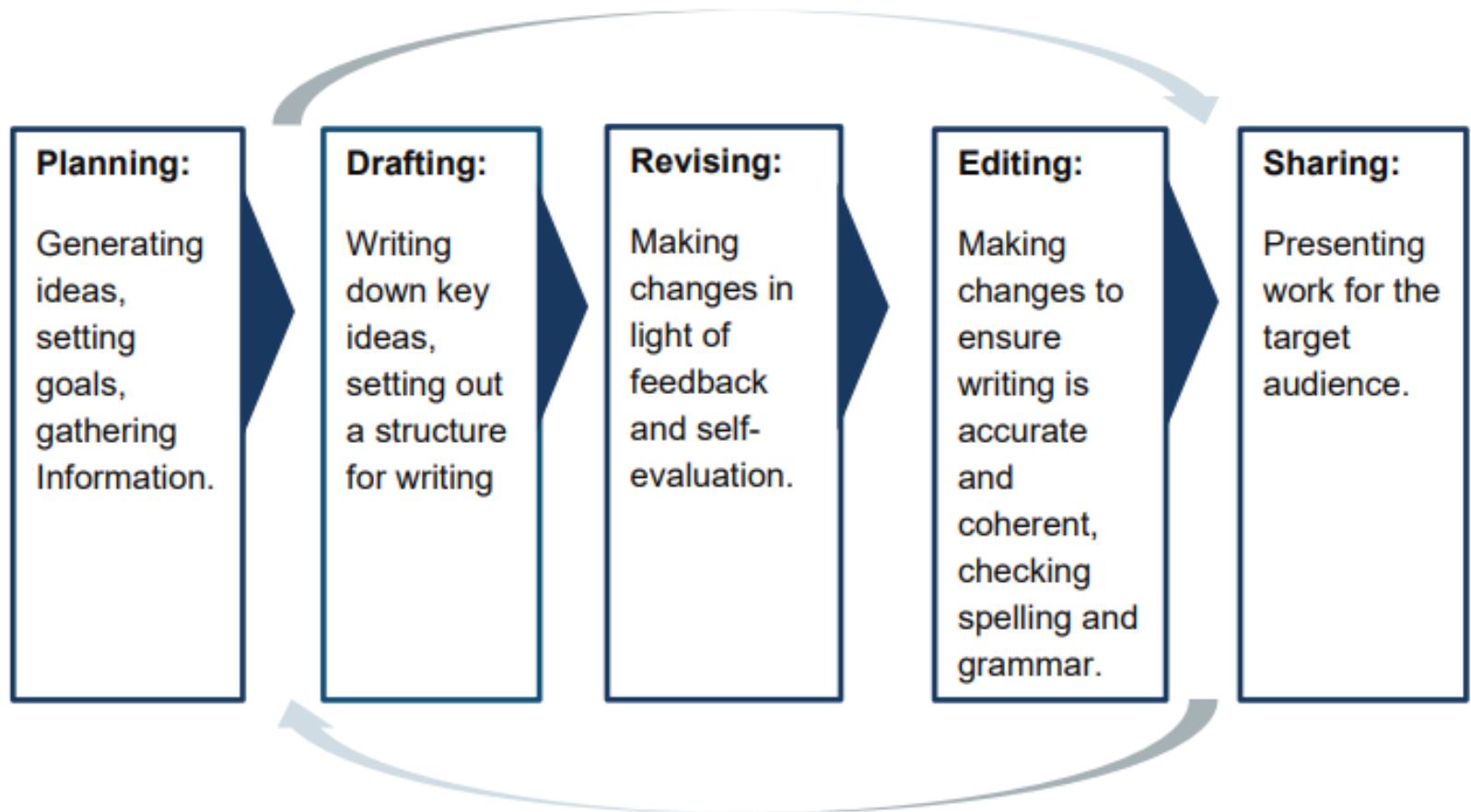| Section 3: Talking Roles You Will Take: |
|---|
| **Instigator** |
| The person who starts the discussion might say: 'I would like to start by saying...'   'I think the first thing we should consider is...'   'To begin with let's talk about...' |
| **Builder** |
| The person who build or develops, adds to or runs with an idea might say: 'I agree and I would like to add...'   'Linking to your point I would suggest...'   'Building on that idea...' |
| **Challenger** |
| The person who disagrees or presents an alternative argument might say: 'That is true but have you considered...'   'I respect your viewpoint but what about...'   'I hear what you are saying but ...' |
| **Clarifier** |
| The person who clarifies makes things clearer and simplifies ideas by asking questions might say: 'What do you mean when you say...'   'Could you tell me more about that...'   'Does that mean that...' |
| **Prober** |
| This person digs deeper into the argument, asks for evidence or justification of ideas might say: 'What evidence do you have to support that?'   'How does that support your argument?'   'How did you come to that conclusion?' |
| **Summariser** |
| This person presents reflections on the discussion and may offer a conclusion or balanced assessment of the main point and may say: ''Overall, the main points covered were...'   'In summary...'   'To round up what has been discussed...' |

The Writing Process

When we don't take the time to plan, revise, or edit, our writing can suffer—just like rushing a recipe without reading the instructions. But when we follow the writing process, it helps us:

Think more clearly   **Organise our thoughts**   **Spot mistakes**   **Write with purpose**

Planning:	Drafting:	Revising:	Editing:	Sharing:
Generating ideas, setting goals, gathering Information.	Writing down key ideas, setting out a structure for writing	Making changes in light of feedback and self-evaluation.	Making changes to ensure writing is accurate and coherent, checking spelling and grammar.	Presenting work for the target audience.

Strong writing doesn't happen by accident—it comes from thinking, crafting, and shaping your ideas over time. **Writing is thinking made visible.** The more we follow the process, the more confident and skilled we become.

Extra-Curricular Clubs - Lunch

Monday	Tuesday	Wednesday	Thursday	Friday
Book club with Sarah (library)	Drama club with Sarah (drama studio)	Art club with Lucy (art area)	Technical Theatre club with Sarah (drama studio)	Year 7-11 Girls Indoor Sports Club with Leanne
Year 7 Music club with Phil (music rooms)	Knitting and crochet club with Emma (S9)	Belper Wind Band with Anna (music rooms)	Wellbeing club with Sophie (English area)	
Warhammer and Tabletop Games Hobby club with Richard (art area)	Modern Foreign Languages club with Sarah (L5)	Anti-bullying Ambassadors (week 1) with John	Wellbeing Ambassadors (week 1) with Sophie (English area)	
	Chess with Dan (M2)	Student Leadership Group (week 2) with John	Year 7 & 8 Games club with Emma (library)	
	Year 10 Inter-tutor football competition with James and Matt (3G)	Year 10/11 Badminton Club with Tom	Belper Choir with Anna (music rooms)	
	Year 7 Creative Writing Club with Tamara and Liv (E8)	Model Railway Club with Phill (T2)	Year 7 Inter-tutor football competition with James and Matt (3G)	
		Textiles Club with Sarah (T1)		

BE INVOLVED

Extra-Curricular Clubs – After School

Monday	Tuesday	Wednesday	Thursday	Friday
Show rehearsals with Anna & Sarah (stage and main hall)	KS4 & 5 Art with Lucy (art area)	Show rehearsals with Anna & Sarah (stage and main hall)		Year 10-13/Staff Friday Sports Club with Matt, James, Tom and Leanne
Music Club with Phil (music rooms)	Year 13 A-level Revision with Tom	Film Club with Becky (for students in Yr8 or above) (E6)		
Year 7, 8 & 9 Football club with Matt, James and Tom	STEM Club for Year 7 and 8 (S8) with Year 11	Pride Club with Karen (T5)		
AVSSP Events Year 9,10 & 12 Sports Leaders Events with Rebecca		Year 9 'Your Time' Leadership Programme with Rebecca and Matt		
Robot Club with Sarah (T1)		GCSE PE Practical Club with Tom – Week 1 only.		
GCSE PE Drop-in with Leanne (P6) Week 1 only.		GCSE PE Revision Club with Tom – Week 2 only.		

BE INVOLVED

2 Black/Blue Pens and 1 Coloured Pen

2 Pencils

Eraser

HI·POLYMER ERASER
Pentel

Pencil Sharpener

Knowledge Organiser

Scientific Calculator

CASIO   fx-83GT X

CLASSWIZ

1:Calculate

Ruler

Helix   Shatter Resistant