English

1. Key Vocabulary

Key Word	Definition
feud	a long and bitter argument
impulsive	acting without thinking
valiant	courageous
grudge	A feeling of resentment about what somebody has done.
exile	sent to another place as punishment
malevolent	evil
adversary	enemy
enmity	intense hostility
mutiny	rebellion against authority
strife	angry disagreement

2. The Prologue

Two households, both alike in dignity,
In fair Verona, where we lay our scene,
From ancient grudge break to new mutiny,
Where civil blood makes civil hands unclean.
From forth the fatal loins of these two foes
A pair of star-cross'd lovers take their life;
Whose misadventured piteous overthrows
Do with their death bury their parents' strife.
The fearful passage of their death-mark'd love,
And the continuance of their parents' rage,
Which, but their children's end, nought could remove,
Is now the two hours' traffic of our stage;
The which if you with patient ears attend,
What here shall miss our toil shall strive to mend.

3. The Characters

Benvolio: Romeo's cousin and a thoughtful friend. He likes to keep the peace.
Romeo: about 16, a Montague. He does not care about the feud; he only cares for love. At the beginning of the play, he is in love with Rosaline but he soon falls for Juliet and they are secretly married.
Mercutio: a close friend of Romeo's. He can be quite hotheaded. He is very witty and likes to make jokes. He is caught in the middle of the feud.
Tybalt: A Capulet and Juliet's cousin. He can be very aggressive and is quick to draw his sword when he feels that his pride has been injured.
Juliet: The daughter of Lord and Lady Capulet. She is young and innocent but also decisive and passionate.
Friar Lawrence: The priest who marries Romeo and Juliet and supports them both later.

4. Key Terminology

Terminology	Definition
prologue	an introduction to a work of fiction
sonnet	a poem with 14 lines and 10 syllables per line often about love
symbol	an object that represents or stands for something else
dramatic irony	when the audience knows something that the characters do not
connotation	an idea linked with an object or word
couplet	a pair of lines that rhyme.
metaphor	a comparison that is not literally true
tragedy	A Shakespeare play with a sad ending where characters have fallen from positions of nobility and greatness.

Challenge!
Romeo and Juliet is a tragedy. What are the features of a Shakespearean tragedy?

English

5. Key Quotations

Prologue: “Two households, both alike in dignity”

Prologue: “A pair of star-crossed lovers take their life”

Benvolio: “Put up your swords; you know not what you do.”

Tybalt: “What, drawn, and talk of peace! I hate the word/All Montagues and thee.”

Prince: “If ever you disturb our streets again, Your lives shall pay the forfeit of the peace.”

Benvolio: “I pray thee, good Mercutio, let's retire:
The day is hot, the Capulets abroad,
And, if we meet, we shall not scape a brawl”

Mercutio: “I am hurt. A plague on both your houses.”

Romeo: “And fire-eyed fury be my conduct now!”

Prince: “And for that offence
Immediately we do exile him hence.”

Lady Capulet: “I would the fool were married to her grave.”

Lord Capulet: “Hang thee, young baggage! Disobedient wretch!”

6. Act 3 Scene 1

- The weather is uncomfortably hot.
- Benvolio suggests to Mercutio that they go inside as they are likely to get into a fight.
- Tybalt enters. He wants to find and challenge Romeo for gatecrashing the Capulet’s ball.
- Romeo enters. We must remember that he has just married Juliet. Tybalt calls him a villain but Romeo does not rise to the bait.
- Mercutio says that he will fight Tybalt and the fight begins.
- Romeo steps in to try and stop the fight and Mercutio is wounded by Tybalt under his arm.
- Mercutio dies and Romeo vows revenge.
- He kills Tybalt.
- Romeo is exiled from Verona. How can he be with Juliet now?

7. Key Concepts and Ideas

Word	Definition
Protagonist	The main character in the story.
Antagonist	The character who works against the main character.
Exposition	The start of the story, introducing characters and setting.
Rising Action	The part of the story in which tension builds.
Authorial Intention	The effect an author wants their work to have.
Emotional Arc	The emotional changes a character experiences.
Crafting	Using a range of writer’s methods deliberately to create an effect.
Narrative Perspective	The point of view from which a story is told.
Critical Review	Writing about a story, exploring its strengths and weaknesses.

English

8. Great vocabulary for a story about games.

formidable	relinquish
malevolent	labyrinthine
imminent	tenacity
enigmatic	vanquish
reverberate	transcend

Look up the meanings of 5 of these words and learn them!

9. Games at Twilight

The story is about a group of children playing hide-and-seek one hot summer evening. The game is led by Raghu, the strongest and most confident child. Ravi, the smallest and most timid boy, hides in a dark shed and stays there for a long time because he is afraid of being found.

While Ravi waits, he imagines how proud and admired he will be when he finally comes out. However, when he does return, he discovers that the other children have forgotten about the game completely and moved on to something else. **How does Ravi feel?**

10. Key Techniques

Technique	Definition
Implicit characterisation	Creating a character through a description of them and what they do.
Setting	The place in which a story takes place.
Tone	That attitude that a writer shows through their language.
Recontextualising	Providing new information which changes your understanding.
Juxtaposition	Placing contrasting things next to each other.
Withholding information	Not telling the reader certain information to create an effect.
Narrative hook	The start of a story which captures the reader's imagination.
Unreliable narrator	When the narrative voice cannot be trusted.

Challenge

Get yourself ready for Year 10. Find out all about ***A Christmas Carol*** and ***Macbeth***.

11. Getting Ready for Year 10

Facts About Charles Dickens.

1. He went to work in a factory at the age of 12 putting labels on to pots of shoe polish.
2. His father went to a debtor's prison.
3. He was a journalist as well as a writer of fiction.
4. Dickens wrote his first novel at the age of 24: *The Pickwick Papers* which was published in monthly installments.
5. Dickens wrote *A Christmas Carol* in 4 weeks.
6. *A Christmas Carol* was first published in 1843.
7. Dickens was a philanthropist. He cared about the welfare of women and the poor.

Facts About Macbeth.

1. King James I was on the throne when Macbeth was written.
2. King James I believed in witches and thought they were a threat to society.
3. The law of primogeniture was not followed in Medieval Scotland, meaning the King's son wasn't necessarily next in line to the throne.
4. Macbeth is widely referred to as 'The Scottish Play' within the theatre community because of the long-held beliefs around superstition and suspected curses.
5. The Weird Sisters never refer to themselves as 'witches'. They are only called Witches in the stage directions.

Performing Arts – Musical Theatre

1. Pop Music Genres

Blues – 1890's

Jazz – 1920's

Swing – 1930's

Rock 'n' Roll – 1950's

British Invasion Music – 1960's

Rock – 1970's

Disco – 1970's

Reggae – 1970's

Dance/Electronica – 1980's

Hip-hop – 1980's

Grunge – 1990's

Dubstep – 2000's

2. Non- Popular Music

Baroque – 1600 – 1750

Classical – 1750 – 1820

Romantic – 1820 – 1900

Impressionism – 1900's

Film Music – 1920's

Expressionism – 1920's

Serialism – 1930's

Minimalism – 1960's

Folk Music

World Music

3. Compositional Features

Melody – The main tune of a piece. The way the notes are organised in a linear way.

Harmony – The effect created by playing two or more notes together (e.g. Chords).

Rhythm – The length of notes, phrases and the placing of accents in pieces.

Tonality – This describes the tonal centre, or key, a piece of music is in. E.g. Major or Minor.

Structure – The way music is organized in sections and how each of these sections are organized.

4. Sonic Features

Instrumentation – The instruments used in a piece of music.

Texture – The layers of sound heard in a piece of Music

Timbre – The different way sounds are created by the instruments used. E.g. A violin can be played with the bow or pizzicato. These create two different effects.

By changing the sonic features you do not change the fundamental essence of the piece.

5. Instrumentation

Instrumentation – a list of the instruments used in a piece.

Examples of typical band layouts –

***Rock band* –** Electric guitars (2 – one rhythm one lead), Bass guitar, Drums, Vocals

***Additional instruments* – Organ, Piano, Synth**

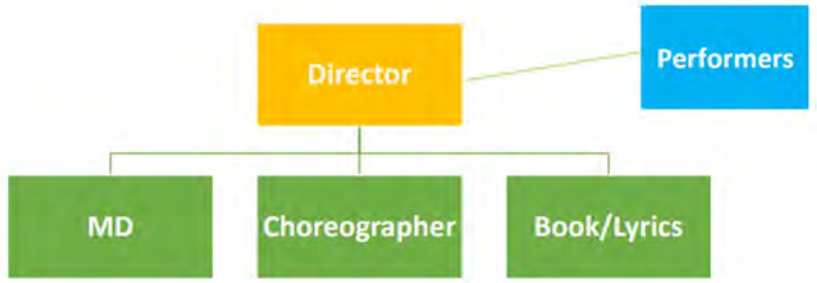
***Folk Band* –** Acoustic guitar, Bass/Double Bass, Accordian, Fiddle, Banjo, Percussion, Vocals

6. Musical Theatre

Musical Theatre - A type of Theatre performance that uses Acting, singing and dance.

Grease **-** Inspired by 1950's Rock 'N' Roll, Grease is a stage Musical from the 1970's that shot to fame following the Movie starring Olivia Newton-John and John Travolta.

The Creative Team



This team is responsible for making sure that all aspects of the performance on stage meet the directors' creative intentions

The Design Team

This team is responsible for making sure that all aspects of the design elements on stage meet the directors' creative intentions.

7. Grease – Characters 1

- **Sandy Dumbrowski:** The new, wholesome girl in town.
- **Betty Rizzo:** The tough, sarcastic leader of the Pink Ladies.
- **Frenchy:** A dreamy Pink Lady who drops out of beauty school.
- **Marty:** The "sophisticated" Pink Lady.
- **Jan:** A funny, food-loving Pink Lady.

8. Grease – Characters 2

- **Danny Zuko:** The leader of the Burger Palace Boys, confident and cool.
- **Kenickie:** Danny's best friend and second-in-command of the gang.
- **Doody:** The youngest, enthusiastic member of the Burger Palace Boys.
- **Roger:** The Burger Palace Boys' resident "moonor".
- **Sonny Latierri:** A loudmouth, comedic member of the gang.

Did you know: The Burger Palace Boys were renamed the T-Birds for the Movie version of Grease!

9. Grease – Characters 3

Supporting Cast

Miss Lynch: The strict, no-nonsense English teacher.

Vince Fontaine: A slick, fast-talking radio DJ.
Cha-Cha (Charlene Digregorio): The best dancer at St. Bernadette's.

Eugene Florczyk: The nerdy, bullied class valedictorian.

Patty Simcox: A bubbly, high-achieving cheerleader.

Teen Angel: Frenchy's guardian angel who sings "Beauty School Dropout".

Johnny Casino: A rock-and-roll performer at the school dance.

10. Themes 1

Rebellion and Youth Subculture: As a "1950s rock-and-roll musical," the show focuses on the "greaser" subculture, representing a rejection of adult authority, conformity, and mainstream society.

Identity and Transformation: A core theme is defining one's identity, particularly through the lens of peer pressure. It explores the conflict between acting "proper" and giving in to social pressures to conform to a group (like the Pink Ladies or Burger Palace Boys).

Class Consciousness and Conflict: The characters are portrayed as working-class youth in Chicago, with the storyline featuring clashes with rival gangs (the Flaming Dukes) and an underlying tension regarding their future prospects.

11. Themes 2

Love and Peer Pressure: The central romance between Danny and Sandy is used to highlight the struggle of balancing personal feelings with the need to maintain a "tough" reputation.

Nostalgia vs. Reality: The original stage show acts as a satire of the 1950s, contrasting the idealized, "innocent" memory of the decade with the gritty, rowdy reality of teenage life.

The Power of Rock and Roll: Music is treated as a form of cultural independence and a direct expression of teenage angst and energy, setting them apart from the older generation.

Mathematics

1. Fractions 1

19n *Cancelling fractions* down to *lowest terms*

Cancel these down to lowest terms

(a) $\frac{14}{18}$ ÷2 → $\frac{7}{9}$ (÷2 ↓)

(b) $\frac{21}{36}$ ÷3 → $\frac{7}{12}$ (÷3 ↓)

(c) $\frac{20}{45}$ ÷5 → $\frac{4}{9}$ (÷5 ↓)

(d) $\frac{84}{126}$ ÷2 → $\frac{42}{63}$ ÷7 → $\frac{6}{9}$ ÷3 → $\frac{2}{3}$ (÷2 ↓ ÷7 ↓ ÷3 ↓)

14 and 18 are both in the **2 times table**

Tables to try: **2, 3, 5, 7, 11, 13, ⋮**

Take as many steps as you need

25n Find a *fraction of an amount*

Find $\frac{5}{6}$ of 30

Finding $\frac{1}{6}$ $30 \div 6 = 5$ ← Divide the number by the ***denominator***

Finding $\frac{5}{6}$ $5 \times 5 = \underline{25}$ ← … then multiply the answer by the numerator

Find $\frac{2}{7}$ of 28

Finding $\frac{1}{7}$ $28 \div 7 = 4$

Finding $\frac{2}{7}$ $4 \times 2 = \underline{8}$

2. Fractions 2

48n Find a fraction of a fraction and *multiply Fractions*

Work out: $\frac{3}{8} \times \frac{5}{7} = \frac{15}{56}$

*Multiply the **numerators** (3 x 5 = 15)*

*Multiply the **denominators** (8 x 7 = 56)*

Find: $\frac{2}{9}$ of $\frac{5}{6}$

'of' means multiply

*You need to **cancel** where possible*

$= \frac{2}{9} \times \frac{5}{6} = \frac{10}{54}$

$= \frac{5}{27}$

$\frac{10}{54} = \frac{5}{27}$ (÷2 ↓ ÷2)

50n *Divide Fractions*

$\frac{4}{5} \div \frac{1}{3}$

Change to a multiply

Each time we use
1. Keep
2. Change
3. Flip

Keep the same

Flip the fraction

$\frac{4}{5} \div \frac{1}{3}$

Now multiply

$\frac{4}{5} \times \frac{3}{1} = \frac{12}{5} = 2\frac{2}{1}$

$3 \div \frac{3}{4}$

3 is the same as $\frac{3}{1}$

$\frac{3}{1} \div \frac{3}{4}$

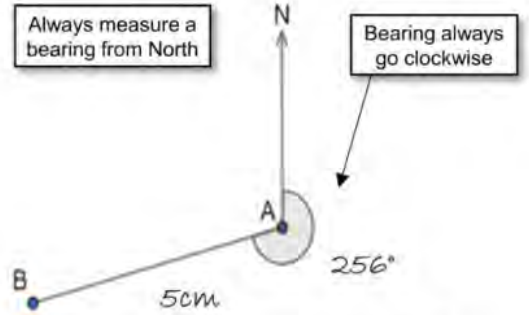
Keep | Change | Flip

$\frac{3}{1} \times \frac{4}{3} = \frac{12}{3} = \underline{4}$

3. Accurate Drawings

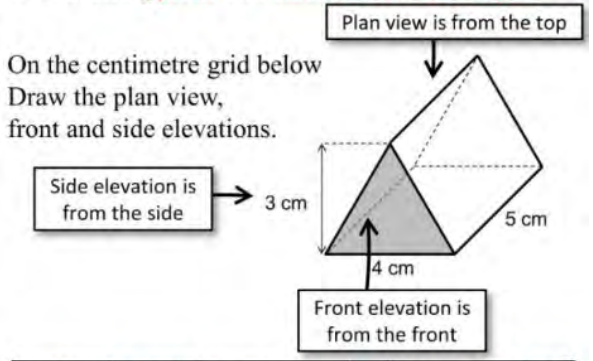
45s Reading and using *bearings*

Point B is 5km away from point A on a bearing of 256°. Using a scale of 1cm= 1km draw point B



47s Drawing *plans* and *elevations* of *3D shapes*

On the centimetre grid below
Draw the plan view,
front and side elevations.

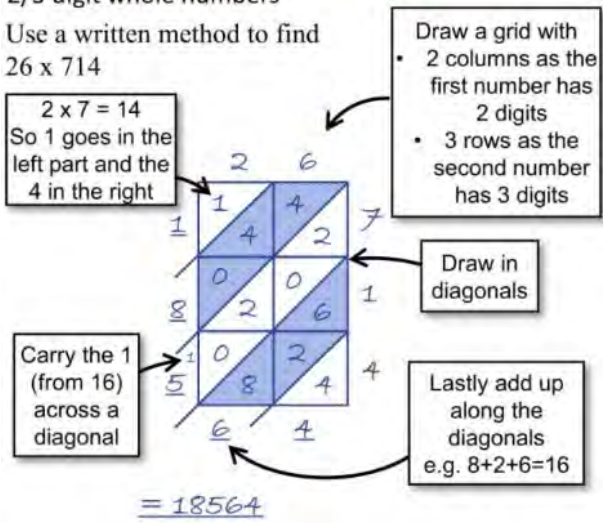


Mathematics

4. Number 1

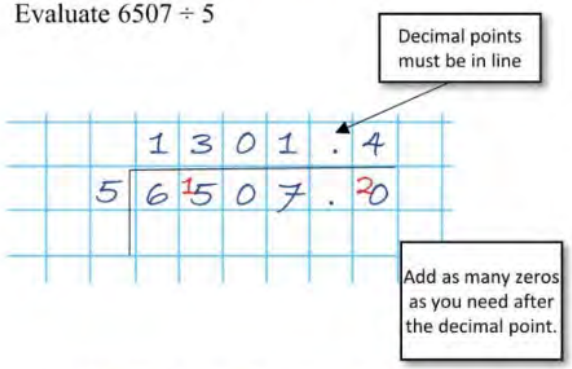
23n Use a ***written method of multiplication*** with 2/3 digit whole numbers

Use a written method to find 26 x 714



28n Use a ***written method of division*** and utilising ***remainders*** to give an ***accurate*** or ***approximate*** answer.

Evaluate 6507 ÷ 5



6507 ÷ 5 = 1301.4

5. Number 2

37n ***Multiplying*** and ***dividing integers***

Calculate the following

(a) 5 × (-2) = -10

One is positive and one is negative so the answer is NEGATIVE

Same signs POSITIVE
++ → +
- - → +

Different signs NEGATIVE
+ - → -
- + → -

(b) -15 ÷ (-3) = 5

15 ÷ 3 = 5 and they are both negative so the answer is POSITIVE

(c) -2 × (-5) = 10

Both are negative so the answer is POSITIVE

(d) -24 ÷ (+8) = -3

24 ÷ 8 = 3 and one is positive and one is negative so the answer is NEGATIVE

33n Evaluating ***powers*** and ***roots*** and identifying ***square*** or ***cube numbers***

Evaluate the following

(a) 9^2 = 9 × 9 = 81

To square a number multiply it by itself.

(b) 7^3 = 7 × 7 × 7 = 343

To cube a number multiply it by itself 3 times.

(c) $\sqrt{100}$ = 10

(d) $\sqrt[3]{64}$ = 4

To square-root or cube-root is the opposite of squaring and cubing.

$1^2 = 1 \times 1 = 1$
$2^2 = 4$
$3^2 = 9$
$4^2 = 16$
$5^2 = 25$
$6^2 = 36$

These are the first 6 square numbers

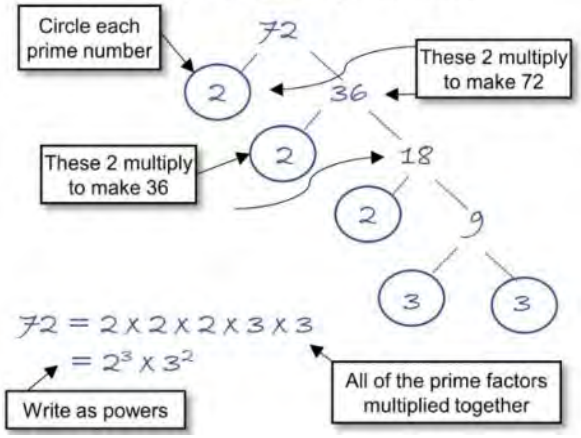
$1^3 = 1 \times 1 \times 1 = 1$
$2^3 = 8$
$3^3 = 27$
$4^3 = 64$
$5^3 = 125$
$6^3 = 216$

These are the first 6 cube numbers

6. Number 3

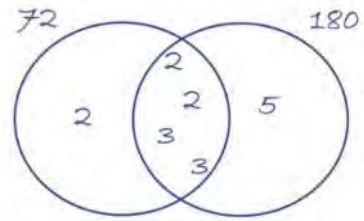
53n Write a number as ***a product of primes*** using a ***factor tree*** and know that this product is unique

Write 72 as a product of its prime factors



54n Using a ***Venn diagram*** with ***prime factors*** to evaluate ***HCF*** of bigger numbers.

Given that:
72 = 2 x 2 x 2 x 3 x 3
180 = 2 x 2 x 3 x 3 x 5
Find the Highest Common Factor of 72 and 180



HCF = 2 x 2 x 3 x 3 = 36

HCF is all of the numbers in the middle multiplied together

Mathematics

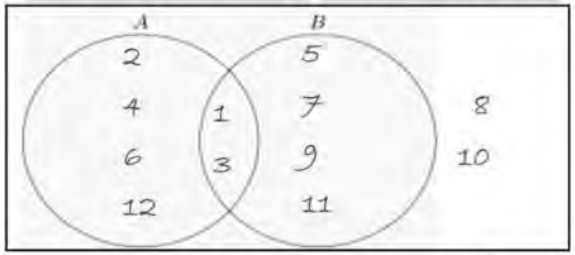
7. Number 4

46d Sort ***sets*** of numbers into a ***Venn diagram***

Set A contains factors of 12. Set B contains odd numbers. Put the numbers 1 – 12 in the Venn diagram.

Numbers where both apply go in the middle (the intersection)

Numbers where neither apply go on the outside

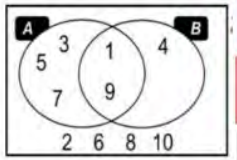


Numbers that only apply to 1 go in the section but NOT the intersection

61d Use ***set notation*** including **{ }**,**A'**, **Ø**, **∩** and **U** to refer to ***Venn diagrams***

For this Venn diagram write down these sets

(a) A ∩ B (b) A U B (c) A'



A ∩ B means things in *A* ***and*** *B* (*Intersection*)

A U B means things in *A* ***or*** *B* (*Union*)

A' means things ***not*** in *A* (*Complement*)

(a) $A \cap B = \{1, 9\}$

(b) $A \cup B = \{1, 3, 4, 5, 7, 9\}$

(c) $A' = \{2, 4, 6, 8, 10\}$

8. Number 5

57n Converting ***large numbers*** to and from ***standard from***

(a) Write these in standard form:

There are 4 digits after 6

(i) 60 000 $= 6 \times 10^4$

Must be between 1 and 10

(ii) 756 000 000 $= 7.56 \times 10^8$

(b) Write these as normal numbers

(i) $4 \times 10^6 = 4\,000\,000$

Multiply 4 by 10 six times

(ii) $3.456 \times 10^4 = 34\,560$

Multiply 3.456 by 10 four times

9. Number 6

63n Converting ***small numbers*** to and from ***standard form***

Write 1.4×10^{-6} as an ordinary (decimal) number

Start with the decimal

1.4 × 10⁻⁶

1.4

0.0000014

...now move the decimal point. The index part is -6 so move 6 places **left**, filling in with zeros

Write 0.00056 in standard form

First find the number at the start, it must be less than 10

0.00056

5.6

5.6×10^{-4}

...then work out how many times the decimal point needs to move to make it 5.6 and that is the index.

10. Algebra 1

40a ***Expand*** single ***brackets***

Expand $4(3x + 5)$

Expand means to multiply out the brackets

$4 \times 3x = 12x$

$4 \times 5 = 20$

$12x + 20$

Expand $3x(2x - 7)$

$3x \times 2x = 6x^2$

$3x \times -7 = -21x$

$6x^2 - 21x$

11. Algebra 2

42a Solve ***equations*** with ***brackets***

Solve $4(3y + 5) = 44$

Expand (multiply out) the brackets. Revisit **40a** if you need a worked example.

$4(3y + 5) = 44$

$12y + 20 = 44$

-20: $12y = 24$

$\div 12$: $y = 2$

Balance the equation by using **inverse** operations. Revisit **32a** if you need a worked example.

Solve $2(20 - 2f) = 45$

$2(20 - 2f) = 45$

$40 - 4f = 45$

-40: $-4f = 5$

$\div -4$: $f = -\frac{5}{4}$

A common error is forgetting that it is $-4f$ not $4f$.

Drama

1. Overview of T.I.E

What is Theatre in Education? – A drama performance that educates the audience.

Target Audience – The main type/group of audience that a performance is aimed towards.

T.I.E performances are normally targeted towards children, parents and staff.

T.I.E often explores **issues** from various viewpoints, so we can see the effect of an action upon different people.

2. Effective Techniques

Direct Address – Talking to the audience directly asking them questions.

Narration – Storyteller. Could be a character in the story, or a non-related narrator.

Audience Participation – Interaction with the audience, getting them involved in parts of the performance.

Stereotypes – A relatable character so the audience can easily understand the point of them.

Placards and Statistics – Giving the audience visual guides to understand facts about the topic of a performance.

3. T.I.E

The Belgrade Theatre (Coventry) were the first to create this idea in the 1960's. They continue to create T.I.E, allowing young people to investigate and interact with challenging issues safely.

T.I.E was used as a new way to **educate** audiences about social issues and topics, using drama as a tool to explore issues relevant to the **age** of the audience.

Many actors work on Theatre in Education **projects**. They often **tour** their performances locally and nationwide.

4. Balancing the Purpose

Entertainment vs Learning

During a performance, you must make the story clear and engaging enough for your audience to pay attention.

The reason why you are hired is for you to **educate** the audience on the topic.

Episodic Scenes - Smaller scenes that can stand alone.

Pathos – Making the audience feel emotional towards the topic.

Relevant Topic — Something sensitive that could affect the Target Audience.

Strong Message — A clear aim and educational objective running throughout.

Drama

5. Creating T.I.E.

1. Decide on the **target audience** (e.g. How old are your audience?)
2. Decide on the **topic** of the scene (e.g. What theme do you want to explore?)
3. Agree the key **message/educational information** (e.g. What do you want the audience to learn?)
4. Next, **research** the topic. (e.g. statistics, facts, misconceptions).
5. Decide a **location** and **period**
6. Rehearse your performance **one scene at a time**. (Improvisation, brainstorming, hot seating). Consider using flashbacks, split stage or placards.
7. Audience **participation** (Think about how you can get your audience involved) Answering questions, challenging a character's decision, offering an alternative ending.

6. Forum Theatre and Augusto Boal

Augusto Boal (a Brazilian Theatre Director) developed 'Forum Theatre' during the 1960s. He made sure Drama could be performed by non-actors.

Forum Theatre Audience members are allowed to stop the action and make suggestions as to what the character could do. The scene is replayed several times with different audience members' suggestions being tried until the problem is successfully resolved.


7. Stage Combat

Stage combat is a specialised technique in theatre designed to create the illusion of physical combat without causing harm to the performers. It is employed in live stage plays as well as operatic and ballet productions.


8. The Golden Rules

1. Listen to and follow all **instructions** at all times.
2. If teacher shouts '**Freeze**' at any time you must stop what you are doing and sit down.
3. Always **respect** and take care of your partner at all times.
4. Always **test distance** between yourself and partner before trying a move. (minimum distance outreached hand span)
5. Use **eye contact** as the signal to start.


Drama

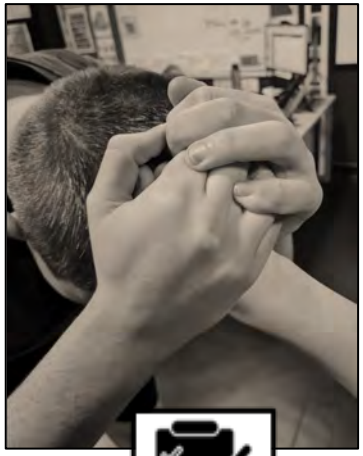
9. Hair Pull & Ear Pull

Attacker:

1. Closed fist on top of the victim's head
2. Be led by the Victim.
3. Look aggressive.
4. Shout and sound angry.

Victim:

1. Place hands over the Attacker's fist
2. Bend over and move around, leading the movement.
3. Shout and sound in pain.



10a. Slap & Punch

Attacker:

1. Slap your own hand (slap effect)
2. Slap the Victim's hand (punch effect)
3. Look aggressive.
4. Shout and sound angry.

Victim:

1. Raise your hands to your face to cover it when the slap happens (slap + punch effects)
2. Lean and turn in the direction of the 'force'.
3. Shout and sound in pain.

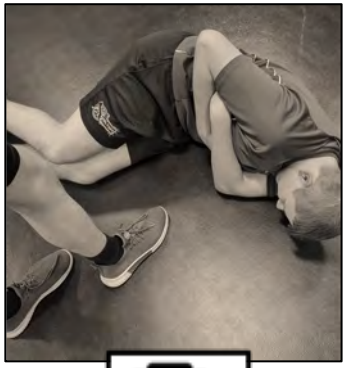
10b. Floor kick (stomach)

Attacker:

1. Stamp on the floor about 30cm from the Victim
2. Retract your foot quickly.
3. Look aggressive.
4. Shout and sound angry.

Victim:

1. Lay on one side, with your hands up defensively
2. Curl into a ball quickly
3. Look aggressive.
4. Shout and sound in pain.



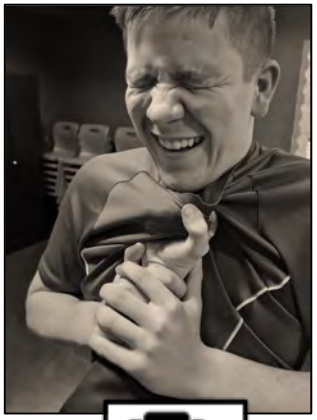
11a. Playing the victim

The audience only believes that the combat is real if the **Victim** is acted well.

Use:

Facial expression
Shouting
Screaming
Crying
Fearful dialogue

Act weaker as the fight goes on, acting the pain the character is in.

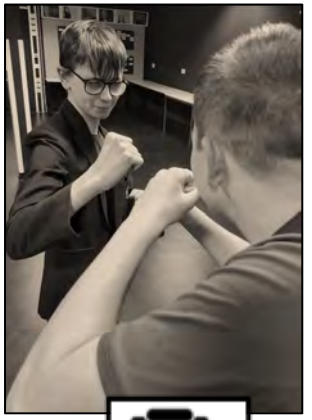


11b. Fight Scene

Create a fight scene by **combining** and mixing the techniques you have learned.

Practice in slow motion, getting gradually faster as you memorize the sequence.

Add dialogue and pauses for greater effect.



Science – Biology

1. Photosynthesis

producer: a photosynthetic organism that makes its own food and is at the start of all food chains.

consumer: an organisms that eats other organisms.

What type of organism is at the start of every food chain?	A producer
What is process by which producers make their own food?	Producers make their own food through photosynthesis
What do plants use their food for?	Respiration and Growth

What is photosynthesis?	Photosynthesis is the chemical process plants use to make their own food
What are the reactants in photosynthesis?	Carbon Dioxide and Water
What are the products of photosynthesis?	Glucose and Oxygen

2. Photosynthesis and leaf starch test

Iodine: an indicator solution that changes from orangey-brown to blue-black when starch is present.

Photosynthesis: a chemical process which green plants use to make their own food

Organelle: parts of a cell (e.g mitochondria, chloroplasts, vacuole, ribosomes, nucleus

Chloroplasts: the organelles in green plants that carry out photosynthesis.

Chlorophyll: the green pigment that absorbs light energy needed for photosynthesis.

Photosynthesis equation:

REACTANTS **PRODUCTS**

carbon dioxide + water → glucose + oxygen

Where does the energy come from to allow photosynthesis to happen?	Light
Why are plant leaves green?	Leaves contain lots of chloroplasts which contain green chlorophyll

3. Respiration

Respiration: a chemical process that takes pace in the mitochondria of cells and releases energy from food.

Respiration equation:

REACTANTS **PRODUCTS**

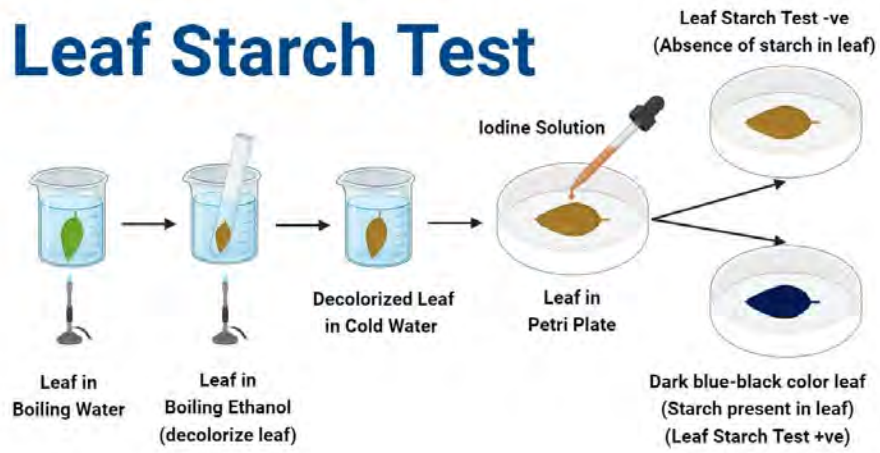
glucose + oxygen → carbon dioxide + water

Which organelle is responsible for carrying out respiration?	Mitochondria
How is the number of mitochondria linked to the energy demands of the cell?	The greater the energy demand, the greater the number of mitochondria in the cells

4. Moving energy and biomass through food chains

biomass: the mass of living or once living material in a food chain (organic matter).

How is biomass transferred within a food chain?	Biomass is transferred when one organism consumes another and uses that energy
What type of organism is at the start of every food chain?	Producer



Science – Chemistry

5. Rates of Reaction

Reactions happen at **varying rates**. For example, a firework exploding is a fast reaction whereas a piece of iron rusting would take place over a longer period of time.

The **rate of a chemical reaction** tells us how quickly a **product is formed** or how quickly a **reactant is used up**.

For a chemical reaction to occur, the reactant particles must collide with enough energy.

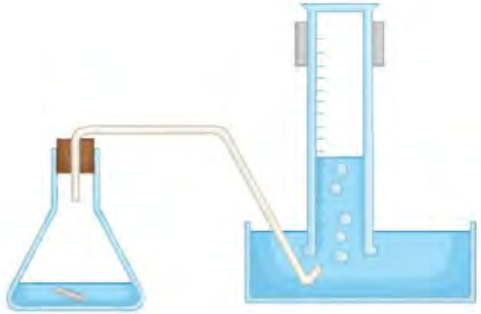
Those collisions that produce a chemical reaction are called successful collisions.

6. Measuring Rates using Volume

$$\text{mean rate of reaction} = \frac{\text{quantity of reactant used}}{\text{time taken}}$$

$$\text{mean rate of reaction} = \frac{\text{quantity of product formed}}{\text{time taken}}$$

Use a gas syringe of upturned measuring cylinder (below) to measure the volume of a gas being produced in a certain amount of time.



units = cm^3/s or cm^3/min

7. Measuring Rates using Mass

The changing mass of a reaction mixture can be measured during a reaction. This method is particularly useful when gases, such as carbon dioxide, are given off. **Gas escapes during the reaction and the mass of the reaction mixture decreases.**

units = g/s or g/min

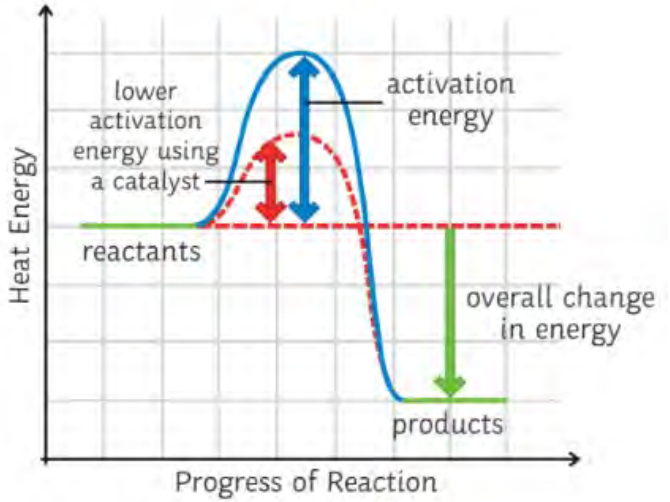
Challenge!

Write a method describing how you can use the equipment above to measure the rate of a reaction

8. Factors Affecting Rate of Reaction

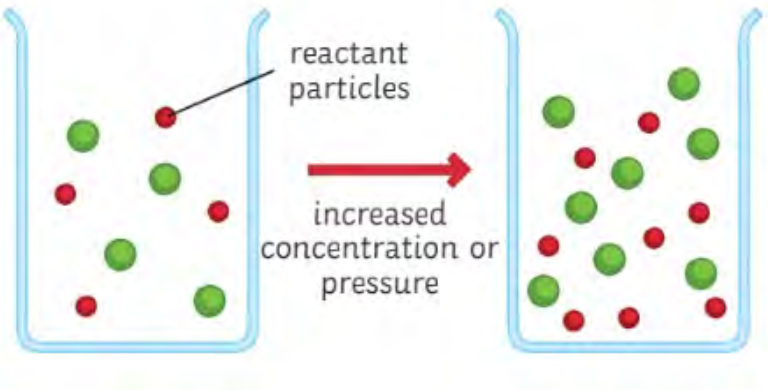
- Concentration and pressure
- Presence of a catalyst
- Surface area
- Temperature

Using a catalyst provides an alternative reaction pathway with a lower activation energy



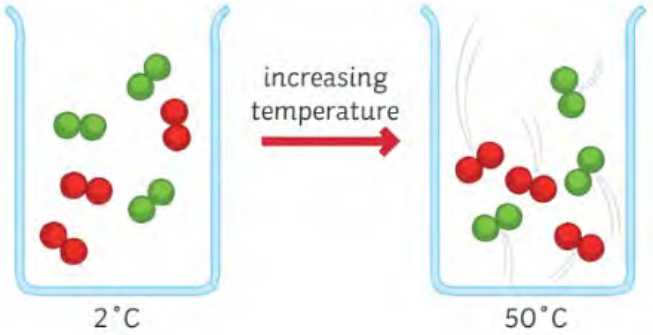
9. Concentration and Pressure

Increasing concentration or pressure causing more particles to be in a given space. This means there will be **more frequent successful collisions** between particles.



10. Temperature

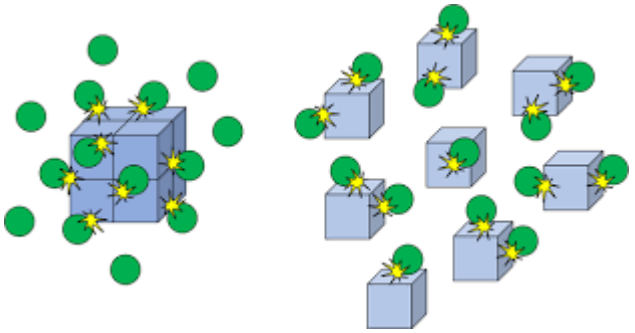
Increasing temperature causes particles to move faster **and** collide with more energy. This results in **more frequent successful collisions**.



Challenge!
Research the Haber Process. What does this process produce and what reaction conditions are used to maximise the rate of reaction?

11. Surface Area

When a solid is crushed its surface area is increased. This means that there is a greater **surface area to volume ratio**. A larger area of solid is now exposed to the reactant resulting in **more frequent successful collisions.**



PE

1. Types of Practice

Whole Practice - When a whole skill Is performed. For example, completing the triple jump in one motion.

Part Practice - When a skill is broken down in different sections. For example, practicing the 'hop' phase in the triple jump.

Variable Practice - When a skills is practiced in a range of different scenarios that a performer could experience. For example, adding defenders into a passing practice and allowing them to pressurize.

Fixed Practice - When a specific skill or technique is repeatedly practiced in the same way. For example, throwing the ball in a lineout.

2. Analyzing practice methods

Video analysis - Video analysis allows athletes to examine performance in order to improve skills and prevent injury. Video analysis allows you to catch small details & techniques that are often missed when watching a player live.

Other Assistive Technologies -
Examples of technology:
- GPS Trackers
- Heart Rate monitors

These type of trackers can be used in order to give the performer a detailed overview of how they have performed.

Monitoring of Competitive Results -
Where competition results and statistics are monitored to analyse performance of teams &/ or individuals.
Examples are:
- Goals scored/ conceded
- Most tackles made
- Possession statistics
- Assists

3. Types of leadership

Different leadership roles and opportunities in sport (e.g. captains, managers, teachers, coaches, expedition leaders, role models)

Role-related responsibilities (e.g. knowledge of activity, enthusiasm for activity, knowledge of safety, knowledge of child protection issues, knowledge of basic first aid)

Personal qualities which relate to leadership roles (e.g. reliability, punctuality, confidence, communication, creativity)

Leadership styles
Democratic Makes joint decisions with others. Listens to opinions of others but who. More relaxed. Delegates jobs.
Autocratic Makes all the key decisions. Give lots of instructions. Authoritative.
Assertive. No nonsense. Want tasks completed fast.
Laissez-faire Leaves the decision making and main responsibilities to others e.g. players, assistant coach, captains etc.

4. Planning a sports Activity session

Key considerations when planning sports activity sessions

Appropriate venue (e.g. type, size, indoor/outdoor)

Equipment needs (e.g. type, size/weight, arrangements)

Supervision needs (e.g. additional leaders, roles, number of participants)

Timing of activities (e.g. related to age, experience of participants, weather)

Introduction/conclusion of session (e.g. how, when, where?)

Basic warm up/cool down (e.g. physical and mental preparation relevant to age of participants and the activity)

Skills and technique development (e.g. appropriate activities/ structure of session)

PE

5. Warm up and cool down

Warm-up

A warm up need to include four parts:

- Gradual pulse raising
- Stretches
- Skill based practices
- Mental preparation

Benefits

- Increases body temperature
- Increases range of movement
- Psychological preparation
- Injury prevention

Cool down

- Maintain elevated breathing and heart rate
- Gradual reduction in intensity
- Stretching

Benefits

- Allows the body to recover
- Removal of Lactic acid & CO_2 Prevents Delayed Onset of Muscle Soreness (DOMS)

6. Factors to include in a sports session

Safe practice, i.e. organisation of group/activity

Safe supervision (e.g. as a leader, coach)

Delivery style, i.e. proactive/Reactive

Demonstration/explanation,

Communication skills, i.e. verbal/non-verbal

Appropriate language

Technical terms

Motivation techniques, i.e. Encouragement

Extrinsic motivators (e.g. rewards, prizes)

7. Being able to deliver a sports session

Activity-specific knowledge, i.e. appreciation/understanding of current techniques and tactics which are appropriate to the requirements of the performers

Adaptability, i.e. making adjustments in an activity that isn't working, addressing issues you hadn't prepared for

Organisation (e.g. size/make up of working groups, size of working areas, length of warm up/drills, timing to prevent boredom, allowing progression)

Safety considerations when planning sports activity sessions, i.e.
Risk assessments (e.g. facilities, equipment/clothing checks, activity-
specific risks) -corrective action (e.g. wiping up puddles, removing litter, reporting faulty equipment.)

8. Evaluating a sports session

Key aspects to consider is evaluating planning and delivery of a sports activity session, i.e. what went well?

Against the plan (e.g. was the order of activities effective?

Against the delivery (e.g. did I keep everyone motivated?)

What did not go well?

Against the plan (e.g. did I consider an appropriate number of activities?)

Against the delivery (e.g. was the group listening to me?)

What could be improved for the future?

Against the plan (e.g. were the group's objectives met?)

Against the delivery (e.g. could I position myself better when communicating with the group?)

PE

9. Leadership skill

Skills you need as a leader include;

- Organizational skills
- Communication skills, Verbal and Nonverbal and a good listener.
- Good knowledge of the activity
- Knowledge of Rules and regulations.
- Show respect
- Have good behaviour management
- Able to plan and structure activities
- Be able to evaluate performance

10. Leadership skills

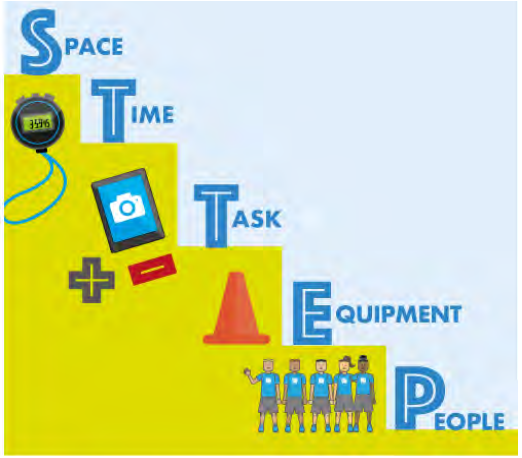
- Provide constructive feedback to participants
- Giving Feedback to learners
- Positive feedback: What's good or correct about performance
- Advantage: Motivating, highlights success
- Negative feedback: What's bad or incorrect about performance
- Advantage: Enables coach to provide guidance on how a skill can be performed better, helps performer to priorities

11. Differentiation of lessons

Differentiation is adapting the session to meet the needs for the people you are teaching/coaching.

To do this you can use the step principle. The first two parts are;

- S - SPACE – make the space bigger or smaller to challenge. E.g. Learning grids and channels (1v1, 2v1, 3v2, 5v3)
- T - TASK – Use different levels of task or expected outcomes Students either as individuals or groups are given different tasks/starting points based on prior attainment/experience.
- T - Time – Increasing or decreasing the amount of time to given to complete a task.
- E - EQUIPMENT – Size or weight of equipment Students are set a common task but are given different resources, depending on ability and confidence
- P - PEOPLE – Change the numbers Students have a common task to complete but are grouped in a way that ensures success for all. Able children can sometimes be grouped with peers of similar ability and expected to perform at higher levels or given the role of leader in supporting less able

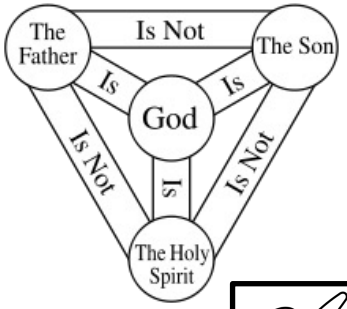


Challenge!

Plan a session for a skill in a sport of your choice. Include warm up, skills activity (with progression) and a conditioned game.

RPE

1. The Trinity



2. Christian Denominations

Denominations - Different branches/groups of the same church.

Catholic church - This was the original Christian church in Europe.

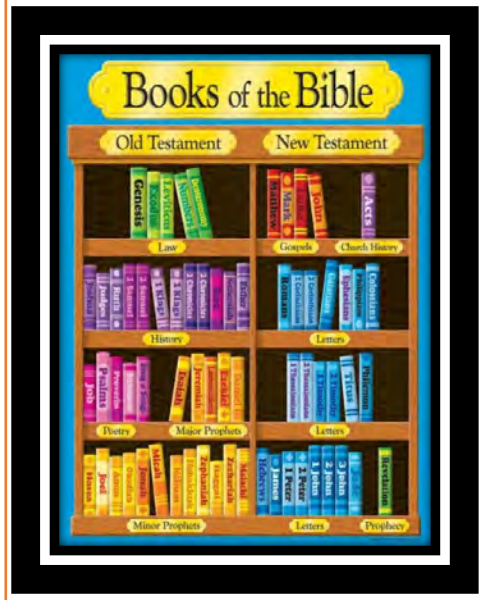
Protestants - People who broke away from the Catholics to form their own type of Christianity.

Reformation - the name for the breakup of the church.

3: Interpreting the Bible

Some Christians believe the Bible exactly as it is written. They take the Bible literally.

Other Christians believe that the Bible are stories that can be used to interpret messages from God. They take a liberal view of the Bible.



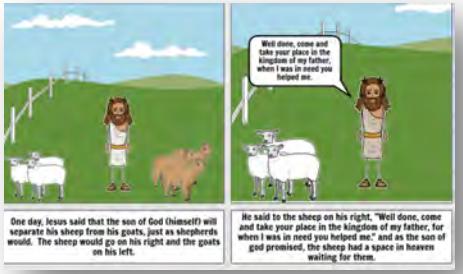
4: Heaven and Hell

Heaven: A state of eternal happiness in the presence of God.

Hell: The place of eternal suffering without God.

Purgatory: The state where the soul are cleansed in order to enter heaven.

Satan: Name for the Devil – the power and source of evil.



5: Christian persecution.

Religious persecution is the systematic mistreatment of an individual or a group of individuals as a response to their religious beliefs.

The persecution of Christians can be historically traced from the first century of the Christian era to the present day. Christian missionaries and converts to Christianity have both been targeted for persecution.

Challenge – Why were Christians being persecuted?

6: Heresy

Heresy is any belief or theory that is strongly at variance with established beliefs/contrary to the Christian doctrine.

RPE

7. Catacombs

Another advantage of the catacombs was that Christians could hide in them and hold meetings there during the period of persecution. The Roman authorities knew the catacombs existed and they probably knew that Christians were meeting there. However, Roman soldiers were not keen on going into – and perhaps getting lost in – dark tunnels filled with bodies.

In the first three centuries CE, people were often cremated (their bodies were burned) after death. Christians believed that they would be resurrected, so they wanted to be buried rather than cremated. They were not allowed to use land in Rome for their burials, so they used a 560-kilometre network of tunnels and caves beneath the city. These underground passages are known as the catacombs.

8. Nero

Nero, the fifth emperor of Rome, ruled from 54 to 68 CE and is often remembered as one of history's most notorious leaders. His reign saw a drastic shift in the treatment of Christians, particularly following the devastating Great Fire of Rome in 64 CE, which destroyed a significant portion of the city.

9. The Great Schism

The Church became very big. People in different parts of the Roman Empire had interpreted Jesus' words differently, and they all insisted that their interpretation was correct.
The Church split into two groups:
Those in the West based their teachings and ideas on Roman law, under the leadership of the Pope.
Those in the East based theirs on Greek philosophy, under the leadership of a Patriarch.

Challenge – Why did the great schism happen?

10. Constantine

Roman Emperors had mostly ignored or persecuted the Early Church. This changed in 312 CE with Emperor Constantine. Constantine was preparing for a battle against his enemy Maxentius and was worried that he would not win. There were rumours that Maxentius had magical powers. Constantine's mother was a Christian and as a result Constantine prayed to her God for help.

According to some stories Constantine saw a bright cross in the sky after praying. On the cross were the words 'conquer by this'. Inspired by this sign Constantine sent his army into battle carrying a cross. Constantine's army won the battle. Constantine thought that he had won thanks to the Christian God and consequently converted to Christianity.

11a. Edict of Milan

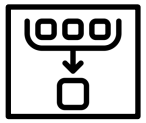
The Edict of Milan, issued in 313 AD by Roman Emperors Constantine and Licinius, legalized Christianity and established religious freedom across the Roman Empire. It ended centuries of government-sanctioned persecution, ordered the return of confiscated church property, and established the "Peace of the Church," enabling Christianity to flourish publicly.

11b. Reformation

One of the Leaders of the Reformation was Martin Luther, a German monk. He believed that the Catholic Church had strayed from the teachings of the Bible. To draw attention to this issue, in 1517 CE he nailed a list of 95 theses (complaints) to the door of his church in the town of Wittenberg.

D&T : Papers and Boards (CAD/CAM)

1. Keywords spelling/definition test.

2D design	Techsoft 2D Design: This is a versatile CAD software widely used in UK schools for creating detailed 2D technical drawings and graphical designs, known for its ease of use and integration with various CAM machines.
TinkerCAD	Tinkercad: A free, web-based application by Autodesk that allows users to create 3D designs, electronics, and coding projects, making it ideal for beginners and educational purposes
Sketchup 	<u>Computer Numerical Control</u> (CNC) SketchUp: A popular 3D modeling software used in architecture, interior design, and engineering, offering both free and professional versions to cater to hobbyists and professionals like

2.Aerodynamics

Aerodynamics is the way objects move through air. The rules of aerodynamics explain how an airplane is able to fly. Anything that moves through air is affected by aerodynamics, from a rocket blasting off, to a kite flying. Since they are surrounded by air, even cars are affected by aerodynamics.

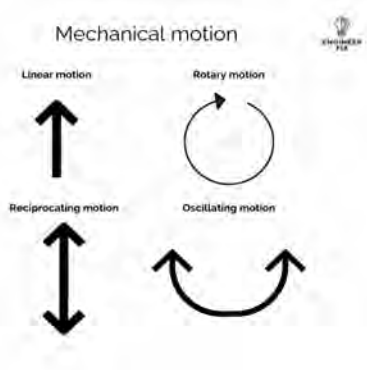
The four forces of flight are lift, weight, thrust and drag. These forces make an object move up and down, and faster or slower. The amount of each force compared to its opposing force determines how an object moves through the air.

3.Motions

Mechanical devices all have an input motion, which transforms into force to make an output motion. The four types of motion are:

- Linear, rotary, reciprocating, oscillating

Linear motion moves something in a straight line, eg a train moving down a track:
Rotary motion is where something moves around an axis or pivot point, e.g. awheel:
Reciprocating motion has a repeated up and down motion or back-and-forth motion, eg a piston or pump:
Oscillating motion has a curved backwards and forwards movement that swings on an axis or pivot point, eg a swing or a clock pendulum:

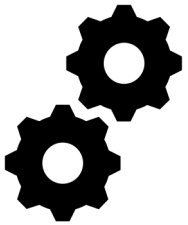


D&T : Papers and Boards (CAD/CAM)

4. Gears

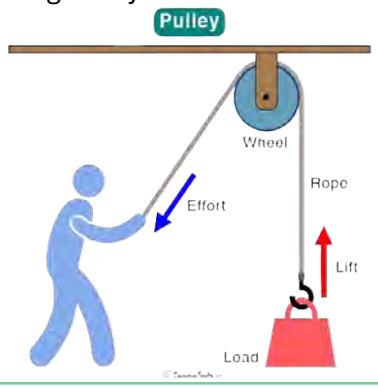
What they are:
Gears are wheels with teeth that fit together.
What they do:
They change speed, direction, or the force of movement.

- A **big gear driving a small gear** makes things go faster.
- A **small gear driving a big gear** makes things more powerful.
- They also **change the direction** of rotation (e.g., clockwise ↔ anticlockwise).



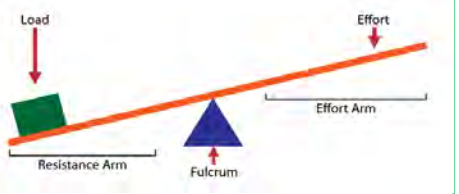
5. Pulleys

What they are:
Pulleys are wheels with a groove for a rope or belt.
What they do:
They help **lift loads more easily** or **change the direction** of a force.
•One pulley: changes direction only.
•More than one pulley: **reduces the effort needed** to lift something heavy.



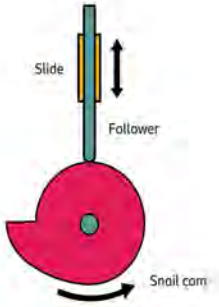
6. Levers

What they are:
Levers are rigid bars that pivot around a point called a **fulcrum**.
What they do:
They make lifting or moving things easier by giving **mechanical advantage**.
There are **three classes** depending on the position of the effort, load, and fulcrum.
Examples:
•**1st class:** seesaw
•**2nd class:** wheelbarrow
•**3rd class:** tweezers



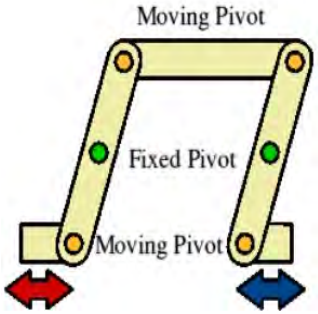
7. Cams

What they are:
Cams are specially shaped rotating pieces, usually used with a **follower**.
What they do:
They **change rotary motion into up-and-down (reciprocating) motion**.



8. linages

What they are:
Linkages are sets of **bars connected by pivot points**.
What they do:
They **transfer movement** from one place to another and can **change the direction, type, or size of movement**.
Examples:
•Scissors (linkage turns small movement into a big cutting action)
•Car windscreen wipers



Design and Technology: Papers and Boards (Graphics)

1.Design Movements

Design movements are different styles of design that influence how products look. In this topic, you will learn about **Bauhaus**, **Memphis**, and **Alessi**.

Bauhaus design is simple and functional, focusing on usefulness rather than decoration.

Memphis design is bright, bold, colourful, and playful, using unusual shapes and patterns.

Alessi design is modern and creative, often adding personality and fun to everyday products.

You should be able to recognise each style and describe their features.

Challenge: Find one product from each design movement and describe its shape, colour, and style.

Bauhaus

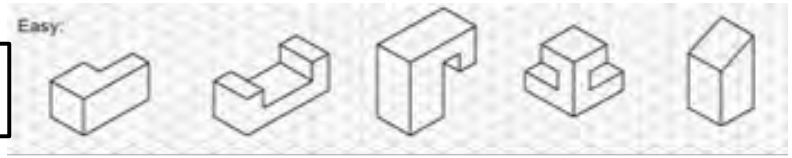
Memphis

Alessi

2. Isometric Drawing

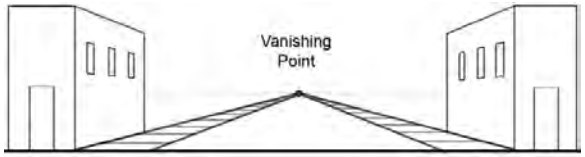
Isometric drawing is a way of showing a 3D object on paper using 30-degree angles, so all sides stay the same scale.

It helps designers show what a product will look like in real life and makes their ideas easier for others to understand. Isometric drawing is important because it keeps shapes accurate and is used in real product and packaging design to communicate ideas clearly and professionally.



3. One-Point Perspective

One-point perspective is used to show **depth and distance** in drawings. It uses one **vanishing point** and a **horizon line**. All lines that go into the distance must point towards the vanishing point. This makes objects look realistic and three-dimensional.



4. Rendering

Rendering means adding **shading and colour** to a drawing to make it look more realistic and professional.

It helps show light, shadow, shape, and material. Good rendering uses light, medium, and dark tones to show where the light is coming from. Think of it like bringing a basic idea to life.

Design and Technology: Papers and Boards (Graphics)

5.Design Developments

Design development means making your ideas better, not just picking the first one. Designers try different ideas, make changes, and improve their designs step by step. They think about how the product works, who it is for, what it looks like, and how it will be used. Good design development shows how an idea changes and improves over time.

You should be able to explain what you changed in your design and why it is better.

Useful sentence starters:

- *I changed the shape/size/material because…*
- *My design is more suitable for the user because…*
- I developed my idea by adding…

Useful key terms:

- Function
- Develop
- Suitable
- Practical
- Efficient

Design 1

Improvement Design 2

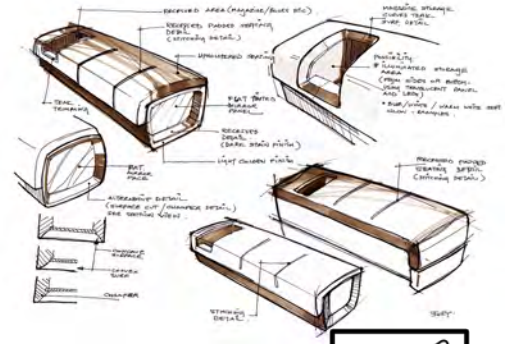
Task: Look at the Design 1 and Improvement Design 2.

This person's task was to design a Memphis inspired chair. How have they improved their work? Why?

6. Concept Sketching

Concept sketches are quick, simple drawings used to explore ideas. They are not detailed and are done in pencil. Designers use them to test shapes and choose the best idea.

Task: Create your own concept sketch for a new chair design. You could take inspiration from one of the design movements we are looking at.



7. Final Design

A final design drawing shows your finished idea clearly. It should show **shape, form, proportion, and function**. It must be neat, clear, and easy to understand. Designers use these drawings to communicate ideas to others.

8. Evaluating a Final Design

Evaluation means judging how good a design is and how it could be improved. Designers explain what works well and what could be better. Using correct design words helps make your answers clear and professional. You need to consider -

- Does the design work well?
- Is it suitable for the user?
- What works well in the design?
- What could be improved and how?

Task: Evaluate your concept sketch so far. How much design terminology can you fit in?

D&T - Textiles

1. Key vocabulary and definitions

Sewing machine: A machine used to sew fabric together.
Seam allowance: Extra material added to a pattern piece that allows the manufacturer to join material together whilst keeping the item the correct size.
Hem: A finishing technique to hide the rough edge and prevent fabric from fraying.
Cotton: A thread or fabric made from the fluffy fibre that grows around the seeds of a cotton plant.
Polyester: A thread or fabric made from recycled plastic bottles.
Polycotton: A woven fabric made from a mix of cotton and polyester.
Pattern template: a flat template, made of paper or card, that is used as the key instruction guide for cutting the separate pieces of a garment. Pattern pieces are traced to allow for size, seam allowance and fit.

2. Product analysis

When creating ideas for a new product a designer will look at similar products that are already on the market. This allows them to identify 'gaps in the market' and features that work/don't work.

A: Aesthetics – This is where you would look closely at the way the product looks, thinking about areas you consider successful and areas you would change.
C: Cost – How much is the product being sold for? Is it a suitable price?
C: Client – All products are created with a specific user in mind – has the designer been successful?
E: Environment – Has the product been made with the environment in mind? Can it be repaired? Recycled? Reused? Etc.
S: Size - How big in the product? Is this size suitable?
S: Safety – Is the product safe to use?
F: Function – What has the product been designed to do? Does it do this successfully?
M: Materials – What has the product been made from? Is it a suitable material? Are their alternatives that would be better?

3. Health and safety

1. Always listen carefully to instructions
2. Walk calmly around the room
3. Do not shout or raise your voice, a quiet room is a safe room
4. If you drop a pin or a needle find it a pick it up! They can hurt your feet!
5. Be careful with cotton spools and trailing threads which can cause a tripping hazard.
6. Do not touch any equipment you have not been given permission to use
7. Keep your work area tidy
8. Keep bags under the table and coats hung over chairs.
9. Keep fingers away from moving parts when using machinery
10. Do not distract others whilst they are using a machine
11. Keep exposed skin away from hot plates – heat press and iron

4. Six R's

As designers it is our responsibility to make sure we are minimizing our impact on the environment. We can do this by considering the 6R's in our design.

Rethink - Be mindful of what you buy.

Refuse - Don't buy something you don't need. Refuse to buy products that cannot be recycled or reused

Reduce - Cut down on the amount of products and services you use

Re-use - Take a product / item and repurpose it for a different item

Repair - Fix, don't replace your products

Recycle - Recycle what you cannot reduce, re-use or repair

5. Polycotton

Polyester-cotton fabric is a blend of natural and synthetic fibres that offer the best of both worlds. The polyester component is wrinkle-resistant, colourfast, and easy to care for, while the cotton lends breathability and comfort. This fabric is often used for shirts, blouses, and casual wear.

There are a few things to remember when shopping for polyester-cotton blend fabric. First, it is less durable than 100% cotton and may pill or shrink over time. Second, it is not as absorbent as cotton, so it might not be the best choice for activewear or hot weather. Overall, the polyester-cotton fabric is a great option for those who want the benefits of both fabrics. It is comfortable, easy to care for, and wrinkle-resistant.

Poly-cotton is a blend of polyester and cotton fabrics. The proportion of each fabric can vary, but most poly-cotton fabrics are 50% polyester and 50% cotton. This blend combines the best properties of both fabrics, resulting in a strong, durable, soft and comfortable fabric.

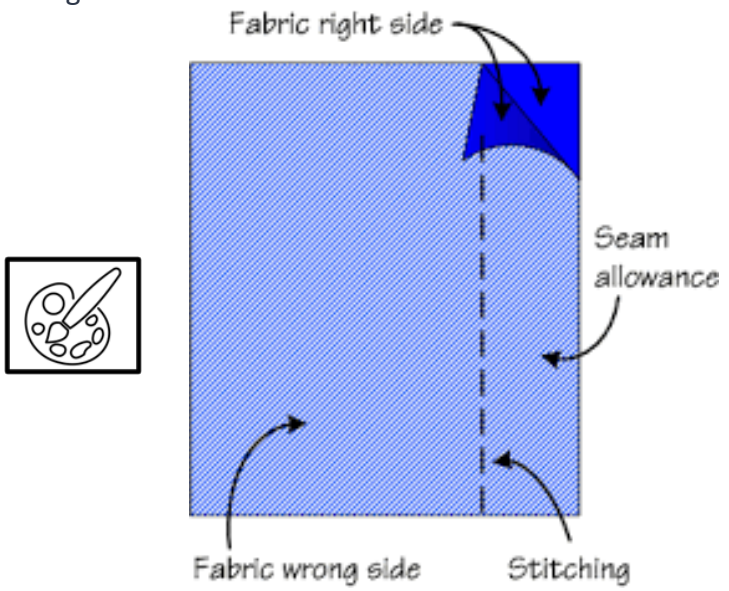
Polyester is a synthetic fabric known for its strength and resistance to wrinkles. Cotton is a natural fabric that is known for its breathability and absorbency. When these two fabrics are blended, the resulting fabric is strong, wrinkle-resistant, breathable and absorbent.

Poly-cotton fabrics are often used in clothing, bedding, and upholstery. Clothing made from poly-cotton is often easy to care for, as it does not require special care to prevent wrinkles. Bedding and upholstery made from poly-cotton are also durable and long-lasting.

Poly-cotton fabrics are available in a variety of colours and patterns. This fabric is often used in garments meant to be worn for casual or everyday occasions. Poly-cotton is also a popular fabric for making children's clothing, as it is durable and can be machine-washed.

6. Seam allowances and hems

Seam allowance is the extra fabric between the seamline and the edge of the fabric when two (or more) pieces of fabric are sewn together.



A hem in sewing is a garment finishing method, where the edge of a piece of cloth is folded and sewn to prevent unravelling of the fabric and to adjust the length of the piece in garments, such as at the end of the sleeve or the bottom of the garment.

D&T - Textiles

7 The sewing machine

A sewing machine is the perfect piece of equipment to use when making clothing. It is faster than hand sewing and produces a stronger and more consistent stitch.
It is important to know and understand the parts of the sewing machine so you can use it effectively.

Spool Holder

The main function of the spool holder is to control the thread direction and hold the spool. The spool holder may be in the horizontal or vertical direction. Sometimes a sewing machine has more than one spool holder when a decorative stitch is needed.

Bobbin

The bobbin is a small spindle that is wound with thread. Bobbin supplies the bottom thread during the stitch formation.

Bobbin Case

The bobbin case holds the bobbin. The hook of the bobbin case catches the previously produced needle loop and moves over the bobbin case. As a result, a stitch is formed by the interlacing of bobbin thread & needle thread.

Balance Wheel

The main function is to raise and lower the needle through manual labor. It is used when an extremely thick piece of fabric is required to be sewn. In the domestic sewing machine, It also helps to wind the sewing thread to the bobbin. It is situated on the right side of the machine.

8 The sewing machine continued

Feed Dog

It helps to pass the cloth through the machine in a forwarding direction during the sewing.

Needle and Needle Bar

The main function of the needle is to form the stitch during sewing the cloth. The needle fits in the needle bar which holds the needle with a small screw.

Pressure Foot

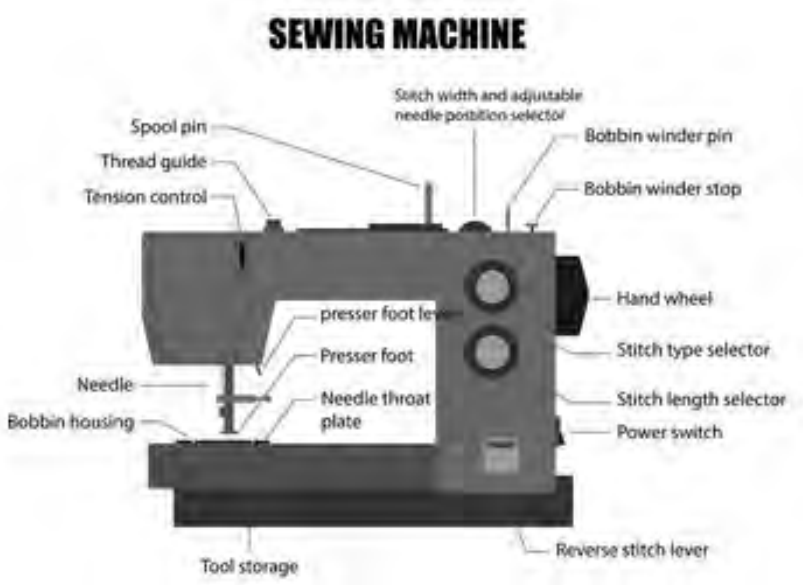
It is used to put pressure on the fabric during sewing. It helps to prevent wrinkles that could mess up the stitch.

Power Switch

The sewing machine is operated sometimes by electricity and manual labour. A power switch is used to supply the electricity to the machine. Normally Power switch is on the right side of the machine. The main function of the power switch is to turn on and off the machine. In the modern sewing machine, it gives light to the user to see properly when the machine is turned on.

Foot Pedal

It controls the speed of the sewing machine. If you apply more pressure to the pedal, you can sew faster.



D&T - Resistant Materials

1. Classification of timber

Trees can be classified into two groups.

Coniferous is the technical name for the group commonly known as soft woods are evergreen.

Deciduous is the technical name for the group commonly known as hard woods shed their leaves for winter.

The names soft wood and hard wood does NOT relate to how hard the wood from that tree is.

Physical features like type: of leaf or seed type can help identify which group a tree belongs to.

Balsa wood is very soft and can be crushed with your hands but comes from the deciduous group of trees (Hard wood)

2. Structure of timber

Wood grain refers to the arrangement of a wood's fibres resulting from the growth of a tree.

When the tree is cut, these fibres reveal a visual pattern of relatively darker and lighter wood, commonly known as the grain

End grain is the narrow, porous top and bottom edge of the board. The rings of the trees' growth are sometimes visible in stack, parallel, curved lines.

Knots are visible imperfections in wood. They are typically circular and darker than the surrounding wood area and when the knot separates from the surrounding wood a knothole form.

3. Conversion of timber

After felling the tree trunk needs to be converted into useable sizes. The two common methods are; radial and plain methods.

Plain method.

Faster to produce.
More affordable.
Readily available.

there are certain drawbacks to plain sawn lumber. As the wood dries and ages, the tension of the end grain can make plain sawn planks cup, twist and sometimes bow.

Quarter sawn.

Most expensive method of conversion because it produces the best quality wood and is ideal for joinery purposes.

Timber is a valued natural resource that serves directly as a material for use in construction, paper manufacturing, specialty wood products such as furniture, and as a fuel source

D&T - Resistant Materials

4. Wood finishes

Finishing is the final step of the manufacturing process that gives wood surfaces desirable characteristics.

Finishing provides a way of giving low-value woods the appearance of ones that are expensive and difficult to obtain.

Usually, there are two primary types of wood finish, penetrating and surface finish. Each type results in a unique appearance and protection, making it necessary to choose the right type of finish.

Penetrating wood finishes offer a more natural look as they enter deep into the surface of the wood. You may have to use a rag to add a protective layer of wood oils to ensure better sheen and surface penetration. You can apply them easily.

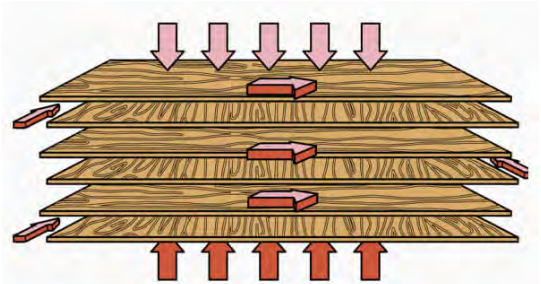
surface finishes are applied on the top of the wood to create a protective layer. This type of wood finish makes an excellent choice for furniture and materials that are exposed to a lot of wear and tear.

5. Plywood

Plywood:
is made up of thin layers of wood called veneers. Usually has an odd number of layers so that the grain on each face runs in the same direction.

Advantages of Plywood
•Incredibly flexible.
•Split edges due to nails are reduced.
•Material strength is increased.
•Minimal expansion and shrinkage.
•Low risk of warping.
•Plywood furniture is lighter to transport than solid wood pieces.
•Plywood is economical to use.

Disadvantages of Plywood
•Risk of long-term insect or water damage, although this can be minimised with a treatment to the veneers.
•Sculpting to surfaces is not always easy.
•Not as durable as wood.
•If not painted well, the surface of plywood can peel off.



ALTERING GRAIN DIRECTIONS OF EACH VENEER LAYER ADD STRENGTH

6. MDF

Medium-density fibreboard is an engineered wood product made by breaking down hardwood or softwood residuals into wood fibre, often in a defibrator, combining it with wax and a resin binder, and forming it into panels by applying high temperature and pressure. MDF is generally denser than plywood.

What are the advantages of MDF?

- MDF is hard to both flex or crack.
- MDF is more affordable and easier to supply
- MDF is easier to paint and seal
- MDF is BEST for cabinetry.

What are the disadvantages of MDF?

- Engineered wood is easy to damage
- MDF is heavier
- MDF is vulnerable to extreme heat
- MDF can't support too much weight.

Conclusion: Is solid wood better or MDF?

D&T - Resistant Materials

7. Tenon saw

A Tennon saw has a relatively short blade with a reinforced back providing stability. It has hard point teeth and creates a fine finish so is ideal for carpentry as it makes a straight, precise cut. Tenon saws are commonly used to make the tenons used in mortise and tenon joints.

Hold the saw with your dominant hand, index finger pointing towards the blade for support.

The proper stance is one in which your wrist is aligned with your forearm; when thus aligned, little stress is placed on your joints, and the saw feels like an extension of your arm.

8. Coping saw

A coping saw is used to cut fine, intricate cut-outs or shapes in carpentry or woodworking, ideal for delicate applications such as curves or patterns.

You can install the blade to cut either on the push or pull stroke, although for most work students find that a pull cut is easier to control.

Coping saws aren't designed to cut through all materials. Rather, they are intended for use on light, thin materials of 25mm thickness or less. Attempting to cut through materials thicken than this increases the risk of injury, as the blade may slip or break.

Over time, the blade will lose its sharpness, forcing you to push with greater force to cut into materials.

Contrary to popular belief, cutting with a dull blade actually increases the risk of injury. So, if your coping saw has a dull blade, replace it ASAP to avoid injury.

9. Wood adhesives

Types of wood glue:

Polyvinyl Acetate (PVA) glue is what most of us think of as standard wood glue. It is the glue most commonly used to join two pieces of wood together, and it has the longest storage life among other wood glues. It provides one of the strongest bonds in woodworking as it soaks into the wood and bonds it very securely. In fact, PVA is so strong that you're more likely to break the wood than the glue joint.

Epoxy is the best glue for filling cracks and gaps in the wood. It can also be used when longer assembly times are needed as it has a much longer working time than most other glue. Once set, though, epoxy has an extremely strong bond. As long as the glue surfaces are clean and free from dust, an epoxy joint is never going to fail.

Design & Technology: Cooking & Nutrition

1. Key Words

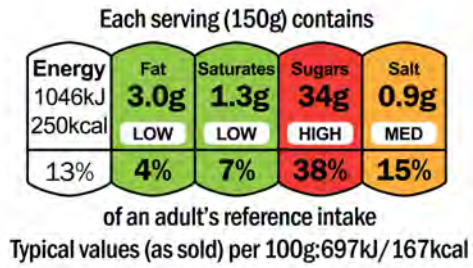
Eatwell Guide – the guide which helps us eat the right sort of foods in the correct quantities. The size of each segment shows how much of that type of food we should eat each day / week.

Marinade – soaking meat in an acidic sauce to tenderise it and add flavour.

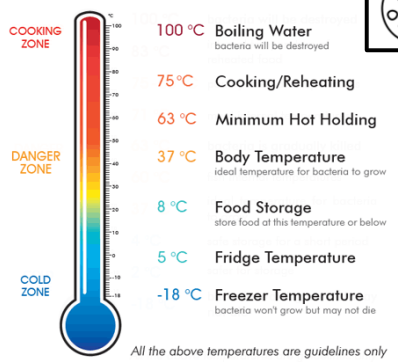
2. Nutritional Information

The traffic light labelling system will tell you whether a food has high, medium or low amounts of fat, saturated fat, sugars and salt. It will also tell you the number of calories and kilojoules in that particular product.

Use food labels to check calories (kcals). **Reduce: Sugars, Saturated Fat & Salt. Increase: Fibre.**



3. The Danger Zone Temperatures



4. Food Choices

People eat different foods for many reasons, the thought-shower above highlights some of them.

It might be personal preference or a religious or cultural reason. They might have an ethical reason to buy food with low Food Miles or have chosen not to eat animal products. They may not have the time or skills to make some foods.

5. Research: Definitions

Food Miles – The distance in miles that food travels from where it is grown or raised, through all of its stages of production to where it is eaten. The higher the Food Miles then the further your food has travelled. This means more fossil fuels have been used depleting the Earth's natural resources.

Seasonality – Eating food which is <u>just</u> ripe or 'in season' means it is at its peak nutrition and give you the best health benefits. As soon as its picked or harvested the nutrients reduce over time. A good way to stop this is to immediately freeze the food – a good example of this is peas which can be harvested and frozen ready to sell in less than 3 hours.

Organic - Organic food is farmed avoiding the use of man-made fertilisers, pesticides; growth regulators and livestock feed additives. It means it contains less man-made chemicals which some believe is healthier. However, as less food is made per acre it tends to be more expensive to buy. Typical organic foods are vegetables, fruit and meat.

6. Ways to Reduce Food Poisoning

Which foods are HIGH RISK?

- Meat – especially raw meat
- Fish
- Rice (& Couscous)

What do we do to prevent food poisoning?

- Check Use-By date
- Store food correctly
- Wear apron / tie up hair / etc.
- Wash hands before / after touching raw meat
- Avoid cross-contamination
- Wipe surfaces with antibacterial spray
- Use correct coloured chopping board
- Cook thoroughly & check
- If not eating immediately – cover, cool & put in the fridge
- Wash up equipment properly

7. Vitamins

Your body needs vitamins to grow and function properly, they also help you to use other nutrients. You can normally get enough vitamins from a healthy diet that includes plenty of fruit and vegetables.

Vitamins can be divided into 2 groups: Fat-Soluble Vitamins (Vitamins A, D, E & K) and Water-Soluble Vitamins (Vitamin C and all the B Vitamins). Fat-Soluble Vitamins are dissolved in and carried around in the body in fat. Whereas Water-Soluble Vitamins are dissolved in water.

8. Minerals

There are about five essential minerals and they have important functions in the body.

1. Calcium:
Function: vital for maintaining strong bones and teeth, helping muscle contraction, nerve transmission, and blood clotting.
Sources: Dairy products (milk, cheese, yogurt), leafy green vegetables, nuts, seeds.

2. Iron:
Function: essential for making haemoglobin that carries oxygen from the lungs to the rest of the body. It prevents anaemia and supports energy production.
Sources: Red meat, poultry, fish, beans, lentils, spinach.

3. Fluoride:
Function: helps prevent tooth decay by strengthening tooth enamel and also contributes to bone health.
Sources: Fluoridated water, tea, fish, and some toothpaste and mouthwashes.

4. Sodium:
Function: regulates fluid balance in the body. But excessive sodium can lead to high blood pressure and other health issues.
Sources: Table salt, processed foods (chips, canned soups, fast food).

5. Iodine:
Function: essential for the hormones which regulate metabolism, growth, and development. It is especially important for proper brain development during pregnancy.
Sources: Iodized salt, seafood, dairy products.

History

1. Key Concept: Interpretations

Convincing: Whether something is believable.

Interpretations: How somebody chooses to present the past after an event.

Examples of Historical interpretations…

Books written by historians.

Museums that present historical artefacts.

Films that are made about history.

Documentaries/television shows about History.

Oral History: Where stories about History is passed through generations of people through song or spoken word.

2. Who did the Nazi's persecute?

The Nazi's persecuted:

Those who wouldn't work: Those who were deemed 'socially useless.'

Non-Aryans: Hitler believed Jews, black people and Roma people did not fit his view of how a German should be.

Gay people: Hitler did not approve of homosexuality and that gay people would weaken Germany. Many were arrested and sent to **concentration camps.**

The disabled: People with physical or mental disabilities were considered a problem. The Nazis ordered that hundreds of thousands were to be **sterilised** or **euthanised**.

Political enemies: Those who opposed the Nazis and their political ideas.

3. What was the "Final Solution?"

1) 1941: The Invasion of the Soviet Union

The Nazis invasion of Russia meant Germany took more land. The Nazis used the **Einsatzgruppen** to murder Jews in towns and villages taken by the Germans.

2) 1942: The Wannsee Conference

Leading Nazis met to come up with a plan to solve the '**Jewish question**'. They met a Wannsee in Berlin and they decided on the **Final Solution**. It was decided to create **death camps** that were built for the purpose of killing as many Jews as possible.

3) Did the Jews fight back?

Although Nazis tried to stop some parts of Jewish culture, many continued to worship and follow Jewish traditions. Some Jews used violence. In 1943, Jews in **Warsaw** armed themselves with guns and fought off against German soldiers for over a month. Jews would also escape some death camps.

4. Key Terms:

Anti Semitism: A hatred of the Jewish race.

Aryan Race: The Nazi idea of the perfect German. Strong with blonde hair and blue eyes.

Boycott: To stop using a business out of protest.

Euthanasia: The Nazis executed many people who they did not see as Aryan, e.g. Disabled.

Einsatzgruppen: Members of the SS who would murder Jews during WWII.

Final solution: The plan to destroy the Jewish race in German-held land.

Ghetto: Areas where Jews were forced to live.

Persecute: To mistreat someone based on race, religion, or political view.

Scapegoat: Blaming someone because it is easy or convenient.

The Modern Age (1900's-Present)

1933:Boycotts and bans of Jewish shops

1936: Nuremburg Laws

1938:Further Antisemitic laws

1938: Kristallnacht

1939: Start of WW2

1941: Invasion of the Soviet Union

1942: The Wannsee Conference

History

5. Key Concept: Cause and Consequence

Cause: A reason for something happening.
Consequence: A result or effect of something.

Trigger: short term causes that immediately spark an event.

Trend: medium/long term causes that *drift* towards an event.

Condition: the environment in which certain things can happen

6. What was the Reason for Mao's Victory?

The war between Chiang Kai-shek and the Communists: Chiang Kai-shek was afraid of the communists seizing power. After the defeat of the Warlords, he turned the **Kuomintang** against the Communists in 1927 with a bloody **purge**. Followed by a full-scale military campaign in 1931. In 1934 the Communists made the **"Long March".**

The Long March: Mao marched 100,000 men over 3000 Kilometers fighting **guerilla** campaign. 80% of the Red Army were killed. A military disaster but a propaganda success.

The Second World War: Japan invaded China in WW2, forcing the Kuomintang to work with the Communists. The Kuomingtang were ineffective whereas the communists, with support of the peasants, successfully fought the Japanese using their guerilla warfare. This made them popular.

7. What were the consequences Of Mao's Government?

Agrarian Reform Law: In 1950 Mao sent communist party workers out to villages to share village land. Peasants also put landlords on trial in "People's courts".
Co-operatives: To solve the food crisis caused by rising population, in 1953 land was jointly owned so one large crop could be grown efficiently. By 1957 over 90% of peasants belonged to co-operatives. **Industry:**
1.)The Five-Year Plan: Ambitious plan to build new industry. Over 700 major projects. Focus on **heavy industry.**
2) The Great Leap Forward: At first seen as a success due to increase in production, famine in the 1960's led to at least 30 million dead between 1958 and 1962. **Cultural Revolution:** Spread of Propaganda, such as the **Quotations of Chairman Mao**. Mao called for young people to rise up. With the forming of the **"Red Guard".**

8. Key Terms:

Kuomintang: Chinese Nationalist Party.

Chiang Kai-shk: Leader of the Kuomintang

Mao Tse-tung: Leader of the Chinese Communist Party.

Purge: an abrupt or violent removal of a group of people.

Guerilla: engagement in or the activities involved in a war fought by small groups of irregular soldiers against typically larger regular forces.

Communist: a theory or system of social organization in which all property is owned by the community

Heavy Industry: Factories for steel, coal and chemicals.

Quotations of Chairman Mao: known as the "Little Red Book", millions of copies printed

Red Guard: Chinese Youth Organisation

The Modern Age (1900's-Present)

1921: Chinese Communist Party formed.

1934: The Long March

1936: The Japanese invade China

1945: Japan defeated

1949: The Communists take control of China

1953: The five-year plan

1958: The Great Leap forward

1966: The Cultural revolution begins

1976: Mao dies

History

Key Concept: Significance

Making well-reasoned judgements about the historical importance of past events

Cause: a person or thing that gives rise to an action, phenomenon, or condition.

Consequence: a result or effect. The lasting impact of what happened an historical event.

Impact: The extent of the consequences: For example, how long did the consequences last? How many people were affected?

How we look at significance:

Causes -> Event under examination -> Consequences.

9) Women and politics

1967: The birth control pill was made available for all women with the National Health Service.

More girls went on to higher education and in 1962 there were over 26,000 girls at university.

Feminism began to find a voice in society, with movements like Women's Lib demanding equal pay and opportunity.

The Profumo Affair, 1963. This was a political scandal involving John Profumo, Secretary of State for War. Labour's **Harold Wilson** becomes Prime Minister, October 1964. The first Labour government since 1951 came to power in October 1964 under Harold Wilson. Labour won by a slim majority, with Wilson remaining Prime Minister until 1970.

10) Immigration

After 1945, there was a change in the ethnic mix in the UK, as workers from the **West Indies,** India and Pakistan arrived to help rebuild Britain. Many Black immigrants faced **prejudice** from some white communities. Their very presence was treated as a problem by some politicians such as **Enoch Powell.**

11) Key Terms:

Feminism: The advocacy of women's rights on the basis of the equality of the sexes.

Discrimination: the unjust or prejudicial treatment of different categories of people, especially on the grounds of ethnicity, age, sex, or disability.

West Indies: The West Indies is a group of islands off Central America, extending in an arc from Florida to Venezuela, separating the Caribbean Sea from the Atlantic Ocean

Prejudice: preconceived opinion that is not based on reason or actual experience.

Enoch Powell: was a British politician. He served as a Conservative Member of Parliament (1950–1974) and was Minister of Health (1960–1963).

'swinging sixties': The Swinging Sixties was a youth-driven cultural revolution that took place in the United Kingdom during the mid-to-late 1960s

The Modern Age (1900's-Present)

1960

1962: Beatle's first record

1963: Profumo Affair

1964: Harold Wilson is Prime Minister

1965: Death penalty Abolished

1966: England win the World cup

1967: Birth control pill on the NHS

1969: Moon Landing

1970

French

1. Qu'est-ce que tu voudrais visiter ?
What would you like to visit?

Je voudrais visiter... - I would like to visit
Je veux visiter... - I want to visit...

parce que j'adore … – because I love...
… le surf – the surf
… la plongée avec masque et tuba - snorkelling
… la plage – the beach
… les poisson exotiques – exotic fish
… les fruits de mer – seafood

Il y a... – there is...
… un musée d'art – an art museum
...un monument – a monument
...des champs – fields

2. Qu'est-ce qu'on va faire?
What are you going to do?

On va aller … - we are going to go ...
… au parc national – to the national park
… à la montagne – to the mountains
… à la mer – to the sea
… aux grottes – to the caves
… aux temples – to the temples

On va manger … - We are going to eat...
… un specialité - a speciality
… du couscous – couscous
… du poisson – fish
… du poulet – chicken
… de la glace – ice cream
… des frites – chips

3. On va voir des choses extraordinaires
We are going to see extraordinary things

C'est... - it is ...
… un pont – a bridge
… une tour – a tower
… un Île - an island
… une église - a church

Ce sont... - there are ...
… des arènes magnifique – magnificent arenas

impréssionnant(e) - impressive
mystérieux(euse) - mysterious
célèbre - famous
magnifique - magnificent
magique - magic
romantique - romantic

C'est plus … que … - it is more...
C'est moins … que … - it is less...

grand(e) / petit(e) - big/small
haut(e) / mauvais(e) - high/ bad
bon(ne) - good
beau/belle - beautiful
nouveau/nouvelle - new
vieux/vieille - old

4. Réserver des excursions – Reserving trips

Tu aimes... ? - Do you like...?

J'adore../ J'aime... - I love.../ I like...
… **aller** au parc aquatique – going to the water park
… apprendre à cuisiner des plats différents - learning to cook different dishes
… **apprendre** à parler une nouvelle langue – learning to speak a new language

...faire...	**- doing...**
… de la plongée	- diving
… du parachutisme	- parachuting
… une visite guidée	- a guided visit
…. des randonnées	- hikes
… me bronzer	- sunbathing

… visiter des monument historiques – visiting historic monuments
… voir des animaux sauvages – seeing wild animals

Je veux... - I want ...
… faire une excursion – ...to do a trip
...partir à 9 heures – ...to leave at 9am

On peut visiter … you can visit...

Il faut – you must
… prendre votre passeport – take your passport
… arriver ici à 8h30 – arrive here at 8:30

French

5. Visite à un pays francophone! Planning a visit to a French-speaking country

Superlatives

Superlatives are used to say that it is **the most** or **the least,** and there are a few differences when writing this in French.

1) The word for **'the'** changes depending on whether the object is **masculine** or **feminine**
2) The **word order** follows the normal adjective rule of coming **after the noun**.

C'est le pays **le plus** intéressant - it is **the most** interesting country
C'est la destination **la plus** sauvage - it is **the wildest** destination

C'est le pays **le moins** intéressant - it is **the least** interesting country
C'est la destination **la moins** sauvage – it is **the least** wild destination

6. Describing a photo

Sur la photo... - In the photo
… il y a … - ...there is/are...
un homme – a man
une femme – a woman
des enfants (children)

...qui est... - …who is...
artiste – an artist
auteur – an author
chanteur / chanteuse – a singer
musicien / musicienne – a musician
cuisinier / cuisinière - a cook

il/elle … - He/she...
fait (de la soupe) - is making (soup)
porte (une chemise) - is wearing (a shirt)
chante (une chanson) - is singing (a song)
joue (de la guitare) - is playing (a guitar)
finit (une peinture) - is finishing (a painting)
s'entend bien avec... - is getting on well with...

il/elle a l'air content(e) - He/She appears happy

7. En ce moment … - At the moment …

En ce moment,… - at the moment
J'écris un blog - I am writing a blog
J'étudie - I am studying
Je présente des émissions - I am presenting programmes
Je travaille sur ma chaîne web – I am working on my internet channel
J'encourage les femmes – I am encouraging women
Je m'entraîne - I am training
Je marque des buts - I am scoring goals
Je dessine - I am drawing
Je sculpte - I am sculpting
Je poste des images - I'm posting images.

8. Future time phrases

La saison prochaine – next season
L'année prochaine – next year
La semaine prochaine – next week
Pendant les vacances – during the holidays
Plus tard... - later
À l'avenir... - in the future

Je vais (lire) - I am going (to read)
Je lirai - I will read
Je vais (faire) - I am going (to do)
Je ferai - I will do

French

9. On a fait le tour du monde
We travelled the world

PERFECT TENSE (Past Tense 1)

The perfect tense is used to say **what you did** or have done (I went to France or I have been to France)

To form it you need three parts:

Who (Subject)	Auxiliary	Past participle
Je / J' (I)	ai (have)	mangé (ate)
	suis (am)	allé(e) (went)

J'ai choisi de faire le tour du monde – I chose to do a world tour
J'ai commencé en 2011 – I started in 2011
J'ai visité 30 pays – I visited 30 pays
À pied / à vélo - on foot / by bike
J'ai passé un an sur une île - I spent one year on an island
J'ai dû prendre le bateau – I had to take the boat
J'ai beaucoup **appris** sur la culture – I learnt a lot about culture
Je me suis bien amusé(e) - I enjoyed myself

10. On va faire beaucoup de choses
We are going to do lots of things

FUTURE tense 1 (going to …)

The easiest way to talk about the future is the **near future tense** which is formed of three parts

Subject	Aller (to go)	Infinitive
Je (I)	**vais (am going)**	**aller (to go)**
Nous (we)	**allons (are going)**	**manger (to eat)**

FUTURE tense 2 (will ….)

Another way is to use the **simple future** which allows us to talk about the longer-term future

Subject	Infinitive	Future ending	
Je	**regarder**	**ai**	**(I will watch)**
tu	**manger**	**as**	**(you will eat)**
il/elle	**jouer**	**a**	**(he/she will play)**

11. On va faire beaucoup de choses

We are going to do lots of things

Il/elle va... - he/she is going

..continuer sa tournée en France – to continue his/her tour of France

...sortir son prochain album – to release his/her next album

Il/elle aidera les autres – he/she will help other

Il/elle travaillera avec des organisations caritatives – he/she will work with charitable organisations

Art

Multi-Cultural Pattern

1. Multi-cultural pattern

What is a pattern?

A repeated decorative design.

Why is pattern important?

Patterns are important in culture as a visual representation of a community's history, beliefs, and values.

Patterns can convey deep symbolic meaning.

Patterns tell stories, convey social status, cultural identity, and traditions of the communities that produce them.

2. Key Words

Pattern - A repeated, rotated or reflected motif.
Design - An organisation of the formal elements.
Motif - Recurring design that creates pattern.
Composition - The arrangement of design and colour
Woodblock Printing - Hand-carved wooden blocks, printed onto fabric.
Tao Moko - tattooed designs, on the body.
Lino cutting - carving it in a lino block and printing it with ink (not paint) on paper.

3. Māori Tattoos & Relics (Tā moko)

'Tā moko' is the permanent marking or "tattoo" as traditionally practiced by Māori, the first Settlers of New Zealand.

Tattoos are considered highly sacred, face tattoos showed accomplishments, status, position, ancestry and marital status.

The lines accentuate the lines of the face to emphasise the expressions.

Traditionally, Maori used knives and chisels made from shark teeth, sharpened bone or sharp stones to create tattoos.

Inks were often made from natural products, such as burnt wood and crushed bugs.

4. Woodblock Printing

This process has been used in India since at least the 12th Century, however, it originated in China.

Hand-carved wooden blocks are printed onto fabric using dye-soaked fabric.

Different types of dye and patterns became associated with different regions of the country.

Design is drawn onto paper and then transferred to a perfectly smooth block of wood.

The block can be sourced from many types of trees. Using tools, the design is carved into the wood, the most intricate details are always saved for last to avoid damaging the delicate lines in the process.

The block is dipped into dye and pressed firmly onto the fabric. This process is repeated until the pattern has completely covered the length of the fabric.

Art

5. Wax Printing in Africa

African wax prints can be referred to as Ankara, are typically bold and colourful fabrics, displaying vibrant patterns. The process is inspired by the Indonesian method of wax-resist cloth dyeing called 'Batik'.

Molten wax is used to draw patterns across the fabric using a pen-like tool or a carved block of wax. The fabric is then soaked in a dye bath which colours the entire fabric apart from the areas with wax. The fabric is dried and boiled to remove the wax. The process is repeated for each additional pattern and colour.

These prints are used to create custom made clothing for special occasions like weddings, birthdays, church services and more. The designs often tell a story or send a message about their wearer and are a form of communication and expression.

6.Ndbele design and pattern

The Ndebele people are known for their colourful attire, ornaments, and very decorative homes, making them with outstanding craftsmanship.

Ndebele designs are rich with symbolism, incorporating black outlines to emphasize their bold forms. Zigzags, for instance, symbolize the highs and lows of Ndebele life, evoking imagery of lightning's power and force.

Ndebele art is characterised by vibrant colour palettes, geometric patterns, symmetrical designs and bold black outlines. The intricate patterns often incorporate symbols that represent important aspects of Ndebele life, such as marriage, family, gender roles, spirituality, and ancestral beliefs.

7. Draw and colour in your Ndbele inspired pattern

8. Lino printing & pattern keywords

Lino Printing – A form of block printing that involves carving a pattern or design into lino, that can be printed using ink.

Positive Space – the main subject area in the art or area of interest.

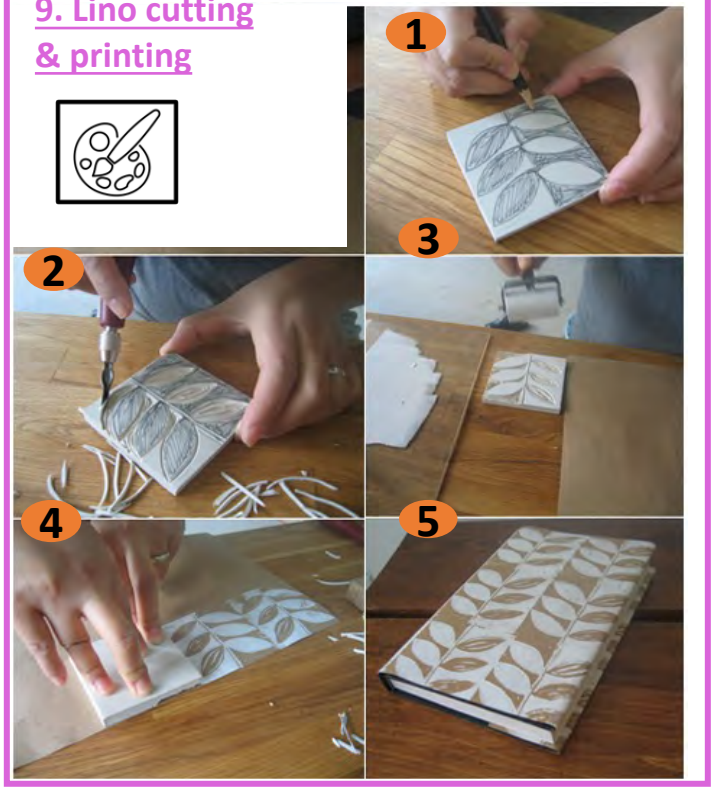
Negative Space – area around the subject or area of interest.

Repeated Image – Reoccurring line, pattern, shape, or other visual elements.

Rotated Image – Turn image in a clockwise or counter-clockwise direction.

Mirrored Image – An image of something that is like a reflection.

9. Lino cutting & printing



Art

10. Printmaking Process

1. Draw your design onto your lino tile – think carefully about what areas will be negative and what will be positive space.

2. Using the lino cutting tool, carefully carve out your design. Be careful not cut through the tile. Always cut away from you and never place hands in front of tool.

3. Roll out an even amount of ink on a clean surface and roll onto lino tile.

4. Place tile design face down onto paper, apply even pressure on the back. Peel away and admire your print.

5. You can repeat, rotate and mirror your lino tile to create a more interesting design.

11. Lino print evaluation

Sketch your lino pattern here inspired by the cultures and patterns we have studied.

Evaluation

- **Description**: What do I see?
- **Analysis**: How is the work organized?
- **Interpretation**: What is happening? What is the artist trying to say?
- **Judgement:** What do I think of the work?

Geography

1. Climate of the UK

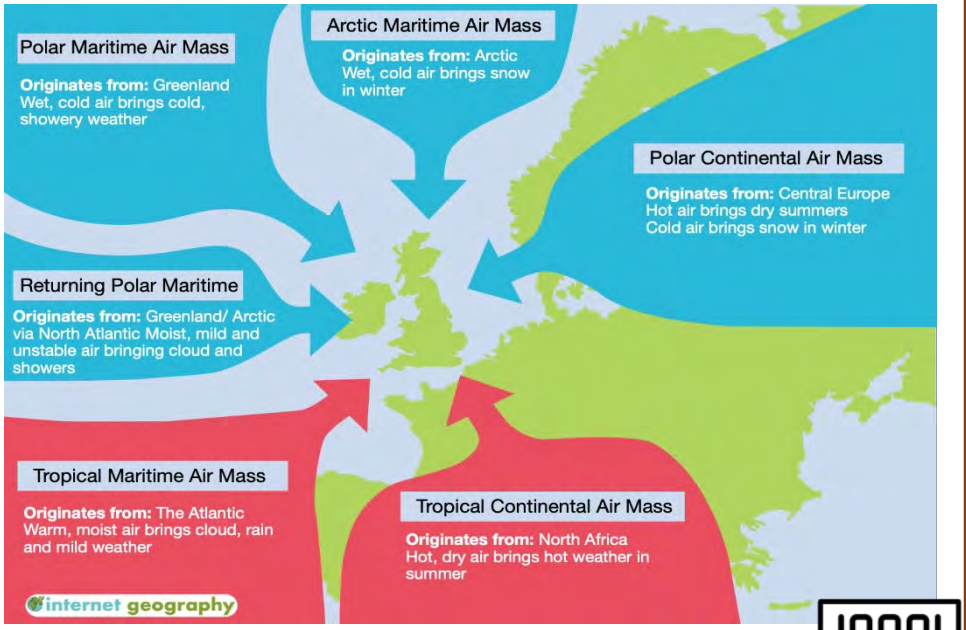
Definition: Weather is the day-to-day conditions of a particular place.

E.g. temperature and rainfall.

Climate is the **average** weather conditions of a place taken over a **long period of time**, typically **30 years**.

The UK has a **temperate climate**. This means that Britain gets cool, wet winters and warm, wet summers.
The **weather** conditions are also very **changeable**. Not all parts of the UK have the same climate.

SCAN ME



2. Extreme weather is weather that is unusual or unexpected. This can be *severe* or *unseasonal* weather. Many types of extreme weather affect the UK, including strong winds and storms, and floods and extreme hot or cold spells. In the UK, warnings are issued if extreme weather is expected.

Examples of extreme weather include:
Strong winds and storms
Droughts
Floods
Extreme hot spells
Extreme cold spells

3. Global climate types

The surface of planet Earth can be divided according to the climate type that is found in each location. These include:

- **Polar** – cold, dry climates found in the far north and south of the planet, such as Antarctica. Some polar regions are covered in ice and others have vegetation.
- **Temperate** – climates that are not too hot or too cold, such as the UK. Higher levels of precipitation are often found closer to the sea than further inland.
- **Mediterranean** – warm coastal regions between 30° and 45° north and south of the equator , such as Italy. These climates have hot, dry seasons and milder, wetter seasons.
- **Arid** – dry climates common along the Tropic of Cancer and Capricorn, where air is usually falling, such as the Sahara desert in north Africa. Few plants can survive within deserts, but some grasses and trees grow in semi-arid regions.
- **Tropical** – hot and usually wet climates found along the Equator, such as the Amazon rainforest, in Brazil. Air rises here, leading to heavy rainfall. Tropical rainforests grow in tropical climates.
- **Mountain** – colder climates at high altitudes, which can be found anywhere on the planet, such the Andes in South America. Only small plants, such as grasses and mosses, can survive above the tree line.

Geography

4. Tropical Revolving Storms

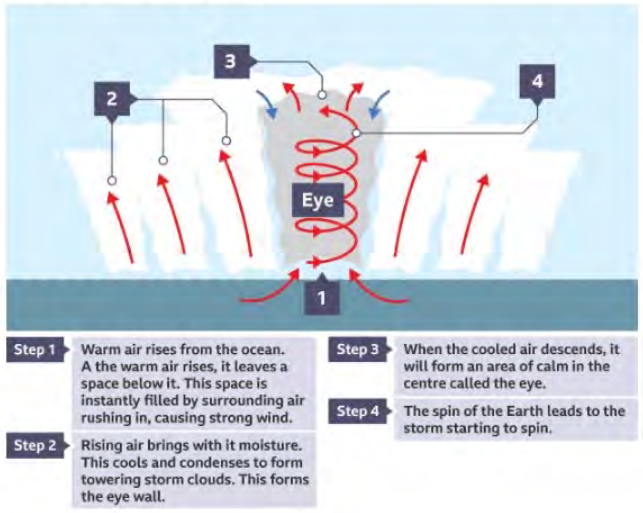
What are tropical storms?

Hurricanes, typhoons and cyclones are all names used to refer to violent, rotating, tropical storms.

The term for these storms changes, depending on where they occur. If they form over the Atlantic Ocean or the Eastern Pacific Ocean, they are called hurricanes.

If they occur in the Far East, near places such as Japan, they are known as typhoons and if they occur in the Indian Ocean they are known as cyclones.

The formation of a tropical storm



For a tropical storm to form, there needs to be a warm ocean (27 °C or above) and light winds.

As tropical storms require warm oceans, they are normally found in tropical regions between 5° and 30° north and south of the equator where the water is warmest.

They usually form in the late summer when sea temperatures are at their highest.

5. Wildfires

One of the major predictions made about climate change is that incidents of extreme weather will become more common. This can include weather events such as drought, flooding, storms, and wildfires.

The summer of 2021 saw several areas in Europe and North America experience heatwaves that lead to severe problems.

In these areas, drought conditions dried out forests and scrubland which provided the perfect fuel for wildfires. The lack of moisture or rain meant that, once the fires had taken hold, there was little to stop them spreading quickly over large areas.

As well as devastating huge areas, destroying homes, and endangering lives, huge forest fires release large amounts of carbon dioxide into the atmosphere.

6. What is a resource?

A resource is any natural material that people need and value.

At the current rate of consumption, oil will run out in about 30 years' time, tin, cadmium, lead and zinc in 40 years, copper, antimony and nickel in about 70 years.

Most current use of the sea, of the wild plants and animals of the land, of forests and of grazing lands is not sustainable.

Today we need about 1.75 planets to provide the resources for our consumption and absorb our waste. By 2030, we will need 2 planets. We only have one.

7. Water in the UK

Water is needed for agriculture, industry and domestic use. Water supplies come from different sources, including reservoirs and groundwater.

Water security is determined by factors such as climate, geology, wealth and levels of technology. Globally, many people lack access to safe drinking water.

Water insecurity can result in people drinking contaminated water. This can lead to illnesses, such as diarrhoea, typhoid and cholera.

In the UK one of the solutions to water security is water transfer, for example the Kielder Water reservoir in Northumbria.

Geography

8. Global water supply

Global water supplies are not evenly distributed. Some places have a water surplus (more than enough), others have a deficit (shortage)

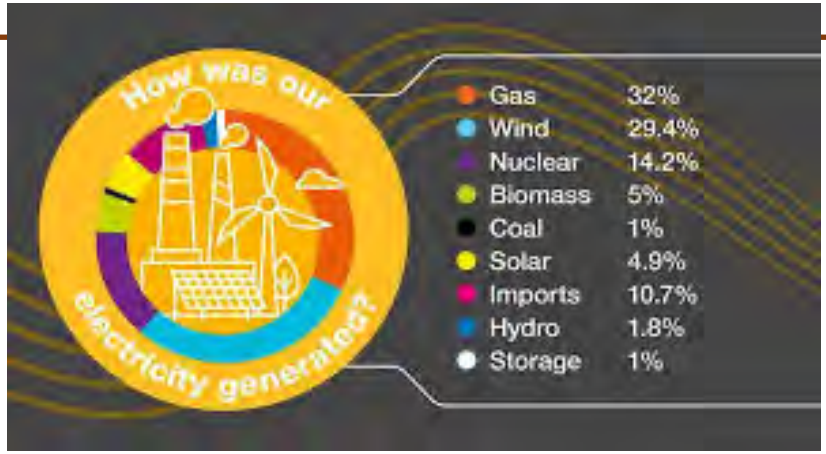
Generally, countries along the Equator have enough water. Warm, moist air rises here, which causes high levels of rainfall.

Countries to the north of the Equator (at a latitude of approximately 30°) have physical water scarcity. This is when there isn't enough rainfall. Cooler, dry air falls here and so it is very arid.

Countries with the highest latitudes (those that are furthest away from the Equator) have enough rainfall to provide plenty of fresh water.

9. The UK Energy Mix

The "energy mix" relates to the different energy sources we use as a country and in what proportions. This is often spilt into renewable and non-renewable forms of energy. Fossil fuels such as coal, oil and gas are used to provide heat or to produce electricity. These are non-renewable so will run out and also pollute theatmosphere with greenhouse gases such as Carbon Dioxide (CO_2). Renewable sources of energy include sun, wind, waves, the tides, running water and geothermal heat. They are renewable because they will not run out and they are non- polluting. However, they return smaller amounts of energy and take up lots of land, and they require regular maintenance. The last energy type is nuclear, which is non-renewable as Uranium is a fuel that will run out. Many of the UK's nuclear reactors are due to be replaced and there is a new reactor being built at Hinkley Point that will provide 7% of the UK's energy needs.



Challenge – Scan the QR code and play the game!

10. Issues with the use of Oil

Oil is a fossil fuel which means it's formed from fossils of tiny oceans creatures millions of years ago. This becomes oil and is then extracted from the ground (this is known as crude oil) and brought to an oil refinery. Some oil producing countries are politically unstable so we may not want to or be able to buy oil from them.

Conflicts can happen between those who have oil and those that want oil. An example of this is conflict in the Niger Delta (Nigeria) between big oil companies (such as Shell Oil) and minority ethnic groups who feel that they are being exploited by these big oil companies.

11. Food security

Food insecurity can lead to hunger, soil erosion, rising prices and conflict. Some impacts of food insecurity include hunger caused by a lack of food. This can lead to undernutrition, and even famine. According to the UN, around 828 million people across the world are affected by hunger. Food insecurity can lead to soil erosion as farmers try to get more out of their land. Deforestation and overgrazing expose the soil and make it vulnerable to erosion. When there is less food available, the prices of food increase. Global food prices increased by more than 30% during 2021. Social unrest – everyone needs to eat and so when food supplies are low people fight for their survival.

Challenge – Scan the QR code and learn more about the earthquake

WHAT?WHEN?

KS3 Homework Timetable

Monday	Tuesday	Wednesday	Thursday	Friday
English	Maths	Science	D and T	Art
Music	Drama	PE	History	Geography
		RPE	French	
Your personal reading every day				

Week beginning	Box number
20th April	1
27th April	2
4th May	3
11th May	4
18th May	5
Summer half term	
1st June	6
8th June	7
15th June	8
22nd June	9
29th June	10
6th July	11
Activities Week Summer Holidays begin	

Sparx Maths Homework

dreambox READING PLUS

Aim to complete 30 minutes on each of the above platforms each week.
You could do these during the extra slots on Mondays and Fridays.

For Computing only, complete your keyword definitions on the ePortfolio as per your teacher's direction.