BOURNEMOUTH SCHOOL

# Year 10

# Knowledge Organiser 1

## Autumn Term: 2025-26

Name: Master Copy

Registration Form: 10

✓Hard Work ✓Discipline ✓Smart Appearance ✓Respect

# Bournemouth School

## Knowledge Organiser: Year 10 Autumn Term 1

*'Knowledge is power' by Francis Bacon*

A knowledge organiser provides you with all the most important knowledge you need for each unit of study this half term. Your aim is to transfer all of this information into your long-term memory so you can use it in your lessons and further expand your understanding of this work.

How to use your knowledge organiser (KO):

1. Ensure you have your KO and Homework Learning journal with you at all times in school and when you need to do your homework at home.
2. In lessons when you have covered information that appears on your KO, your teacher will ask you to put a tick next to that section. This means that is now added to what you must learn for homework.
3. Initially, follow your homework timetable to decide what to revise each evening.
4. There are 4 strategies that you can use to revise. They are progressively more challenging so always start with the first in the list.
    a. **Look Cover Write Check**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. LOOK carefully at the subject and section of your KO you want to revise and try to remember as much as you can. Remember this should be a ticked section.
        iii. Now COVER this information so you can't read it.
        iv. WRITE out what you can remember word for word in your Homework Learning Journal.
        v. CHECK what you have written by comparing it to your KO. Tick each correct word in green pen and correct any errors you have made.
        vi. Repeat this process until you are confident you can remember everything you need.
        **AIM: You should be able to repeat the information by rote**
    b. **Self or peer quizzing**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. Write out a list of questions you could ask either yourself or a friend about this section of the KO. Write these in your Homework Learning Journal.
        iii. If you are working on your own, cover the KO and write a full answer to each question.
        iv. If you are working with a partner swap books and copy down their questions and have a go at answering them.
        v. Now uncover the KO and with a green pen correct your work.
        **AIM: You should be able to repeat the information by rote but with a good understanding**
    c. **Playing with words and sentences**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. You now want to check how well you have learnt the information in your KO.
        iii. Definitions – look at words that are used in this section. Can you write a definition in your own words?
        iv. Rephrasing – can you rewrite the sentences or explanations in your own words?

v. Summary – can you summarise the main points of this section of the KO?
vi. Synonyms – can you write synonyms for key words and ideas?
vii. New Sentences – can you write a sentence that includes the key vocabulary or definitions that you have learnt?
**AIM: You should be able to use the information in your KO in a flexible and confident way in your writing.**

**d. Think it, Link it**

i. This is a technique to use towards the end of the half term when you are revising all of the KO.
ii. Think of the links or connections between different sections of your KO.
iii. Write these out in your own words in your Homework Learning Journal.
iv. Think about the links between a particular section of your KO and what you have learnt in your lessons. Can you expand on this section by linking it to your wider knowledge?
v. Write this out in your Homework Learning Journal.
**AIM: You should be able to link your homework and your lessons to show a confident understanding of the work covered.**

**Homework Learning Journal**

1. Always write the subject and the date when you start your homework.
2. Always write the strategy that you are going to use for your homework.
3. Always use a ruler to underline titles and dates.
4. Use a blue or black pen to complete your homework or a pencil if you need to draw.
5. Use a green pen to complete corrections of your work.
6. **You are expected to complete half a side of your Homework Learning Journal each evening as a minimum.**

**Success Club**

You can attend Success Club every Monday to Thursday in room 53 until 5pm. This is a quiet room where you can complete your homework rather than doing it at home. There are also Sixth form helpers and staff who will be there to help you if you need it. You can also choose to work in the Library on a Monday, Tuesday and Thursday until 4:30 and a Friday until 4.

**Checking:**

Your teachers will check your Homework Learning Journal at least once a cycle. If they are concerned that you aren't doing your homework properly they will offer support and guidance. If you don't respond to this guidance, you will be added to the afterschool Detention where you will be expected to complete your homework.

You can attend Success Club every Monday to Thursday in room 53 or the library to complete homework. Sixth form helpers and staff will be there to help you if you need it. Your teachers will check your Homework Learning Journal at least once a cycle. If they are concerned that you aren't doing your homework properly, they will offer support and guidance. If you don't respond to this guidance, you will be added to the afterschool Detention where you will be expected to complete your homework.

**DO NOW tasks:**

At the start of every lesson you should expect a Do Now task. This is a low stakes retrieval quiz on what you have learnt so far. If you have completed your homework this should be easy. The aim is to get 100% in each of these. If you miss this target occasionally, don't worry. If it happens regularly your teacher will have a chat and offer you support.

**Maths:**

Your teacher will set you tasks to complete on Dr Frost Maths. This will be set every week on a Monday and will be collected in and checked on a Friday. If this has not been completed you will be issued a Detention on a Wednesday Lunchtime.

# How long should I spend on my homework?

| **Key Stage 4** | | | | | |
|---|---|---|---|---|---|
| Week 1 | | | | | |
| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
| 5 mins | MFL | MFL | Physical Activity | MFL | MFL |
| 10 | Maths | English | | Maths | English |
| 10 | Biology | RS | | Chemistry | Physics |
| 10 | Option C | Option D | | Option A | Option B |
| 55 | Reading / Revision | Reading / Revision | | Reading / Revision | Reading / Revision |
| Week 2 | | | | | |
| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
| 5 mins | MFL | MFL | Physical Activity | MFL | MFL |
| 10 | Maths | English | | Maths | English |
| 10 | Biology | RS | | Chemistry | Physics |
| 10 | Option C | Option D | | Option A | Option B |
| 55 | Reading / Revision | Reading / Revision | | Reading / Revision | Reading / Revision |

- You should spend about 35 minutes revising your KO each day.
- You should spend 25 minutes either reading or revising each day.
- This timetable is a guide. If you want to spend longer revising one subject that you find more difficult and less time on one you find easy, that is your choice.
- We would like you to spend one evening involved in a physical activity. This might be a sports club, a run, a game of football with friends or just a nice walk with the dog. Ask your PE teacher if you need guidance with this. It doesn't have to be on a Wednesday.

Bournemouth School

# Year 10 'An Inspector Calls' Knowledge organiser

**An Inspector Calls was written by J.B. Priestley, and was first performed in the UK in 1946. However, it is set in 1912**

| Characters | | ✓ | Key quotations | ✓ |
|---|---|---|---|---|
| **Inspector Goole** | Priestley's mouthpiece, advocates social justice, serves as the Birling's conscience<br><br>*Sardonic, omnipotent, righteous, mysterious, imposing, verbose* | | • "Massiveness, solidity and purposefulness."<br>• "It's better to ask for the earth than to take it."<br>• "One Eva Smith has gone – but there are millions and millions and millions of Eva Smiths and John Smiths still left with us."<br>• "Fire and blood and anguish" | |
| **Mr Arthur Birling** | Capitalist thinking businessman<br><br>*Arrogant, foolish, ignorant, emasculated* | | • "Heavy looking, rather portentous man"<br>• "A hard-headed practical man of business"<br>• "A man has to mind his own business… look after himself…." | |
| **Mrs Sybil Birling** | Husband's social superior, cold-hearted, believes in personal responsibility.<br><br>*Conformist, remorseless, controlling, deluded, prejudice* | | • *"Rather cold woman… her husband's social superior."*<br>• *"It's disgusting to me."*<br>• *"I did nothing I'm ashamed of'* | |
| **Sheila Birling** | Naïve, young, spoilt, comes to change and show remorse and pity.<br><br>*Transformative, socialist, empowered, astute, privileged, protected* | | • "But these girls aren't cheap labour – they're people"<br>• "At least I'm trying to tell the truth.<br>• "Why – you fool – he knows!" "The point is, you don't seem to have learnt anything." | |
| **Eric** | Young, spoilt, forces himself on Eva Smith, drinks, feels regret<br><br>*Reckless, rebellions, socialist, controlled, irresponsible, dualistic, disgraced* | | • *"Not quite at ease half shy, half assertive."*<br>• *"You're not the kind of father a chap could go to when he's in trouble."*<br>• *"You're beginning to pretend that nothing's really happed at all.'* | |
| **Gerald Croft** | Politically closest to Birling, engaged to Sheila<br><br>*Aristocratic, evasive, secretive, disingenuous, privileges* | | • *"You seem to be a nice well-behaved family"*<br>• *"The hero… the wonderful Fairy prince."* | |
| **Eva Smith/ Daisy Renton** | Never seen in the play. Stands for victims<br><br>*Suffragette, victim, motif of suffering, emblematic, allegorical, vulnerable* | | • "A nice promising life there, I thought, and a nasty mess somebody's made of it."<br>• "She had a lot to say – far too much – so she had to go.'<br>• ' She went away "to be alone, to be quiet, to remember all that had happened." | |

| Context | | ✓ |
|---|---|---|
| **J B Priestley** | • 1934: writes 'English Journey' about the poorer parts on Britain.<br>• Often labelled a 'socialist'<br>• 1945: writes An Inspector Calls | |
| **1912 England** | • *General attitude of those with social and economic sway was towards looking after oneself*<br>• *Work strikes*<br>• *Workers' rights*<br>• *Pre WW1*<br>• *Suffragette movement*<br>• *Class system* | |
| **1945 England** | • *Clement Atlee's Labour party won a landslide election, reflecting a wave of enthusiasm towards communal responsibility*<br>• *Post WW1 and WW2*<br>• *Social levelling*<br>• *Women's rights*<br>• *Workers' rights*<br>• *Trade unions*<br>• *National Insurance*<br>• *Welfare system*<br>• *NHS* | |
| **Class** | • *Pre-First World War, strong distinctions between classes*<br>• *Women subservient*<br>• *Post-Second World War, class distinctions reduced*<br>• *Women earned a more valued place in society*<br>• *Greater desire for social change.* | |
| **Titanic** | • British passenger liner<br>• Sank in the North Atlantic Ocean<br>• 15th April 1912.<br>• 1,500 people died | |

Bournemouth School – Knowledge Organiser – Year 10

ENGLISH

Bournemouth School

# Year 10 'An Inspector Calls' Knowledge organiser

| Dramatic Form | | ✓ |
|---|---|---|
| **Well-made play** | The plot is intricate and complex, action builds to a climax. Concerned with events that happened before the events of the play. Usually ends with a return to order. | |
| **Morality play** | Popular during the 15th and 16th centuries. Taught the audience lessons focussing on the seven deadly sins. | |
| **Crime Thriller** | Gripping tale based around a crime. Audience receives clues and must guess what has happened. All is revealed by the climax. | |
| **Three Unities** | unity of action: one main plot<br>unity of time: the action takes place over a short period in the real time<br>unity of place: the play takes place in a single location (the dining room).<br>Makes the social message easy to understand. | |
| **Dramatic Device** | | |
| **Dramatic irony** | When the audience know more than the characters for dramatic effect. | |
| **Cliff-hanger** | The audience have to wait to find out what happens, even though they have already anticipated it. | |
| **Setting** | The Birling's home is described at the start as 'substantial and heavily comfortable, but not cosy and home-like.' The setting reflects the lack of warmth and kindness within the family. | |
| **Proleptic irony/ foreshadowing** | When an earlier event gives the audience a clue ("foreshadows") a later event in the play. | |
| **Photograph** | The Inspector only shows the photograph to one person at a time. This creates mystery and tension. | |
| **The 4th Wall** | As the Inspector gives his final speech, he breaks the fourth wall and speaks directly to the audience. | |
| **Sounds** | Sharp ring of the doorbell interrupts Birling. Forces the audience to make a connection between the Inspector's arrival and Birling's Capitalist ideology | |
| **Lighting** | Priestley uses a change in lighting to show the change in atmosphere. 'The lighting should be pink and intimate until the INSPECTOR arrives, and then it should be brighter and harder. | |
| **Dramatic timing** | Entrances and exits are placed at dramatic times in the plot to create tension.<br><br>There is also a time-lapse. Set in 1912, written on 1945 so dramatic irony can be created. | |

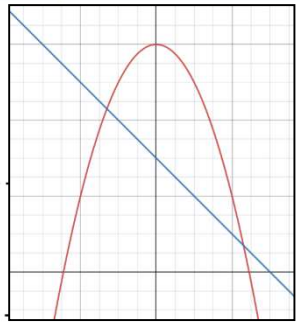
| Themes-a key idea that runs throughout the play | | ✓ |
|---|---|---|
| **Age and change** | *Priestley shows how older characters represent an outdated way of thinking. Younger characters represent new attitudes towards caring about others in society.* | |
| ***Responsibility and Guilt*** | *All of the family are forced to reflect upon how responsible they are for Eva's death.* | |
| ***Class and gender*** | *Eva Smith's position in society is weakened because she is from a lower class background and she is also a woman. Biases related to class and gender mean that certain characters are dismissive and treat others in a derogatory manner.* | |
| ***Capitalism verses socialism*** | *Socialism is an approach to economic and social systems and is characterised by social ownership, democratic control, and high levels of equity. Capitalism is where factors of production are privately owned by private groups or individuals.* | |
| **Social responsibility** | *Priestley wanted his audience to be responsible for their own behaviour and responsible for the welfare of others* | |
| **Hypocrisy** | *The hypocrisy of middle-class Edwardian society is uncovered: appearance and reputation matter more than reality & morality.* | |

| Plot structure | | ✓ |
|---|---|---|
| **Act 1** | Set in April 1912. The Birling family and Gerald Croft are celebrating Sheila Birling's engagement. Inspector Goole arrives and say he is investigate the death of a young woman who committed suicide. Mr Birling is shown a photograph of Eva, after initially denying recognising her, he remembers firing her in 1910. Sheila recalls also having Eva sacked about her manner when served by her in a department store. The Inspector reveals that Eva Smith changed her name to<br>Daisy Renton. Gerald reveals he had an affair with Daisy Renton. | |
| **Act 2** | Gerald explains that he had an affair with Eva, but hasn't seen her since he ended their relationship. Sheila gives her engagement ring back to Gerald. The Inspector turns his attention to Mrs Sybil Birling, she confesses that she also had contact with Eva, but Eva gave herself a different name. Eva approached a charity chaired by Mrs Birling as she was desperate and pregnant but help was refused by Mrs Birling. She tells Inspector Goole that the father should be held entirely responsible and should be made an example of. | |
| **Act 3** | Eric is revealed as the father. He stole money from Mr Birling's office to provide money to Eva. The Inspector delivers his final speech. After he leaves, the family begin to suspect that he was not a genuine inspector. Next, they phone the infirmary to be informed that no suicide case has been brought in. Mr Birling, Mrs Birling and Gerald congratulate themselves that it was all a hoax but his attitude upsets Sheila and Eric. The phone rings. Mr Birling announces to the family that a girl<br>has just died on her way to the infirmary, a police inspector is coming to question them. | |

| Keyword | Definition | Examples |
|---|---|---|
| Set Notation | A formal way of representing a solution to an inequality. | $x > 2 \rightarrow \{x: x > 2\}$<br>$x \leq -5 \rightarrow \{x: x \leq -5\}$<br>$x < 1$ *or* $x > 8 \rightarrow \{x: x < 1\} \cup \{x: x > 8\}$<br>$-10 \leq x < 3 \rightarrow \{x: -10 \leq x < 3\}$ |
| Factorising | A method which turns an expression into the **product** of two or more brackets (factors). It is a technique we can use to solve **some** quadratic equations. | $x^2 + 9x + 14 \equiv (x+2)(x+7)$<br>$x^2 - 6x + 9 \equiv (x-3)^2$ |
| DOTS | Difference of Two Squares $\boldsymbol{a^2 - b^2 = (a+b)(a-b)}$ | Factorise $x^2 - 121$:<br>$\boldsymbol{x^2 - 121 = (x-11)(x+11)}$ |
| Roots | The roots of a quadratic function are its solutions when it is equated to zero. | The roots of $x^2 + 9x + 14$ are<br>$\boldsymbol{x = -2}$ **and** $\boldsymbol{x = -7}$<br>Because<br>$x^2 + 9x + 14 = 0$<br>$(x+2)(x+7) = 0$<br>So $x + 2 = 0$ or $x + 7 = 0$<br>$\boldsymbol{x = -2}$ **and** $\boldsymbol{x = -7}$ |
| Quadratic Expression | Any expression of the form $ax^2 + bx + c$, where $a, b, c$ are numbers. | $x^2 + 8x - 1$ $5x^2 + 9x$ $3x^2 - 4$ |
| Quadratic Formula | A formula for solving any quadratic equation of the form $ax^2 + bx + c = 0$, used when factorising doesn't work.<br>$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ | Solving $3x^2 - 6x - 2 = 0$<br>$x = \frac{6 \pm \sqrt{(-6)^2 - 4(3)(-2)}}{2(3)} = \frac{6 \pm \sqrt{60}}{6}$<br>$= \frac{6 \pm 2\sqrt{15}}{6} = \frac{\boldsymbol{3 \pm \sqrt{15}}}{\boldsymbol{3}}$ |
| Perfect Squares | Linear expressions raised to a power of 2. | $(x-3)^2$ $(x+1)^2$ $(3x-5)^2$ |
| Completing The Square | Process of expressing $x^2 + bx + c$ in the form $(x + \frac{b}{2})^2 - (\frac{b}{2})^2 + c$ | $\boldsymbol{x^2 - 8x + 2}$<br>$= (x-4)^2 - 16 + 2 = \boldsymbol{(x-4)^2 - 14}$ |
| Simultaneous Equations | A pair of equations involving two variables, requiring a common solution. Solved by Elimination or Substiion. | $3x + 2y = 9$<br>$x - y = 4$<br>$y = x^2 + 4x - 1$<br>$y = 3x + 1$ |
| Elimination | Make the coefficients of one variable the same in both equations, and then either add of subtract the equations to **eliminate** this variable. | $3x + 2y = 9$<br>$x - y = 4$ ....multiply by 3.....<br>subtracting.....<br>$3x + 2y = 9$<br>$3x - 3y = 12$<br>$5y = 21$<br>$\boldsymbol{y = 4.2, x = 8.2}$ |
| Substitution | **Substituting** an expression for x or y from one equation into the other equation. | $y = x^2 + 4x - 1$ $y = 3x + 1$<br>$\therefore\ x^2 + 4x - 1 = 3x + 1$<br>$x^2 + x - 2 = 0$<br>..... |

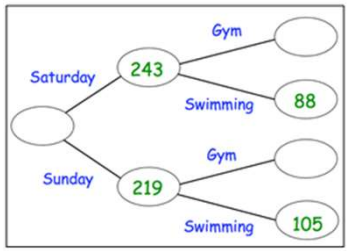
Inequalities are solved in the same way as equations with one careful note:
**If you multiply or divide an inequality by a negative number you must change the inequality symbol.**

A pair of quadratic and linear simultaneous equations can have up to solutions.
To find the coordinates where two graphs intersect, solve their equations simultaneously.

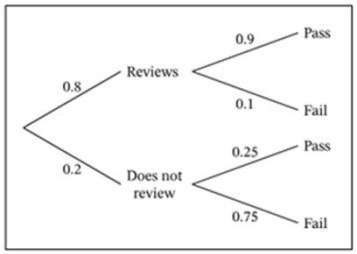


| Keyword | Definition | Example(s) |
|---|---|---|
| Probability | Defined as $\frac{\text{number of successful outcomes}}{\text{total number of possible outcomes}}$ | *P(5 on a dice)* $= \frac{1}{6}$ *P(tail on a coin)* $= \frac{1}{2}$ |
| Sample Space Diagram | Shows all the possible outcomes of two events | |
| Mutually Exclusive Events | Events that cannot happen at the same time.<br>$P(A \text{ or } B) = P(A) + P(B)$ | A = Selecting a KING from a pack of cards B = Selecting an ACE<br>$P(A \text{ or } B) = \frac{4}{52} + \frac{4}{52} = \boldsymbol{\frac{8}{52}}$ |
| Exhaustive Events | A set of events which include all possible outcomes. The probabilities of exhaustive, mutually exclusive events sum to 1. | A =Rolling an EVEN number on a dice<br>B = Rolling an ODD number on a dice |
| Experimental Probability | Defined as $\frac{\text{frequency of outcome}}{\text{total number of trials}}$ | Rolling a dice 10 times:<br>RESULTS = 5, 3, 6, 3, 2, 4, 1, 5, 5, 1 $P(5) = \frac{3}{10}$ |
| Expectation | Expected number of outcomes = number of trials x probability of outcome | Rolling a dice 20 times, I would expect to land an odd number a total of 10 times. $\text{Exp}(Odd) = 20 \times \frac{1}{2} = 10$ |
| Frequency Tree | Shows two or more events and the number of times they occurred. | |
| Independent Events | Events that do not affect each others probability of occurring. | Choosing two marbles from a bag one after the other, **replacing the first marble** before taking the second. |
| Dependent Events | If one event depends upon the outcome of another event, the events are dependent. | Choosing two marbles from a bag one after the other, **NOT replacing the first marble** before taking the second. |
| Probability Tree Diagram | Shows two or more events and their probabilities. | |
| Conditional Probability | The probability of a dependent event. The probability of the second outcome is dependent/conditional on the first. | Consider **5 blue and 3 red marbles in a bag**. Taking 2 marbles out without replacing them:<br>$\text{P(Red, Red)} = \frac{3}{8} \times \frac{2}{7} = \frac{6}{56}$ |
| Element | An element is a "member" of a set.<br>$\in$ means "**is an element of**" | Set of prime numbers less than 10 = { 2, 3, 5, 7}<br>The numbers 2,3, 5 and 7 are called elements of that particular set. |
| Universal Set | References all elements being considered.<br>$\xi$ means "**univeral set**" | Consider creating a Venn Diagram of favourite subject from MATHS, ENG or SCIENCE. Asking a year 10 maths class with 31 students in it.<br>$\xi$ = The 31 students in that class |

**Frequency Diagram**




**Probability Tree Diagram**




**Sample Space Diagram**

Rolling a dice and flipping a coin:

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| H | (H,1) | (H,2) | (H,3) | (H,4) | (H,5) | (H,6) |
| T | (T,1) | (T,2) | (T,3) | (T,4) | (T,5) | (T,6) |

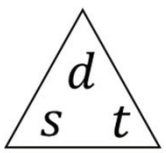
Year 10 – Maths – Autumn 1 – Units 9 & 10

Bournemouth School – Knowledge Organiser – Year 10

MATHS

# Year 10 – Maths – Autumn 1 – Units 11 & 12

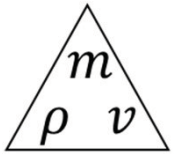
| Keyword | | Definition | Example(s) |
|---|---|---|---|
| Iteration | | Iteration means carrying out a process repeatedly | *Compound interest is repeatedly multiplying by the same value.* |
| Compound interest | | The interest earned each year is added to the money in the account and earns interest the next year. | *4% compound interest for n years*<br>*Amount = initial amount x $1.04^n$* |
| Growth | | When an amount increases | *Multiplying by 1.05 increases by 5%* |
| Decay | | When an amount decreases | *Multiplying by 0.85 decreases by 15%* |
| Compound measures | | Combined measures of two different quantities | *Speed is a measure of distance and time* |
| Velocity | | Speed in a given direction. Possible units are metres per second (m/s) or kilometres per hour (km/h) | *15m travelled in 10s*<br>V = 15 ÷ 10 = 1.5m/s |
| Density | | The mass of a substance contained in a certain volume. Usually measured in grams per centimetres cubed (g/cm³) | *40cm³ of lead has a mass of 450g*<br>*Density* = 450 ÷ 40 = *11.25* g/cm³ |
| Pressure | | The force in newtons applied over an area. Usually measured in newtons per square metre (N/m²) or per square centimetre (N/cm²) | *A force of 48N is applied to an area of 12*cm²<br>*Pressure = 48/12 = 4* N/cm² |
| Direct proportion | | When $x$ and $y$ are in direct proportion then $y = kx$ where k is a constant. |  |
| Inverse proportion | | When $x$ and $y$ are in inverse proportion then $y = \frac{k}{x}$ where k is a constant. |  |




$$Speed = \frac{Distance}{Time}$$

$$Distance = Speed \times Time$$

$$Time = \frac{Distance}{Time}$$




$$Density = \frac{Mass}{Volume}$$

$$Mass = Density \times Volume$$

$$Volume = \frac{Mass}{Density}$$


$$Pressure = \frac{Force}{Area}$$

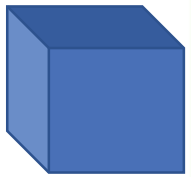
$$Force = Pressure \times Area$$

$$Area = \frac{Force}{Pressure}$$

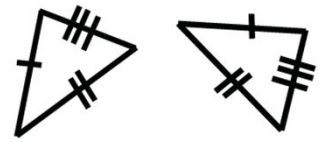
| Keyword | Definition | Example(s) |
|---|---|---|
| Congruent | Congruent shapes are exactly the same shape and size | *All angles and sides lengths are the same* |
| Congruent Triangles | There are four conditions for two triangles to be congruent<br>SSS – all three sides equal<br>SAS – two sides and the included angle are equal<br>ASA – two angles and a corresponding side are equal<br>RHS – right angle, hypotenuse and one other side are equal | |
| Similar | Two shapes are similar if one is an enlargement of the other | |
| Scale factor | The scale factor is how much the shape has been enlarged by | *Scale factor of 3* |

If two 3D shapes are similar and the scale factor of their lengths is k

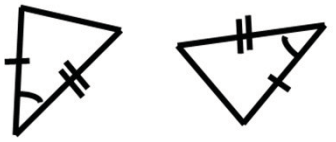
- The lengths are multiplied by $k$
- The surface area is multiplied by $k^2$
- The volume is multiplied by $k^3$



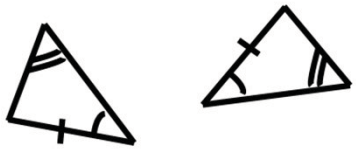
SSS



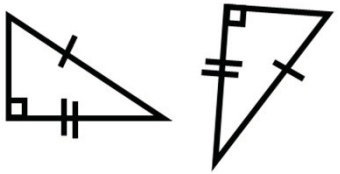
SAS



ASA



RHS



## B3 – Infection and response

| Keyword | Learn | ✓ |
|---|---|---|
| Pathogen | Micro-organisms that cause infectious diseases in plants and animals. The four types are bacteria, virus, fungus and protist. | |
| Bacteria | Causes disease by reproducing rapidly inside the body and releasing toxins which damage tissues and make us feel ill. | |
| Virus | Causes disease by living and reproducing rapidly inside cells, causing cell damage. | |
| Antibiotic | Drug which cures bacterial disease by killing pathogenic bacteria. Some antibiotics kill specific types of bacteria. | |
| Painkiller | Used to treat the symptoms of a disease but do not kill pathogens. | |
| Resistant strain | A bacteria that is not affected by an antibiotic. | |
| Vector | An organism which carries something e.g. a disease but isn't affected by it. | |
| Vaccine | Dead or weakened form of a pathogen injected into the body. | |
| Antigen | Protein on the surface of a pathogen which the body recognises as a foreign body. | |
| Antibody | Produced by white blood cells in response to antigen. Binds to the antigens on pathogens and helps them be destroyed. | |
| Lymphocyte | White blood cells that make antibodies. | |
| Phagocyte | White blood cells that ingest pathogens. | |
| Monoclonal antibody | Antibody produced by clones of a single hybridoma cell. They are specific to one binding site on one protein antigen. | |

| Drug | Learn the origin of these drugs. |
|---|---|
| Digitalis | Heart drug, originally from foxgloves (flowers). |
| Aspirin | Painkiller, originally from willow trees. |
| Penicillin | Antibiotic, originally from the Penicillium mould. Discovered by Alexander Fleming. |

| Disease | Pathogen | Symptoms, Transmission and Treatment | ✓ |
|---|---|---|---|
| Measles | Virus | • Fever and a red skin rash. Can be fatal.<br>• Spread through inhalation of infected droplets from sneezes and coughs.<br>• Most young children are vaccinated against measles. | |
| HIV | Virus | • Initially flu like, can become AIDS when the body's immune system becomes so badly damaged it can no longer deal with other infections or cancers. .<br>• Spread through sexual contact, exchange of bodily fluids such as blood.<br>• Initially can be successfully controlled with antiretroviral drugs. | |
| Tobacco mosaic virus | Virus | • A 'mosaic' pattern of discolouration on the leaves which affects the growth of the plant due to lack of photosynthesis. | |
| Salmonella | Bacteria | • Fever, abdominal cramps, vomiting and diarrhoea.<br>• Spread through bacteria ingested in food prepared in unhygienic conditions.<br>• Poultry (chickens and turkeys) are vaccinated against Salmonella to control the spread. | |
| Gonorrhoea | Bacteria | • A thick yellow or green discharge from the vagina or penis and pain on urinating.<br>• Spread through sexual contact.<br>• Can be treated with antibiotics or prevented by the use of a barrier method of contraception (condom). | |
| Rose black spot | Fungus | • Purple or black spots develop on leaves, which often turn yellow and drop early.<br>• Spread in the environment by water or wind.<br>• Can be treated by using fungicides and/or removing and destroying the affected leaves. | |
| Malaria | Protist | • Recurrent episodes of fever and can be fatal.<br>• Uses the mosquito as a vector.<br>• Controlled by preventing the vectors, mosquitos, from breeding and by using mosquito nets to avoid being bitten. | |

## B3 – Infection and response

| Keyword | Learn | ✓ |
|---|---|---|
| Preclinical testing | Testing done in a laboratory using cells, tissues and live animals. | |
| Clinical trial | Trial using healthy volunteers and ill patients. | |
| Efficacy | How effective a drug is. | |
| Dose | How much of the drug to use and how often. | |
| Toxicity | A check in drug trials for side effects. | |
| Placebo | A tablet that does not contain any medicine. ( A fake drug. ) | |
| Double blind trial | Both doctor and patient don't know whether the patient is taking the drug or a placebo. Avoids bias in a drug trial. | |

Human defence system includes the skin, nose, trachea and bronchi and the stomach.

In the immune system, white blood cells help to defend against pathogens by: phagocytosis, antibody production and antitoxin production.

**Vaccination – Learn the 4 stages in the correct order.**

1. Dead or weakened pathogen injected into the body.
2. Stimulates white blood cells to make specific antibodies.
3. White blood cells remember how to make the correct antibody for that pathogen.
4. If the pathogen re-enters the body, the white blood cells will respond quickly to produce the correct antibodies preventing infection.

**Clinical trials – Learn these steps.**

Very low doses of the drug are given at the start of the clinical trial.

If the drug is found to be safe, further clinical trials are carried out to find the optimum dose for the drug.

In double blind trials, some patients are given a placebo.

**Plant diseases**

7 symptoms - stunted growth, spots on leaves, areas of decay (rot), growths, malformed stems or leaves, discolouration, the presence of pests (e.g. aphids).

3 sources of information - reference to a gardening manual or website, taking infected plants to a laboratory to identify the pathogen, using testing kits that contain monoclonal antibodies.

2 types of ion deficiency –
stunted growth caused by nitrate deficiency, nitrate ions are needed for protein synthesis and therefore growth
chlorosis caused by magnesium deficiency, magnesium ions are needed to make chlorophyll

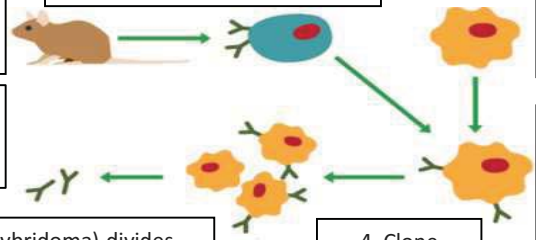
Monoclonal antibodies are used:

- for diagnosis such as in pregnancy tests
- in laboratories to measure the levels of hormones and other chemicals in blood, or to detect pathogens
- in research to locate or identify specific molecules in a cell or tissue by binding to them with a fluorescent dye
- to treat some diseases: for cancer the monoclonal antibody can be bound to a radioactive substance, a toxic drug or a chemical which stops cells growing and dividing. It delivers the substance to the cancer cells without harming other cells in the body.

**Monoclonal antibodies – learn the steps in the correct order.**

1. Inject an inactive pathogen or antigen into a mouse.
2. Stimulate mouse **lymphocytes** to produce an antibody for the pathogen.
3. Lymphocytes from the mouse are extracted and combined with a tumour cell to produce a **hybridoma** cell.
4. Clone (hybridoma) cell.
5. The (hybridoma) divides rapidly **and** produces lots of the antibody.
6. Collect and purify the antibody.

(Myeloma) cancer tumour cell



# Chapter 3 – Quantitative Chemistry

| Key term | Definition | ✓ |
|---|---|---|
| Conservation of mass | No atoms are lost or made during a chemical reaction so mass of products = mass of reactants | |
| Relative atomic mass ($A_r$) | The relative mass of one atom of a substance, i.e. the big number on periodic table | |
| Relative formula mass ($M_r$) | Sum of the relative atomic masses of the atoms in the numbers shown in the formula | |
| Avogadro's constant | Number of particles in one mole of substance<br>$N_A = 6.02 \times 10^{23}$ | |
| Mass of one mole (g) | Numerically the same as the relative formula mass<br>eg the mass of 1 mole of $CO_2$ = (12+ 16+16) = 44 g | |
| Limiting reactant | The reactant that is completely used up in a chemical reaction and limits the amount of product formed | |
| Atom economy | A measure of the amount of starting materials that end up as useful products | |
| Uncertainty | The interval within which the true value of a value can be expected to lie. | |

| Key equations | ✓ |
|---|---|
| Moles = $\frac{\text{mass (g)}}{M_r}$ | |
| Moles = concentration (mol/dm$^3$) x volume (dm$^3$) | |
| Concentration (g/dm$^3$) = concentration (mol/dm$^3$) x $M_r$ | |
| % yield = $\frac{\text{actual mass}}{\text{expected mass}}$ x 100 | |
| % atom economy = $\frac{\text{Mr of desired product}}{\text{sum of Mr of all reactants}}$ x 100 | |
| Gas volume (dm$^3$) = moles x 24 | |

**Calculating unknown mass or concentration**

1. Work out moles of known substance using n= m/$M_r$ or n = c x v
2. Use the equation ratio to work out the moles of the unknown substance
3. Calculate mass or concentration of the unknown substance using m = n x $M_r$ or c = n / v

During a reaction, the mass may appear to increase if one of the reactants is a gas.

magnesium + oxygen → magnesium oxide

Oxygen from the air is added to the magnesium so the product will be heavier in mass.

During a reaction, the mass may appear to decrease if one of the products is a gas.

copper carbonate → copper oxide + carbon dioxide

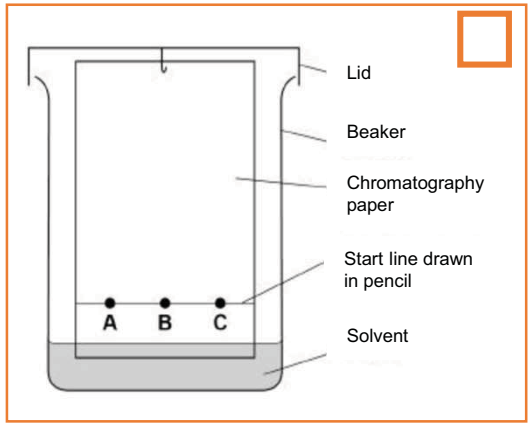
Carbon dioxide gas is produced and released into the atmosphere, so the product is lighter in mass.

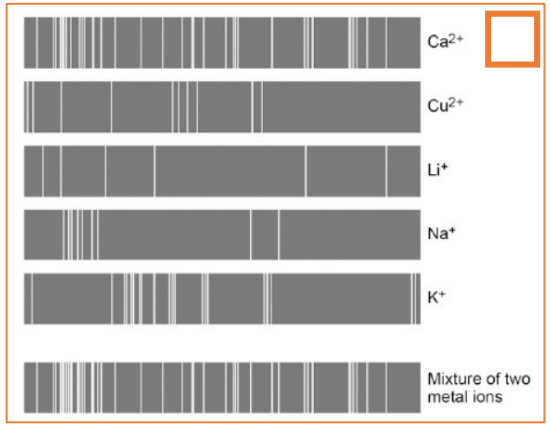
# Chapter 8 – Chemical Analysis

| Test | Results | ✓ |
|---|---|---|
| **Flame test**: Dip a nichrome wire loop into the substance. Hold the metal loop in a blue flame. | Sodium ion = orange<br>Potassium ion = lilac<br>Calcium ion = orange-red<br>Copper ion = green<br>Lithium ion = crimson | |
| **Sodium hydroxide test:** Add sodium hydroxide to the substance | Iron (II) ion = green precipitate<br>Iron (III) ion = brown precipitate<br>Copper (II) ion = blue precipitate<br>Magnesium ion = white precipitate<br>Calcium ion =white precipitate<br>Aluminium ion = white precipitate (dissolves in excess NaOH) | |
| **Halide ion:** Add dilute nitric acid and silver nitrate | Chloride = white precipitate<br>Bromide = cream precipitate<br>Iodide = yellow precipitate | |
| **Carbonate ion:** Add dilute acid | Effervescence (fizzing).<br>Carbon dioxide gas is produced | |
| **Sulfate ion:** Add dilute hydrochloric acid and barium chloride | White precipitate forms.<br>$BaSO_4$ is produced which is insoluble | |

| Gas | Test | ✓ |
|---|---|---|
| Oxygen | Relights a glowing splint | |
| Hydrogen | Lit splint makes a squeaky pop noise | |
| Chlorine | Bleaches damp blue litmus paper | |
| Carbon dioxide | Turns limewater (calcium hydroxide solution) cloudy | |

| Key term | Definition | ✓ |
|---|---|---|
| Pure substance | Made up of one element or compounds<br>Melt or boil at specific temperatures | |
| Formulation | A mixture that has been designed for a specific purpose. The components are mixed in carefully measured quantities. | |
| Chromatography | A technique used to separate mixtures. Separation depends on the distribution of substances between the stationary and mobile phase | |
| Mobile phase | The solvent which moves up the paper | |
| Stationary phase | The chromatography paper | |
| Rf value | $\frac{\text{Distance moved by substance}}{\text{Distance moved by solvent}}$ | |



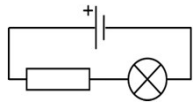




| Flame emission spectroscopy – instrumental method | | ✓ |
|---|---|---|
| Method | Sample is put into a flame and light given out is passed through a spectroscope. The output is a line spectrum | |
| Advantages | Quicker, more accurate, more sensitive | |
| Application | Can identify which metal ions are present and measure their concentrations. | |

## Topic 2 – Electricity

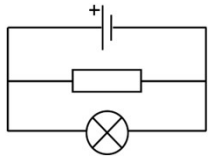
| Keyword | Learn | ✓ |
|---|---|---|
| Current, I | The rate of flow of electrical charge measured in amperes, A.<br>1 ampere = 1 coulomb (of charge) per second. | |
| Potential Difference, V | The work done (or energy transferred) per unit of charge measured in volts, V.<br>I volt = 1 joule (of energy) per coulomb (of charge). | |
| Resistance, R | A measure of how difficult it is to get a current to flow through a component, measured in ohms, W. | |
| Power, P. | The rate at which energy is transferred, measured in watts, W.<br>1 watt = 1 joule per second. | |
| Ohms law | The current flowing through a resistor is directly proportional to potential difference and inversely proportional to the resistance.<br>I = V/R | |
| Series Circuit | A circuit (or section of circuit) where there is only one route for the current to take. | |
| Parallel Circuit | A circuit (or section of circuit) where the charge can flow through more than one route. | |
| Alternating Potential Difference | The potential difference alternates between a positive and negative value causing an Alternating Current (AC) that changes it's direction of flow. | |
| Direct Potential Difference | The potential difference has a constant value causing a Direct Current (DC) that always flows in one direction. | |
| LDR | Light dependent resistor ; A resistor whose resistance depends on the intensity of the light. | |
| Thermistor | A resistor whose resistance depends on the temperature. Generally, the higher the temperature the lower the resistance. | |
| Transformer | A step-up transformer increases the PD (and reduces the current).<br>A step-down transformer decreases the PD (and increases the current). | |

**Series Circuit**

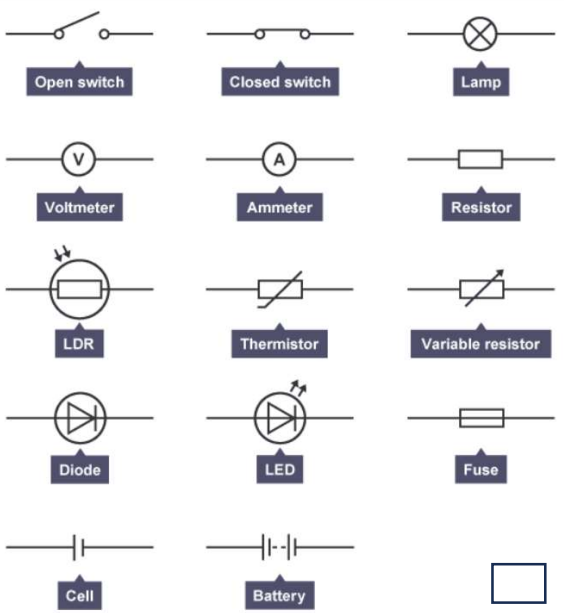


Current is the same at all points. Potential Difference is shared across each component. Total Resistance is the sum of the resistances.

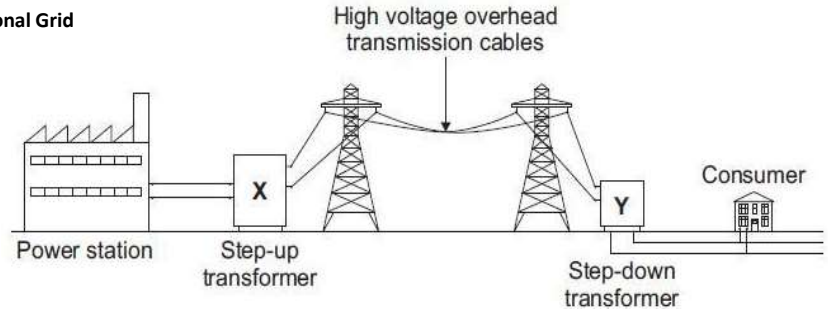
**Parallel Circuit**

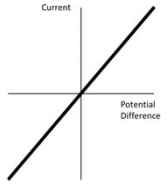


Potential Difference across each branch is the same. Current is divided between each branch. Total Resistance is less than the smallest resistor.

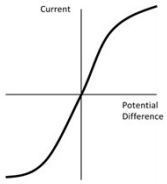



**The National Grid**

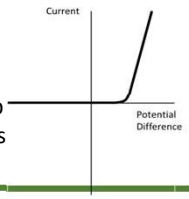



**Ohmic resistor**
A device that obeys Ohm's Law.




**Filament Lamp**
As the current increases the filament heats up and this increases the resistance.




**Diode**
Only allows the current to flow in one direction.

Key equations: $I = Q \div t$, $V = E \div Q$, $P = IV$ $P = I^2R$ $V = IR$

# Art Craft & Design **GCSE** Y10 Drawing

| Keywords | Drawing knowledge - Read, cover, write, review |
|---|---|
| **Tone** | How light or dark something is. Tones could refer to black, white and the grey tones between, or how light or dark a colour appears. |
| **cross-hatching** | A drawing technique where shade or tone are created using crossing lines. |
| **Hatching** | A drawing technique where shade or tone are created using closely-spaced lines. |
| **Stippling** | Dots used instead of lines to build up tone. The size, number and distance between the dots will change the tones created. |
| **Blending** | Blending with your pencil involves rubbing the graphite with either your finger or a smudging tool (tortillon) to achieve a smooth finish. |
| **Tonal drawing** | Drawings that show a full range of **tones**, or shades, look more realistic. Good **tonal drawings** will show at least five different shades, smooth blending and no dark edges or outlines. |

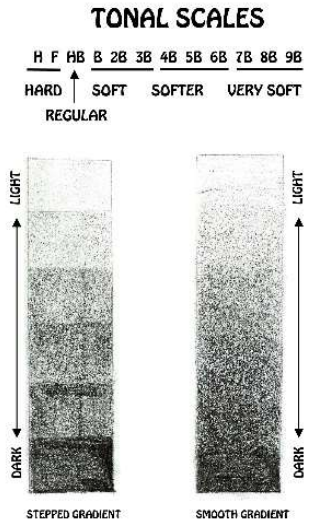
**Types of pencil -** Pencils come in a range of hardness:
•The **H** range is hard and light, and useful for design or technical drawings.
•The **B** range is soft and dark, and more suitable for shading and tonal drawings.
•**B** stands for **Black** and each number indicates the darkness of the pencil, for example **2B** is twice as dark as **B**. **4B** is four times darker than **B**.
•The **H** range works the same way - **2H** is twice as hard as **H**, **4H** is four times as hard.

**Shapes and Forms**
**Shapes** have two dimensions: length and width
examples: square, triangle, circle, etc…

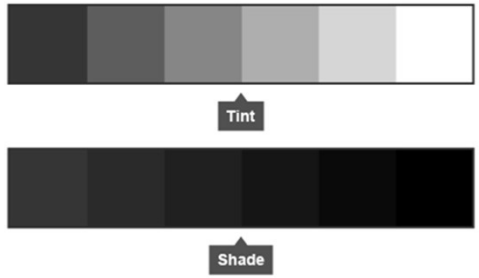
**Forms** have three dimensions: length, width and depth
Example: cube, cone, sphere, etc…


**Drawing tools and materials**

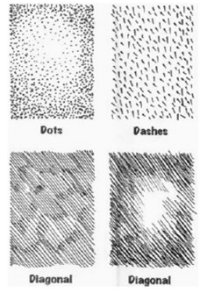
Drawing materials include:
•pencils and coloured pencils
•graphite sticks
•charcoal
•ballpoint pens
•fine line and felt tip pens
•drawing ink
•erasers




**Viewfinder** A window to select focus area for a drawing
**Composition** The position and layout of shapes / objects on




**Mark Making and Texture**
**Mark Making** describes the different lines, dots, marks, patterns, and textures we create in an artwork.
**Texture** is the way a surface looks or feels. We use different styles of Mark Making to create the impression of different Textures.




| Keyword | Read, cover, write, review |
|---|---|
| **Negative space** | Every shape takes up space. The space it *doesn't* take up is called negative space. |
| **Directional shading** | Shading in a particular direction to make something appear solid |
| **Proportion** | The size and shape of one object in comparison to another |
| **Scale** | The different sizes of shapes. Scale refers to the overall physical size of an artwork or objects in the artwork |

Bournemouth School – Knowledge Organiser – Year 10

ART

| Methods of production | | | | | ☑ |
|---|---|---|---|---|---|
| Definition: The process in which the factors of production are turned into products or services.<br><br>Deciding on which method is most appropriate for a business will depend on the type of good, finance available and business objectives. | | | | | |
| **Method of production** | **Definition** | **Advantages** | **Disadvantages** | **Examples** | |
| Job production | The business produces bespoke, tailor made products that meet the specific requirements of the customer. | ○ Higher prices can be charged<br>○ Products are likely to be high quality<br>○ Variety of work increases staff motivation | ○ Expensive to produce<br>○ Employees need to be skilled and may require training | ○ Made-to-measure clothes such as suits<br>○ Handmade crafts<br>○ Wedding cakes | |
| Flow Production | A business makes large numbers of identical products on a continuous production line. | ○ Large volumes of products can be produced, reducing unit costs<br>○ Employees can **specialise** in a small number of tasks. This is also known as **division of labour** | ○ High initial costs of machinery<br>○ A lack of flexibility, as all products need to be identical or fairly similar<br>○ Employees may become bored or demotivated due to limited range of tasks | ○ Chocolate bars<br>○ Crisps<br>○ televisions<br>○ bottled drinks | |

| Efficiency in production | | | | ☑ |
|---|---|---|---|---|
| **Efficiency** measures how well a business uses its resources to make its products or provide its service.<br>Measured using **cost per unit**. | | Efficiency is impacted by:<br>1. Employee motivation<br>2. Skills of the managers<br>3. The quality of the suppliers<br>4. investment in technology<br>5. how the products are made. | | |
| **Efficiency in production** | **Definition** | **Advantages** | **Disadvantages** | |
| Lean production | This aims to reduce waste and increase efficiency during the production process, whilst maintaining quality. | ○ Higher productivity.<br>○ Fewer defective products.<br>○ Less money spent on storage costs | ○ Higher costs of training staff<br>○ No spare stock is held to deal with surges in demand<br>○ Delays in delivery can delay production | |
| Kaizen | Means 'continuous improvement' and makes all employees responsible for suggesting ways that the business can improve production processes. | ○ As the ideas come from the workers themselves, they are more likely to be simpler, and therefore easier to implement.<br>○ Increases motivation in staff | ○ For **kaizen** to work, employees need to be motivated and committed to improving the business. | |
| Just in time (JIT) | The business only orders raw materials and makes goods once an order has been placed. | ○ Less money tied up in stock<br>○ Less stock that could go out of date will reduce waste<br>○ JIT reduces costs of production | ○ Businesses are unable to use **bulk-buy discounts** if they only buy in small quantities.<br>○ Requires good relationships with suppliers | |

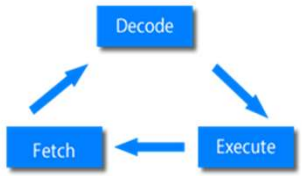
| Methods of stock control | | | | |
|---|---|---|---|---|
| **Method** | **Definition** | **Advantages** | **Disadvantages** | |
| Just in time (JIT) | The business does not store any raw materials. Instead, it has regular deliveries that bring only what is needed before its existing raw materials run out. | ○ Less money tied up in stock that could go out of date or out of fashion.<br>○ Products are fresher due to frequent deliveries<br>○ Storage space can be used for other items | ○ Unable to use bulk-buy discounts if buying in small quantities.<br>○ Requires good relationships with suppliers<br>○ Hard for businesses to react to unexpected changes in demand | |
| Just in case (JIC) | Involves producing or purchasing stock with excess, or **buffer stock** in place. | ○ Increases the level of customer satisfaction<br>○ Reduce the chance of running out of stock<br>○ Benefit from **bulk-buy discounts (economies of scale)** | ○ Buffer stock space requires more storage space at more cost to the business<br>○ Products kept in stock for a long time may lose their freshness<br>○ High amounts of cash tied up in stock | |

| Factors affecting choice of suppliers | | |
|---|---|---|
| **Factor** | **Explanation** | |
| Price | ○ If a business can get supplies cheaply, this keeps its variable costs low, allowing it to maintain higher profit margins.<br>○ Cheaper goods may mean lower quality items. | |
| Quality | ○ Quality needs to be consistent.<br>○ Quality needs to meet customer expectations for price paid – value for money.<br>○ Customer will associate poor quality with the business, not the supplier. | |
| Reliability | ○ A business needs to be able to trust that their products will be delivered on time, and that suppliers are consistently going to have enough stock available to meet the demands of their customers. | |

| Definitions | | |
|---|---|---|
| Procurement | Procurement means getting the right supplies from the right supplier, at the right price and at the right time. | |
| Logistics | Logistics means making sure the correct products are procured and that they will arrive when needed. Logistics involves three main elements, transportation, storage and distribution. | |
| Supply chain | The process of developing, sourcing, producing and providing goods and services to consumers. A supply chain can involve working with, and relying on a range of other businesses such as suppliers and shipping companies. | |

| Benefits of effective supply chain management | |
|---|---|
| ○ Working with suppliers to ensure that key processes are running efficiently and cost effectively<br>○ Getting goods and services for the best price and value<br>○ Cut waste and unnecessary costs to create a streamlined process and fast production<br>○ More satisfied end consumers, resulting in less complaints and lower returns rates | |

## 1.1 Systems Architecture

| Keyword | Definition | Tick |
|---|---|---|
| **Hardware** | The physical components that make up a computer system. | |
| **Software** | The computer code, programs and algorithms that give instructions to the hardware. | |
| **Central Processing Unit (CPU)** | The CPU executes instructions and perform calculations by performing the FE cycle. | |
| **Control Unit (CU)** | Controls the flow of data in and out of the CPU. Manages the fetching, decoding and execution of instructions. | |
| **Arithmetic Logic Unit (ALU)** | Performs the calculations and logical operations required by programs. | |
| **Von Neumann Architecture** | A design for a computer system where data and instructions are both stored in memory. | |
| **Program Counter (PC)** | Stores the memory location (address) of the next instruction in a program to be executed. | |
| **Accumulator (ACC)** | Stores the results of calculations made by the ALU. | |
| **Memory Address Register (MAR)** | Stores the memory location (address) for data that needs to be fetched from memory or stored into memory. | |
| **Memory Data Register (MDR)** | Stores data that has been fetched from or is waiting to be sent to memory. | |
| **Fetch Execute Cycle (FE Cycle)** |  | |

## 1.2.1/1.2.2 Primary & Secondary Storage

| Keyword | Definition | ✓ |
|---|---|---|
| **Primary storage** | Memory that the CPU can access quickly. | |
| **Secondary storage** | Non-volatile storage where programs and data are kept permanently. | |
| **Volatile** | Power is required for the component to retain data. | |
| **Non-volatile** | The component retains data even when the power is turned off. | |
| **Random Access Memory (RAM)** | Volatile primary storage that holds the programs and data currently running on the computer. | |
| **Read Only Memory (ROM)** | Non-volatile, read-only primary storage that hold the firmware such as BIOS. | |
| **BIOS** | Used to boot up the computer system after it is turned on. Initialises and tests the hardware for error before loading the operating system. | |
| **Magnetic storage** | Uses different patterns of magnetisation to store data, e.g., hard disk Drive (HDD). | |
| **Optical storage** | User lasers to read/write data from optical disks, e.g., CDs & DVDs. | |
| **Solid State Storage** | Contains no moving parts like RAM but is non-volatile. Includes solid-state drives (SSDs) and USB memory sticks. | |

# GCSE Design Technology: TIMBER 7.1-2 Sources of timber

| Tick | Hard wood | Uses | Advantages |
|---|---|---|---|
| | Birch | • Veneers for plywood<br>• Furniture | • Easy to work with<br>• Even grain |
| | Ash | • Tool handles<br>• Ladders | • Tough<br>• Elastic |
| | Jelutong | • Model making | • Very easy to cut and shape<br>• Lightweight |

| Tick | Soft wood | Uses | Advantages |
|---|---|---|---|
| | Larch | • Cladding on buildings<br>• Boats | • Resistant to water<br>• Tough |

| Tick | Man made board | Uses | Advantages |
|---|---|---|---|
| | Chipboard | • Inside of kitchen worktops<br>• Flat pack furniture | • Cheap<br>• Readily available |

| Tick | Property | Definition |
|---|---|---|
| | Grain | The fibres which run the length of a tree trunk which gives it its strength. These are the patterns you see on timber. |
| | Trend forecasting | When manufacturers try to forecast the trends that will occur with a material. |
| | Impact of logging on communities | When trees are cut down for timber. This brings jobs to the area but it does destroy habitats and people's homes. |
| | Recycling and disposal | Timber is a natural material that will biodegrade over time. |
| | Ecological footprint | This is the amount of the environment required to produce goods and services needed to support a particular lifestyle. |
| | Sustainability of timber | Softwoods are better than hardwoods as they grow quicker so are more readily available. Most forests are now sustainably managed. |
| | Pollution | Trees absorb CO2 and release oxygen = trees are good for the environment. |

# GCSE Design Technology **revision**: CORE 1.17 Communication techniques

| Method | Explanation |
|---|---|
| Orthographic projection | 3 main sides; plan, front and side are drawn in line with each other. |
| Exploded drawing | Draws the product disassembled so all parts can be seen. |
| Assembly drawings | A chronological set of drawings - used to show manufacturers how to make a product. |
| Schematic diagrams | Electronics - circuit diagrams to show where components are placed. |
| CAD (Computer Aided Design) | Computer images drawn of products using specialist software. |
| Annotated sketches | Added to sketches to allow the designer to communicate their thinking i.e. materials etc. |
| Freehand sketching | Used by designers as initial ideas as they are quick to do. |
| Cut and paste techniques | Images are used to create and inspire their own ideas i.e. using a mood board. |
| Oblique | A style of 3D drawing, drawn at 45°. |

# GCSE Design Technology:
# TIMBER 7.3 *part 1* Selection of timber

| Tick | Environmental factors | Description/links to selecting timber |
|---|---|---|
| | Genetic engineering | Scientists make changes to the DNA of a tree to try and improve the qualities/characteristics of it for example, make it grow quicker, make it resistant to natural diseases. |
| | Seasoning | When timber is dried out so it will not warp for its intended use. This elongates the life span and durability of the product. |
| | Upcycling | When a timber product is given a new lease of life by repurposing it and reworking it for a different function or to have different/more updated aesthetics/form etc. |

| Tick | Cost factors | Description/links to selecting timber |
|---|---|---|
| | Quality of material | As timber is natural, it can vary in its quality. Timber can have drying defects and others can be very knotty. |
| | Manufacturing processes necessary | The manufacturing processes required affect the cost of the product. The designer will use stock forms and standard components bought in so that they do not need to invest in specialist machinery. |
| | Treatments | Timber will burn and rot quite easily and quickly. It can be treated with chemicals to reduce this. |

| Tick | Social factors | Description/links to selecting timber |
|---|---|---|
| | Different social groups | Groups of people like different products. Designers need to understand what their target market finds appealing and cater towards their wants. |

# GCSE Design Technology **revision**:
# CORE 1.15 Designers and companies

| Name | What are they known for? |
|---|---|
| Alessi | Kitchenware products – which are fun and unique. A company with lots of different designers. |
| Apple | Ground breaking designs which broke away from tradition. Have a loyal customer base. Design company. |
| Heatherwick Studio | Around 200 designers, architects and makers have worked on products from perfume bottles to buildings – original and unique designs. |
| Joe Casely-Hayford | Fashion designer. Known for original but wearable designs, using traditional English tailoring techniques. |
| Pixar | Among the first to develop computer animated feature films. Design company. |
| Raymond Loewy | Designer. Combined simplicity with functionality. Known for the 'teardrop' design for aerodynamics. |
| Tesla, Inc. | Is the leader in producing electric cars which don't compromise on power or quality. |
| Zaha Hadid | An architect who integrated geometric forms with expressive, sweeping fluid curves. Promoted architecture as a visual art form for aesthetic pleasure. |

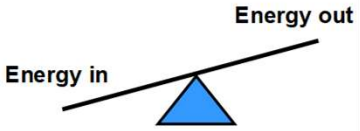
# Nutrients

- Food and drinks provide energy and nutrients in different amounts, they have important functions in the body and people require different amounts during their life.
- Digestion involves different parts of the body, each having an important role.

**Energy**
Energy is essential for life, and is required to fuel many different body processes, growth and activities. These include:
- keeping the heart beating;
- keeping the organs functioning;
- maintenance of body temperature;
- muscle contraction.

**Different people need different amounts of dietary energy depending on their**:
- age;
- gender;
- body size;
- level of activity;
- genes.

**Energy balance**
To maintain body weight it is necessary to balance energy intake (from food and drink) with energy expenditure (from activity).




**Energy in > Energy out = Weight gain**

**Energy from food**
- Energy intake is measured in joules (J) or kilojoules (kJ), but many people are more familiar with the term calories (kcal).
- Different macronutrients provide different amounts of energy.

| | Energy per 1g |
|---|---|
| Carbohydrate | 16kJ (3.75 kcals) |
| Protein | 17kJ (4 kcals) |
| Fat | 37kJ (9 kcals) |

**Energy requirements** vary from person to person, depending on the Basal Metabolic Rate (BMR) and Physical Activity Level (PAL).

**Total energy expenditure = BMR x PAL**

**Body Mass Index (BMI)** can be used to identify if an adult is a correct weight for height.

**BMI = $\frac{\text{weight (kg)}}{(\text{height in m})^2}$**

| **Recommended BMI range (adults)** | |
|---|---|
| Less than 18.5 | Underweight |
| **18.5 to 25** | **Desirable** |
| 25-30 | Overweight |
| 30-35 | Obese (Class I) |
| 35-40 | Obese (Class II) |
| Over 40 | Morbidly obese |

**Nutrients**
There are two different types of nutrients:
- macronutrients;
- micronutrients.

There are three macronutrients that are essential for health:
- carbohydrate;
- protein;
- fat.

There are two types of micronutrients:
- vitamins;
- minerals.

**Carbohydrate**
**Free sugars** include all sugars added to foods, plus sugars naturally present in honey, syrups and unsweetened fruit juice.
**Fibre** is a term used for plant-based carbohydrates that are not digested in the small intestine.
**Sugars** include a variety of different sugar molecules such as sucrose
**Starchy foods** are the main source of carbohydrate for most people and are an important source of energy. We should be choosing wholegrain versions of starchy foods where possible.

**Protein**
Protein is made up of building blocks called amino acids. There are 20 amino acids found in protein. For adults, eight of these have to be provided by the diet (this is higher in children). These are called essential amino acids, which cannot be made by the human body.

**Micronutrients**
**Vitamins**
There are two groups of vitamins:
- **Fat-soluble vitamins**. A, D, E and K. Our bodies can store these vitamins in fat and use them as required so we do not need to consume them every day
- **Water-soluble vitamins**, e.g. B vitamins B1 Thiamin, B2 Riboflavin, B3 Niacin, B9 folate or folic acid, B12 Cobalamin and vitamin C Ascorbic Acid. Our bodies cannot store these and so they need to be consumed on a regular basis

**Minerals and Trace Elements**
Minerals are inorganic substances required by the body in small amounts for a variety of different functions. Examples include: calcium, sodium, iron, phosphorous, fluoride and iodine.
Most micronutrients are mostly provided by the diet. An exception is vitamin D which can be synthesised by the action of sunlight on the skin.

**Key terms**
**Energy**: The power the body requires to stay alive and function.
**Digestion:** The process by which food is broken down in the digestive tract to release nutrients for absorption.
**Macronutrients:** Nutrients needed to provide energy and as the building blocks for growth and maintenance of the body.
**Micronutrients:** Nutrients which are needed in the diet in very small amounts.
**BMR-** Basal Metabolic Rate- the energy we need just to maintain bodily function each day, approx. 1.1 Cal per minute.

**Fibre**- There are two types of fibre, soluble and insoluble. **Insoluble fibre** is indigestible and helps to bulk up and soften our faeces, cleans the bowel as it passes through and helps stave off constipation and therefore also Diverticular disease. Good sources are Some fruits and vegetables, Wholegrains and brown rice
**Soluble Fibre**- Slows down the consumption and digestion of carbohydrates and so helps to control blood sugar levels, this helps us stop feeling hungry and less likely to snack. Soluble fibre may also reduce blood cholesterol levels and so may reduce the risk of heart disease. Good sources include- Oats, peas, beans and lentils and most fruit and vegetables especially if eaten with the skin on.

**Starch**- Starches take longer than sugar for the body to digest and so provide a feeling of fullness for longer, helping to avoid over eating and obesity. All starch comes from plant sources, starchy foods should make up one third of our daily diet.- Good sources are Grain products like bread, rice, cereals and pasta and some fruits and Vegetables.
**Function of starch in the diet-** Broken down into simple sugars in the digestive system to provide energy. It adds bulk to our diet. Gives a feeling of fullness. Anything not used is converted to fat and stored in the body.

**Fat**
Sources of fat include:
- saturated fat;
- monounsaturated fat;
- polyunsaturated fat.

A high saturated fat intake is linked with high blood cholesterol levels which can lead to coronary heart disease.

**Essential Fatty Acids (EFAs)** cannot be made in the body but are important to the healthy and efficient functioning of the body. They include-
**Omega-3:** Found in oily fish, seeds, walnut oil and leafy green vegetables, it helps protect the heart.
**Omega-6;** found in vegetables, fruits, grains, chicken and seeds. It helps lower cholesterol in the blood.

**Calcium** is essential for a number of important functions such as the maintenance of bones and teeth, Heart regulation, blood clotting and normal muscle function
**Sodium** is needed for regulating the amount of water and other substances in the body.
**Iron** is essential for the formation of haemoglobin in red blood cells. Red blood cells carry oxygen and transport it around the body. Iron is also required for normal metabolism and removing waste substances from the body.
**Phosphorous** combines with calcium to harden bones and teeth. Helps muscle function – energy production- Found in Dairy product, nuts ,meat, fish and other foods rich in calcium.

**Fluoride** Strengthens teeth against decay. Can be found in drinking water and Fish.
**Iodine** Makes thyroid hormones- to control metabolic rate of the body- Fish-milk-dairy.

**Sugars**- we are advised to eat no more than 30g of sugar each day.
**Fibre**- Children aged 11-16 should aim to consume 25g of fibre each day.
**Salt**- We are advised not to consume more than 6g of Salt each day.

Bournemouth School – Knowledge Organiser – Year 10

FPAN

| Le règlement scolaire | | |
|---|---|---|
| Selon les règles | According to the rules | |
| il faut | you must | |
| il ne faut pas | you must not | |
| Il ne faut jamais | You must never | |
| il est interdit de | it is forbidden to | |
| il est important de | It is important to | |
| il est essentiel de | It is essential to | |
| on doit | You/we must | |
| avoir le droit de | To have the right to | |
| harceler | to bully | |
| tricher dans un contrôle | to cheat in a test | |
| utiliser son portable en classe | to use your phone in class | |
| arriver à l'heure | to be on time | |
| être en retard | to be late | |
| faire ses devoirs | To do your homework | |
| manger en classe | To eat in class | |
| s'asseoir à sa place | To sit in the seating plan | |
| respecter les autres | To respect others | |
| écouter le prof | To listen to the teacher | |
| aller aux toilettes pendant un cours | To go to the toilet during a lesson | |

| Opinions of school rules | | |
|---|---|---|
| Quel est ton avis sur les règles? | What is your opinion of the rules? | |
| À mon avis… | In my opinion | |
| C'est juste/injuste | It's fair/unfair | |
| C'est trop sévère/stricte | It's too strict | |
| Il faut respecter les autres | You must respect others | |
| Tu es d'accord? | Do you agree? | |
| Oui je suis d'accord | I agree | |
| Non, je ne suis pas d'accord | I disagree | |
| C'est raisonnable | It's reasonable | |
| Je pense que | I think that | |

| Mon uniforme scolaire | | |
|---|---|---|
| à l'école je porte | At school I wear | |
| porter l'uniforme scolaire | Wearing school uniform | |
| un pantalon gris | grey trousers | |
| une jupe | a skirt | |
| une veste grise | a grey jacket | |
| une cravate | a tie | |
| des baskets | trainers | |
| une chemise blanche | a white shirt | |
| un pull gris | a grey jumper | |
| des chaussures noires | black shoes | |
| Des chaussettes noires | Black socks | |
| un short | shorts | |

| More on rules | | |
|---|---|---|
| Le directeur/la directrice | The headteacher | |
| Les élèves | The pupils | |
| Un problème de comportement | A behaviour problem | |
| C'est important pour les examens | It's important for the exams | |
| C'est essentiel pour le travail scolaire | It's essential for school work | |
| J'ai toujours faim en classe | I'm always hungry in class | |
| Des manifestations | Protests | |
| Un risque de harcèlement | A risk of bullying | |
| Refuser de | To refuse to | |
| En été, il fait trop chaud | In summer, it is too hot | |
| Le pouvoir | The power | |
| Partager des vidéos | To share videos | |

| Past tense essentials | | |
|---|---|---|
| L'année dernière | Last year | |
| Récemment | recently | |
| Je suis allé/nous sommes allés | I/we went | |
| Je suis resté/ nous sommes restés | I stayed/ we stayed | |
| J'ai appris | I learnt | |
| J'ai pris | I took | |
| J'ai reçu de bonnes notes | I got good grades | |

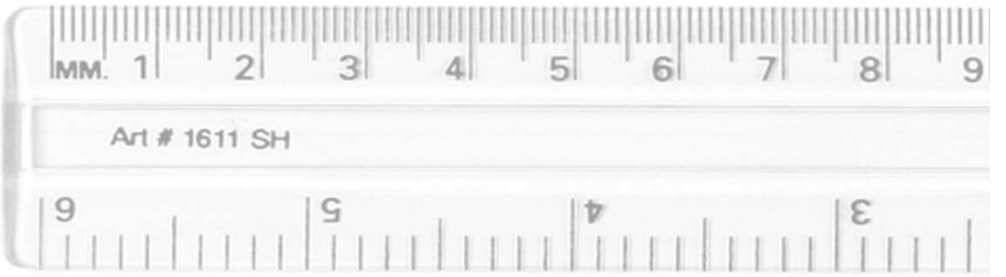
| | | |
|---|---|---|
| C'était | It was | |
| Il y avait | There was/were | |
| Il faisait + weather | It was + weather | |
| J'ai fait | I did | |
| J'ai lu | I read | |
| J'ai bu | I drank | |
| J'ai écrit | I wrote | |
| J'ai couru | I ran | |
| Je me suis bien amusé | I had fun | |
| Nous nous sommes bien amusés | We had fun | |
| Je l'ai trouvé | I found it | |
| Ce que j'ai aimé le plus était… | What i liked the most was.. | |
| Le pire, c'était.. | The worst thing was.. | |
| Le mieux, c'était… | The best thing was… | |

| Quels sont tes projets pour après les GCSEs? | | |
|---|---|---|
| Après mes GCSEs/mes examens | After my GCSEs /exams | |
| À l'avenir | In the future | |
| Je ferai mon Bac | I will do my A levels | |
| Je voudrais étudier .. | I would like to study | |
| une année sabbatique | a gap year | |
| un apprentissage | an apprenticeship | |

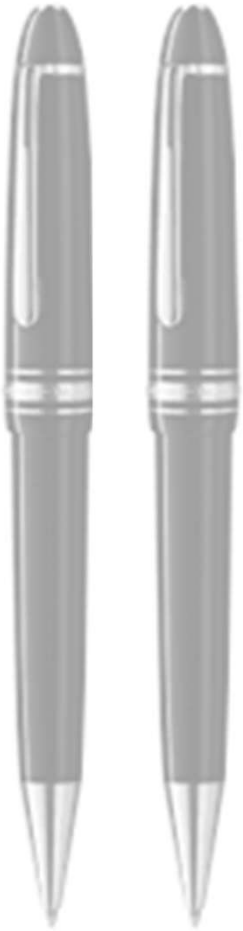
# Equipment

ID Card

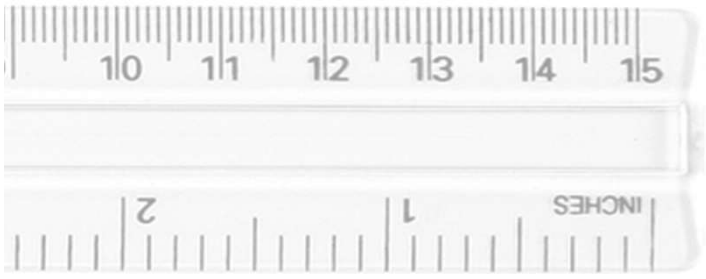


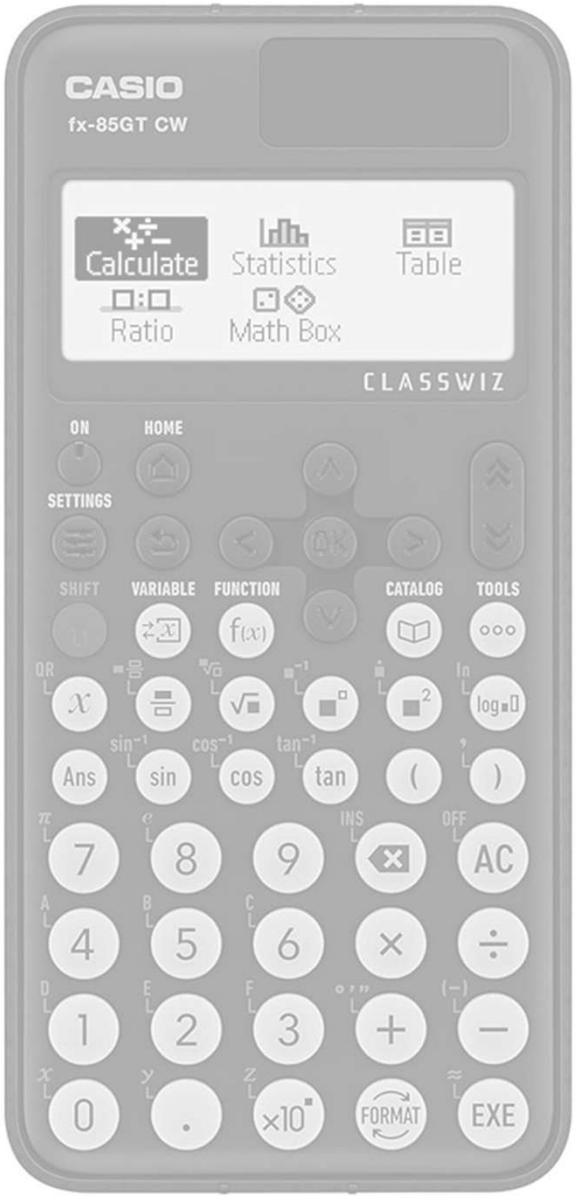



# Check



- ID card
- Green and purple pens
- Whiteboard pens
- Black/blue pens
- Glue stick
- Pencil
- Ruler
- Calculator

| Quelles matières est-ce que tu étudies? | | |
|---|---|---|
| **j'étudie …matières** | I study …….. subjects | |
| **ma matière préférée est..** | My favourite subject is | |
| **j'apprends…** | I learn… | |
| **mon prof préféré est..** | My favourite teacher is | |
| **mon emploi du temps** | My timetable | |
| **mon jour préféré est le...** | My favourite day is.. | |

| Les matières | | |
|---|---|---|
| **le français** | French | |
| **l'anglais** | English | |
| **le théâtre** | Drama | |
| **l'informatique (f)** | ICT | |
| **l'EPS (f)** | PE/sport | |
| **la musique** | Music | |
| **les maths (f)** | Maths | |
| **les sciences (f)** | Science | |

| Souvenirs d'école – imperfect tense | | |
|---|---|---|
| **quand tu étais petit tu étais comment?** | when you were little, what were you like? | |
| **quand j'étais petit ...** | when I was little.. | |
| **j'étais/je n'étais pas...** | I was/I wasn't... | |
| **travailleur/travailleuse** | hard-working | |
| **l'enfant le plus sportif de la classe** | the sportiest child in the class | |
| **j'aimais** | I used to like | |
| **je jouais** | I used to play/was playing | |
| **je lisais** | I used to read/was reading | |
| **je mangeais** | I used to eat/was eating | |
| **j'allais** | I used to go/was going | |
| **je faisais mes devoirs** | I used to do my homework | |
| **je regardais** | I used to watch/was watching | |

| Adjectives | | |
|---|---|---|
| **intéressant (e) (s)** | interesting | |
| **utile (s)** | useful | |
| **fascinant (e) (s)** | fascinating | |
| **inspirant (e) (s)** | inspiring | |
| **drôle** | funny | |
| **sympa** | nice | |
| **passionnant (e) (s)** | exciting | |
| **génial** | great | |
| **facile (s)** | easy | |
| | | |
| **ennuyeux/euse** | boring | |
| **sévère** | Strict/harsh | |
| **difficile (s)** | difficult | |
| **stressant(e)** | stressful | |

| Une journée typique | | |
|---|---|---|
| **les cours commencent à** | lessons start at | |
| **le collège commence/finit à** | school starts/finishes at | |
| **on n'a pas de cours le samedi** | we don't have school on Saturdays | |
| **ils ont cours le samedi** | they have school Saturday | |
| **je me réveille** | I wake up | |
| **je m'habille** | I get dressed | |
| **je me lave** | I wash myself | |
| **le me lève** | I get up | |

| Adverbs | | |
|---|---|---|
| **totalement** | totally | |
| **extrêmement** | extrememly | |
| **trop** | too | |
| **vraiment** | really | |
| **complètement** | completely | |
| **assez** | quite | |

| Opinion structures | | |
|---|---|---|
| **à mon avis** | In my opinion | |
| **je pense que..** | I think that.. | |
| **je trouve..** | I find… | |
| **je suis fort (e) en** | I'm good at… | |
| **je suis faible en** | I'm bad at.. | |
| **j'ai horreur de** | I hate… | |
| **il me semble que** | It seems to me that | |
| **j'apprécie** | I appreciate/like | |
| **selon moi** | according to me | |
| **selon mes amis** | according to my friends | |
| **pour moi/ personnellement** | Personally | |
| **je suis créatif/créative** | I am creative | |
| **sportif/ive** | sporty | |

| Comparatives | | |
|---|---|---|
| **plus …que** | more..than | |
| **moins … que** | less …than | |
| **aussi …que** | as…as | |

| Comparative sentences | | |
|---|---|---|
| **la journée scolaire est plus courte** | the school day is shorter | |
| **la pause déjeuner est plus longue** | the lunch break is longer | |
| **qu'ici** | than here | |
| **qu'au Canada** | than in Canada | |
| **qu'en France** | than in France | |
| **qu'à la Martinique** | than in Martinique | |

| Interesting idioms | | |
|---|---|---|
| ***c'est mon kif*** | it's my 'thing' | |
| ***c'est mon truc*** | it's my 'thing' | |

## 4.1 Geology and past processes have influenced the physical landscape of the UK

A range of processes influence the UK's physical landscapes:

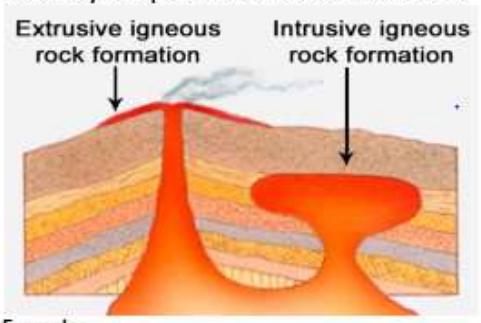
- **geology** (the study of the structure and substance of rocks),
- **past tectonic processes** (previous volcanic eruptions and tectonic uplift)
- **glacial processes** (erosion: **plucking** – freezing onto the surface and removing sediment, **abrasion** – embedded sediment scouring the valley floor and sides; weathering: **freeze-thaw** – water freezing into cracks in the rock, expanding and splitting the rock apart
- **deposition** – sediment put down as a glacier retreats creates outwash till in the valley floor, and moraine at the snout and edges of the glacier).

These processes combine to create distinctive characteristics

- **upland** (areas with more resistant igneous and metamorphic rocks, creating **U-shaped valleys, hanging valleys** and **scree slopes**)
- **lowland** landscapes (areas with less resistant sedimentary rocks creating **dip slopes** and **escarpments**).

### Igneous rocks

They are formed when magma from inside the Earth erupts and cools on the surface of the Earth due to volcanic activity (extrusive rocks); or when the magma cools inside the Earth to form intrusive rock which may be exposed to weather and erosion later.




Examples


*Basalt (Giant's Causeway)*


*Granite outcrops (cheesewring)*

Uses

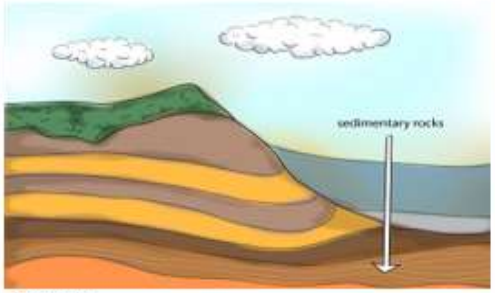
- Pumice (extrusive rock) is used in toothpaste, cosmetic products and cement.
- Granite (intrusive rock) is used for making gravestones, statues and countertops.
- Basalt (extrusive rock) is used in the construction of buildings and statues.
- Gabbro (intrusive rock) is used for flooring, worktops, facing and monumental stones.

Properties and characteristics

- Resistant to erosion and weather
- shines when polished
- Hard
- Contains empty spaces

### Sedimentary rocks

They are formed when sediments get deposited on the bottom of oceans, seas or lakes. These sediments include eroded rocks and skeletons of sea creatures, which build up.




Examples


*Limestone (Exeter Cathedral)*


*Sandstone (paving)*

Uses

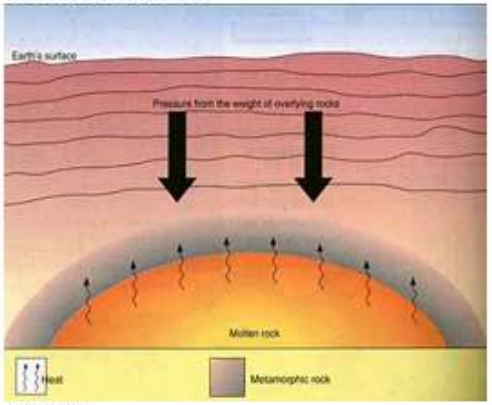
- Sandstone is used for paving tiles and the construction of buildings and statues.
- Limestone is used in toothpaste, to make building materials and statues.
- Shale can be used as filler in the production of paint, used in brick making and is sometimes used as a road aggregate.

Properties and characteristics

- Quite colourful
- Nice texture
- Reacts to erosion and weather (reacts with dilute acid)
- Form in layers or beds

### Metamorphic rocks

They are formed when rocks are exposed to lots of pressure and/or heat.




Examples


*Marble (floors)*


*slate (roof tiles)*

Uses

- Marble (formed from limestone) is used for fireplaces, sculptures, gravestones, work surfaces, chopping boards and ornaments.
- Slate (formed from clay) is used for roofing, snooker tables, flooring, gravestones and garden decoration
- Schist (formed from shale or sandstone) is used for flooring and garden decorations

Properties and characteristics

- Resistant to weathering and erosion
- Very hard-wearing
- have a "squashed" (foliated or banded) texture

**Human activities** are different in **upland** and **lowland** areas, and they create distinctive landscapes.

- **Upland** areas (less suitable for many human activities due to climates) have **settlements** which are **smaller** and found in flat valley bottoms, typically use locally sourced materials, such as slates).
- **Lowland** areas (more suitable for a wider variety of human activities) have settlements formed on spring-lines of hillsides and along flatter plains.

# Topic 4: The UK's Evolving Physical Landscape - COASTS



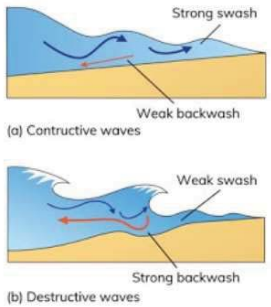
## Types of coastline

**Concordant coastlines** (rock layers parallel to the coast) have a harder outer layer protecting less resistant rock inland as once broken through, **coves** are created as the softer rock is eroded more rapidly creating a crescent shaped.

**Discordant coastlines** (alternating rock types at right angles to the coast) have different erosion rates. This creates **headlands** (areas of harder rock sticking out into the sea) and **bays** (the area of softer rock eroded away).

## Types of wave

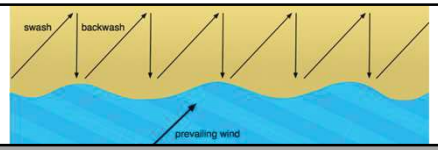
**Constructive** waves have a strong swash and a weaker backwash. They deposit sediment on the shore. Constructive waves happen in calm weather and during summer months when waves have less energy.
**Destructive** waves have a weak swash and a stronger backwash. They erode sediment from the shore. Destructive waves happen in poor weather and during winter months when waves have more energy.




## Marine Processes

**Erosion** is the wearing away of rock along the coastline.
Destructive waves are responsible for erosion on the coastline. There are four types of erosion: hydraulic action abrasion, attrition and solution. Erosional landforms include headlands, bays, caves, arches, stacks, stumps and wave-cut platforms.

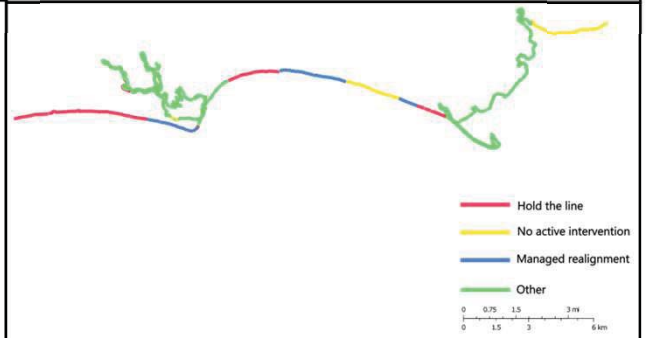
**Transportation** (movement of material by solution, suspension, saltation and traction) and **deposition** (the putting down of material) help to create coastal landscapes of deposition.
For example: **longshore drift** (zig-zag movement of sediment along the beach due to prevailing winds pushing waves and swashing sediment up the beach at an angle, backwash dragging sediment down the beach under gravity). This continues until a change in the direction of the coast forming a spit, bar across an estuary with a lagoon, or a tombolo connecting to an island.




## Sub-aerial processes (actions occurring above sea level). They act on the cliff face after the waves have **undercut** the bottom of the cliff.

**Mass movement** (large scale movement of sediment usually downslope) e.g. **rock falls** (weathered areas undercut, unsupported areas collapse), **slumping** (after long periods of rain, which seeps through soil and permeable rocks, where this meets an impermeable rock e.g. clay the saturated rock **slumps** and **slips**, often in a **rotational** matter along a curved surface) and sliding (the movement of a large amount of material along a flat surface e.g. a bedding pain).
**Weathering** (breakdown of rocks on or near the surface): mechanical (freeze-thaw splitting the rock apart) chemical (salt corrosion and acid rain solution on limestone cliffs), and biological (plants and burrowing animals and nesting birds weaken clifftops and cliff-faces). These processes combine to have an impact on the shape of cliff faces particularly. This again creates a source of beach material (in addition to the riverine and offshore sources).

## Christchurch Bay case study




The coastline of Christchurch Bay experiences the full force of waves brought from the Atlantic. These waves have a long fetch, so they are very powerful.
The cliffs on the coastline are made of sandstone and clays, which are easily eroded. This rock type is also very permeable. Water infiltrates easily and saturates the cliffs.
Several rivers in the area flow to the coasts through steep sided coastal gorges known as chines.

Decades of erosion has caused the cliff edge to retreat by tens of metres, and now many buildings are very close to the cliffs. In some cases, residential areas may be only several metres away from the cliff edges.
Coastal defences have failed in some areas, and this has led to accelerated erosion in other areas.
Poor planning around Barton-on-Sea has created an issue referred to as 'terminal groyne syndrome". This is where groynes trap sediment from one side of the beach whilst starving the other side.

Half Term 1

Die Schule

Year 10 German

| lernen - to study/learn | |
|---|---|
| ich lerne | I learn |
| du lernst | you learn |
| er/sie lernt | he/she learns |
| wir lernen | we learn |
| ihr lernt | you learn |
| Sie/sie lernen | you/they learn |

| Strong verbs in German change the vowel in the "du & er/sie/es/man" forms | |
|---|---|
| fahren (fährst/fährt) | to travel |
| tragen (trägst/trägt) | to wear |
| essen (isst/isst) | to eat |
| sehen (siehst/sieht) | to watch |
| lesen (liest/liest) | to read |
| **Verbs with a stem end in –d or –t add an extra "e" in these forms** | |
| finden (findest/findet) | to think/find |

| Modal verb: müssen – to have to | |
|---|---|
| ich muss | I have to |
| er/sie/man muss | he/she/one has to |
| wir müssen | we have to |
| **Modal verb: dürfen – to be allowed to** | |
| ich darf (nicht) | I'm (not) allowed to |
| er/sie/man darf (nicht) | he/she/one is (not) allowed to |
| wir dürfen (nicht) | we are (not) allowed to |
| **Modal verb: sollen – to ought to** | |
| ich soll | I ought to |
| er/sie/man soll | he/she/one ought to |
| wir sollen | we ought to |

**Modal verbs are followed by an infinitive**
**"Ich muss nicht" means I don't have to**
**"ich darf nicht" means I'm not allowed to**

| sich freuen auf - to look forward to | | |
|---|---|---|
| ich freue mich auf | I am | looking forward to |
| du freust dich auf | you are | |
| er/sie freut sich auf | he/ she is | |
| wir freuen uns auf | we are | |
| ihr freut euch auf | you are | |
| Sie/sie freuen sich auf | you/they are | |

| Schulregeln | |
|---|---|
| im Klassenzimmer | in the classroom |
| im Computerraum | in the computer room |
| im Gang | in the corridor |
| im Unterricht | during lessons |
| in der Bibliothek | in the library |
| in der Schule | at school |
| draußen | outside |
| ruhig/leise sein | be quiet |
| laufen | walk/run |
| langsam gehen | walk slowly |
| plaudern | chat |
| Respekt zeigen | show respect |
| seine Hausaufgaben vergessen | forget your homework |
| Ich denke/glaube, dass | I think/believe that |
| Ich bin der Meinung, dass diese Regel … ist | I am of the opinion that this rule is … |
| falsch/richtig | wrong/right |
| notwendig/nötig | necessary |
| weil ich nicht genug Freizeit habe | because I don't have enough free time |
| weil es in der Kantine nicht genug Platz gibt | because there isn't enough room in the canteen |

| To talk about actions in the past use the perfect tense. A part of haben or sein plus a past participle | |
|---|---|
| Ich habe/er, sie hat/wir haben | I/he, she/we |
| gespielt/gelernt/ geplaudert/gemacht/ gezeigt/gehört/ gekauft/geschlafen/ gegessen/verbracht | played/learnt/ chatted/did/ showed/listened/ bought/slept/ ate/spent |
| Ich bin/er, sie ist/wir sind | I/he, she/we |
| gefahren/gegangen/ geflogen/gekommen geschwommen/geblieben | travelled/went/ flew/came/ swam/stayed |

**Important imperfect tense verbs:**
**ich war, er/sie/es war –** I was, /he/she//it was
**wir waren –** we were
**Ich hatte, wir hatten** – I had, we had
**es gab –** there was

| In der Pause – at break | | |
|---|---|---|
| Was machst du normalerweise in der (Mittags)Pause? | What do you normally do in your (lunch) break? | |
| Ich esse (mein Pausenbrot)/ ich trinke | I eat (my snack)/ I drink | |
| ich spreche/plaudere mit meinen Freunden/ Freundinnen | I speak/chat to my friends | |
| Ich verbringe Zeit mit Freunden | I spend time with friends | |
| ich mache Sport/meine Hausaufgaben | I do sports/my homework | |
| Ich gehe in einen Klub | I go to a club | |
| Ich spiele | I play | |
| Ich habe keine (Mittags)Pause | I don't have a (lunch) break) | |
| jeden Tag | every day | |
| letztes Jahr | last year | |
| gestern | yesterday | |
| nach der Schule | after school | |

| Die Schulfächer | | |
|---|---|---|
| **Ich lerne … Fächer** | *I study …….. subjects* | |
| **Geschichte** | *History, story* | |
| **(Natur)Wissenschaften** | *Sciences* | |
| **Kunst** | *Art* | |
| **Mathe** | *Maths* | |
| **Musik** | *Music* | |
| **Deutsch** | *German* | |
| **Sprachen** | *Languages* | |
| **Theater** | *Drama* | |
| **Religion** | *RS* | |
| **Sport** | *PE, sport* | |

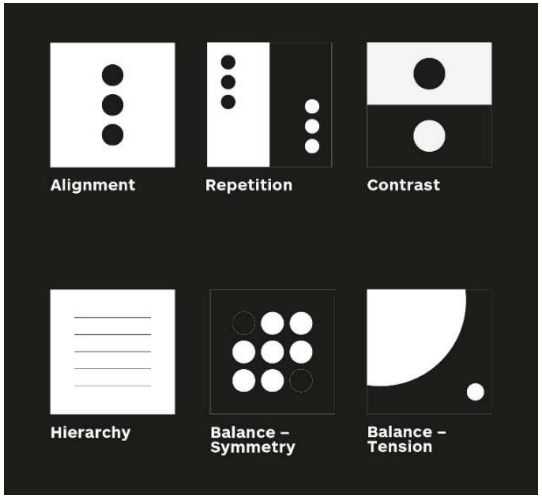
| Mein Stundenplan – My timetable | | |
|---|---|---|
| **Was hast du am …** | *What do you have on …* | |
| **Montag** | *Monday* | |
| **Dienstag** | *Tuesday* | |
| **Mittwoch** | *Wednesday* | |
| **Donnerstag** | *Thursday* | |
| **Freitag** | *Friday* | |
| **in der ersten/zweiten/ dritten Stunde** | *in first/second/third lesson* | |
| **Wie oft hast du …?** | *How often do you have…?* | |
| **Ich habe … einmal/ zweimal/dreimal pro Woche/pro Tag** | *I have … once/twice/ three times per week/per day* | |
| **Wie viele Stunden hast du …?** | *How many lessons do you have …?* | |
| **am Nachmittag** | *in the afternoon* | |
| **nach der Pause** | *after break* | |

| Was ist dein Lieblingsfach? What's your favourite subject? | | |
|---|---|---|
| **Mein Lieblingsfach ist …** | *My favourite subject is* | |
| **Ich studiere/lerne gern/nicht gern …** | *I like/don't like learning* | |
| **Wie findest du …?** | *How do you find …?* | |
| **Welches Fach magst du (nicht)?** | *Which subject do you (not) like?* | |
| **Ich mag + subject, weil** | *I like … because* | |
| **Ich liebe …, weil** | *I love … because* | |
| **einfach/leicht** | *easy* | |
| **schwer/schwierig** | *difficult/hard/tough* | |
| **ermüdend/kompliziert** | *tiring/complicated* | |
| **interessant/langweilig** | *interesting/boring* | |
| **nützlich/praktisch** | *useful/practical* | |
| **weil ich schwach in … bin** | *because I'm weak in* | |
| **weil ich sportlich bin** | *because I'm sporty* | |
| **weil ich Sprachen liebe** | *because I love languages* | |

| Picture description | | |
|---|---|---|
| **Auf dem Bild/Im Foto** | *On the photo* | |
| **Ich/man kann … sehen** | *I can see/you can see* | |
| **Im Bild gibt es** | *In the picture there is* | |
| **man sieht** | *you (can) see* | |
| **Auf der linken/rechten Seite** | *On the left/on the right* | |
| **Im Hintergrund V2** | *In the background* | |
| **Im Vordergrund V2** | *In the foreground* | |
| **Das Foto wurde ... gemacht** | *The photo was taken* | |
| **Sie spielen, essen , tragen, sprechen (miteinander)** | *They are playing, eating, wearing, talking (to each other)* | |
| *USE PRESENT TENSE TO SAY WHAT PEOPLE **ARE DOING** – "NO IS-ING" "AM-ING" OR "ARE-ING"* | | |

| Was trägst du in der Schule?– What do you wear to school? | | |
|---|---|---|
| **In der Schule trage ich...** | *At school I wear* | |
| **eine (graue) Hose** | *(grey) trousers* | |
| **ein (weißes) Hemd** | *a (white) shirt* | |
| **eine (graue) Jacke** | *a (grey) jacket* | |
| **eine (blaue) Krawatte / einen (blauen) Schlips** | *a (blue) tie* | |
| **(k)eine Schuluniform** | *no/a school uniform* | |
| **einen (grünen) Pullover** | *a (green) jumper* | |
| **(schwarze) Schuhe** | *(black) shoes* | |
| **ein (rotes) Kleid** | *a (red) dress* | |
| **ein (gelbes) T-Shirt** | *A (yellow) t-shirt* | |
| **(eine) (dunkelblaue) Jeans** | *(a pair of) (dark blue) jeans* | |
| **(braune) Shorts** | *(brown) shorts* | |
| **(hellblaue) Sportschuhe** | *(light blue) trainers* | |
| **orange/rosa(rot)** | *orange/pink* | |

| Wie findest du Schuluniformen? – How do you find school uniforms? | | |
|---|---|---|
| **Ich finde … sehr praktisch** | *I find … very practical* | |
| **Auf der anderen Seite sind sie** | *On the other hand, they are* | |
| **langweilig** | *boring* | |
| **teuer** | *expensive* | |
| **unbequem** | *uncomfortable* | |
| **der Vorteil/Nachteil ist** | *the advantage/ disadvantage is* | |
| **ein Mädchen/ein Junge** | *a boy/a girl* | |
| **ein Schüler/eine Schülerin** | *a pupil* | |




**A zine** is a small-circulation self-published work of original or appropriated texts and images, usually reproduced via a copy machine. Zines are the product of either a single person or of a very small group, and are popularly photocopied into physical prints for circulation.

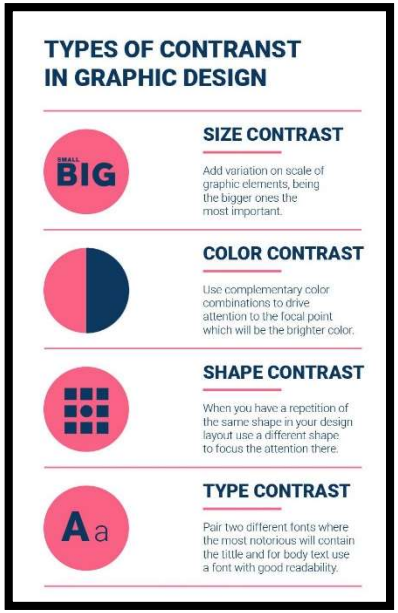
| Keyword | Principles of Design – read, cover, write, review |
|---|---|
| Balance | This refers to the distribution of the graphic design elements, such as shapes, text boxes and images, of a design evenly throughout a certain layout. Designers can choose between a balanced (stable) design or off-balanced (dynamic) layout. |
| Emphasis | Refers to a design's focal point and the importance of each element within it |
| Alignment | Having a strong point of alignment within design allows our eyes to seamlessly flow through the visual message. Aligning elements with one another so that every item has a visual connection with something else on the page, tightens a design and eliminates the haphazard, messy effect which comes from random placement of elements. |
| Contrast | The contrast principle of design generates space and distinction between elements, and is the most effective way to create emphasis and impact with your design. |
| Repetition | Repetition strengthens a design by tying together otherwise separate parts, and as a result, creates associations. |
| Proportion | The visual size and weight of parts in composition and their correlation is referred to as proportion. |
| Movement | Controlling the elements in a composition such that the eye is led from one to the next and the information is transmitted appropriately to your audience is known as a movement. |
| White space/ negative space | The empty space around the parts in your composition/layout is known as white space. |
| Hierarchy | Hierarchy creates organisation, typographic hierarchy is an essential part of any design or layout and even if you're not familiar with the term, you'll be sure to have seen hierarchy in action on any website, newspaper or magazine. |

https://www.youtube.com/watch?v=7r5Pu0ecHdY&ab_channel=4TheCreatives

**Balance** ***In the context of graphic design, balance is of three types.***

- **Symmetrical** – This type of design is formed along a vertical axis and or horizontal axis, where the weight of the elements is evenly divided into both sides of the layout.
- **Asymmetrical** – This type of balance employs scale, contrast and colour to even out the flow of a layout. It is usually found in websites, where two sides of a webpage differ from each other but contain similar elements.
- **Radial**– Here, the elements of a design are placed in a circular pattern on the layout. This provides a sense of movement and dynamism to the eyes of the viewer.

| Keyword | Definition |
|---|---|
| **Typography** | Typography is the visual component of the written word,". All visually displayed text, whether on paper, screen or billboard, involves typography. |
| **Kerning** | Kerning refers to the space between two specific letters (or other characters: numbers, punctuation, etc.) and the process of adjusting that space improves legibility. |
| **Tracking** | Tracking is similar to kerning in that it refers to the spacing between letters or characters. However, instead of focusing on the spacing between individual letters (kerning), tracking measures space between groups of letters. |



# Bournemouth School: History Department: Knowledge Organiser: Year 10 Autumn 1: Cold War 1958 - 1970

**Timeline of key events:**

**1949-61:** 4m East Germans fled West
**1958:** Khrushchev's Berlin Ultimatum
**1959:** Cuban Revolution: Fidel Castro replaced US - backed General Batista
**Late 1959:** Khrushchev sending weapons to Cuba
**5th May 1960:** American U2 spy plane shot down over USSR airspace
**14th May 1960:** date for Paris summit meeting (that was cancelled by Khrushchev)
**Jan 1961**: up to 20,000 refugees going through East Berlin to the West
**April 1961:** Bay of Pigs failed invasion
**June 1961:** Vienna summit meeting
**July 1961:** both US and USSR announce an increase in defence spending
**13th August:** Khrushchev closed the border between East and West Berlin
**October 1961:** Stand-off at Checkpoint Charlie in Berlin
**14 – 28th October 1962:** 13 days of the Cuban Missile Crisis
**June 1963:** Kennedy visits Berlin
**1963:** Hot Line set up
**August 1963:** Limited Test Ban Treaty
**1968:** Outer Space Treaty and Nuclear non - Proliferation Treaty signed
**Spring 1968: Dubcek's** Prague Spring in Czechoslovakia
**21st August 1968**: Soviet invasion of Czechoslovakia
**Autumn 1968:** Brezhnev Doctrine
**January 1969:** Jan Palach set fire to himself

✓

**Key terms/definitions**

| Term | Definition | ✓ |
|---|---|---|
| **Berlin Ultimatum** | Khrushchev's accusation that the Allies had broken the Potsdam Agreement of 1945 | |
| **Blockade** | A naval quarantine around Cuba to prevent soviet ships delivering military materials | |
| **Boundary** | The dividing line in East Berlin marking where the barrier was created to encircle West Berlin from East Berlin and the GDR, where the Berlin Wall was then built. | |
| **Brain-drain** | The term to describe the large numbers of professional and skilled people leaving through East Berlin for a new life in the West | |
| **Brezhnev Doctrine** | Soviet foreign policy from 1968 which meant military intervention by Warsaw Pact forces if another member of the Warsaw Pact tried to leave the Soviet sphere of influence | |
| **Brinkmanship** | A term used to describe pursuing a dangerous policy to the limits of safety; associated with the 13 days of the Cuban Missile Crisis | |
| **Checkpoint Charlie** | The best-known Berlin Wall crossing point between East Berlin and West Berlin. The scene of a famous stand-off between the superpowers. | |
| **CIA** | Central Intelligence Agency: used by USA to gather/analyse intelligence for national security | |
| **Cuban exiles** | Pro-American Cubans who fled to the USA after the Cuban Revolution. Called 'La Brigada 2506' | |
| **Cuban Revolution** | The overthrow of General Batista by Fidel Castro | |
| **De-Stalinisation** | The elimination of the influence of Stalin, led by Nikita Khrushchev after the death of Stalin | |
| **Defectors** | A person who abandons their country for another country with an opposing ideology | |
| **Defence spending** | The amount both the USA and the USSR were spending on military hardware | |
| **Detente** | A French term meaning a 'relaxation of tension' between the USA and the USSR | |
| **EEC** | The European Economic Community: an organisation to foster economic integration created in 1957 | |
| **Espionage** | Spying on each other: a main feature of the Cold War, increasing rivalry and mistrust | |
| **Hot Line** | A direct line of communication set up between Washington and Moscow | |
| **Jupiter missiles** | US nuclear warheads stationed in Italy and Turkey as a forward strike capability | |
| **NATO** | North Atlantic Treaty Organisation formed to provide 'collective security' against the USSR | |
| **Non-Proliferation Treaty** | Signed by major nuclear and non-nuclear powers pledging their cooperation to stop the spread of nuclear weapons and to stop developing them | |
| **Outer-Space Treaty** | A promise made by the superpowers and also Britain, to use outer space for peaceful purposes and not place nuclear weapons in orbit | |
| **Peaceful co-existence** | A belief originating from Khrushchev that despite ideological differences the superpowers could exist peacefully together | |
| **Potsdam 1945** | The last wartime conference led by Truman, Attlee and Stalin in July 1945 | |
| **Prague Spring** | Series of liberalising reforms introduced by Dubcek in Czechoslovakia | |
| **Thermonuclear** | A military conflict deploying nuclear weapons, likely to lead to MAD (mutually assured destruction) | |
| **Warsaw Pact** | A military treaty including the USSR and the European satellite states | |

# Bournemouth School: History Department: Knowledge Organiser: Year 10 Autumn 1: Cold War 1970 - 1991

**Timeline of key events:**

**May 1972:** SALT I signed
**May 1972**: President Nixon visits Moscow
**Oct 1973:** Arab-Israeli War (Yom Kippur)
**Jan 1973:** Peace in Vietnam after 11 years
**July 1974**: Nixon visits Moscow (2nd time)
**July 1975:** Space link-up
**July 1975**: Helsinki Agreements
27th April 1978: Communist PDPA led by Taraki takes power in Afghanistan
**Sept 1979:** Amin seizes power from Taraki
**Nov 1979:** US hostage crisis in Iran
**25th Dec 1979:** Soviets invade Afghanistan. SALT II not ratified
**27th Dec 1979:** Amin shot and replaced by Kamal
**Jan 1980**: Carter Doctrine: end of Detente
**Summer 1980:** USA boycott Moscow Olympic Games
**Nov 1980:** Reagan elected President
**1981:** Reagan announces significant increases in US defence spending: 2nd 'Cold War'
**1982:** Lech Walesa imprisoned in Poland
**Nov 1982:** Brezhnev dies; replaced briefly by Andropov
**June 1982:** Reagan's 'evil empire' speech
**23rd March 1983:** Strategic Defence Initiative ('Star Wars')
**Feb 1984:** Chernenko replaced Andropov
**Summer 1984:** USSR boycotts Olympics
**March 1985:** Gorbachev new Soviet leader
**Nov 1985:** 1st summit meeting in Geneva
**Oct 1986:** 2nd summit in Reykjavik
**Dec 1987:** INF Treaty signed
**1988:** Gorbachev rejects Brezhnev Doctrine
**1988 – 91:** Collapse of Soviet control in Eastern Europe
**9th Nov 1989:** Berlin Wall pulled down
**1990** Germany reunifies
**July 1991:** Warsaw Pact formally ends
**Dec 1991**: end of Gorbachev and USSR

**Key terms/definitions**

| Term | Definition | ✓ |
|---|---|---|
| **Détente** | French term: 'relaxation in tension' associated with 1970's USA/USSR relations | |
| **Six Day War** | 1967: a war between Israel and its Arab neighbours lasting 6 days in June 1967 | |
| **Vietnam War** | Conflict: 1954-1975 between the communist backed North and the US backed South | |
| **SALT I & SALT II** | Strategic Arms Limitation Talks (I: May 1972; and II: not ratified in 1979) | |
| **AMB / SLBM / ICMB / MIRVs** | Anti-ballistic missile system / submarine-launched ballistic missiles / intercontinental ballistic missiles / multiple independently targetable re-entry vehicles | |
| **Disarmament** | The term given to describe the reduction or withdrawal of military forces / weapons | |
| **Cosmonauts** | Name given to soviet individuals who travelled in space | |
| **Apollo-Soyuz** | First international space mission including USA and USSR crew, symbolising Detente | |
| **Helsinki Declaration** | The results of agreements on international Security, Cooperation and Human Rights | |
| **Dissident** | Term to describe a person who opposes official policy, especially authoritarian states | |
| **US Congress** | The law-making branch of the USA's Federal Government | |
| **DPDA** | A communist party in Afghanistan: the People's Democratic Party of Afghanistan | |
| **Mujahideen** | A guerrilla movement in Afghanistan wanting to overthrow the government of Amin | |
| **Hostage crisis** | Militant Islamic students seized US embassy staff; made Carter look weak by late 1979 | |
| **Carter Doctrine** | US foreign policy whereby US would use force if necessary in Persian Gulf area | |
| **Boycott** | The term given to avoid something, such as the Olympic Games in 1980 & 1984 | |
| **'2nd Cold War'** | A term used to describe a more hard-line approach by Reagan towards the USSR | |
| **Deployment** | Term given to describe the placement of military and nuclear weapons and troops | |
| **NUTS** | 'Nuclear Utilization Target Selection': specific targets could be identified | |
| **MAD** | 'Mutually Assured Destruction': an attack by either side would result in devastation | |
| **'Zero option'** | US proposal to withdraw all Soviet and USA nuclear weapons from Western Europe | |
| **Solidarity** | Polish Trade Union movement led by Lech Walesa in 1980 demanding political change | |
| **SDI / 'Star Wars'** | 'Strategic Defence Initiative': a US plan for ground and space-based laser armed anti-ballistic missiles designed to destroy in-coming missiles from the USSR from space | |
| **New Thinking** | Term given to describe Gorbachev's plans to reform and modernise communism | |
| **Glasnost** | The name given to Gorbachev's policy of openness, ending censorship and encouraging free expression | |
| **Perestroika** | The name given to Gorbachev's policy of restructuring the soviet economy | |
| **Uskoreniye** | A Russian term for 'acceleration' of economic development | |
| **Summit meetings** | A series of meetings in 1985, 1986 and 1987 designed to reduce nuclear weapons | |
| **INF Treaty** | Intermediate-Range Nuclear Forces Treaty eliminating many nuclear weapons | |
| **Gorbymania** | The term given in the West to describe the popularity of Gorbachev | |
| **Sinatra Doctrine** | A rejection of the Brezhnev Doctrine: the USSR would no longer interfere in any changes Warsaw Pact countries made regarding their internal affairs | |
| **Malta Summit** | Declaration made in 1989 by Gorbachev and Bush that the Cold War was over | |

Bournemouth School music department

# Year 10 Autumn term 1

# AoS 2 Vocal music

**Background**

Anthem—song with a strong memorable melody with rousing and uplifting characteristics.

Baroque pitch—before A=440 was introduced, pitch was more variable and generally lower. Playing at this pitch on reproduction or period instruments is known as Baroque pitch. Approx one semitone lower than standard pitch.

Glam Rock— style of rock known for its over the top and glamorous dress sense

Incidental music—music written to go with a play, but where the play is not primarily musical. Often used for transitions etc

Lament—song with sorrowful mood. Often slow and in the minor key

Stadium Rock - rock music intended for larger venues

**Rhythm**

Compound metre—a metre in which the beat subdivides into three

Constant quavers—when a part moves only in quavers e.g. the ground bass

Quadruple metre—4/4—4 crotchets in each bar

Swing rhythm—often in jazz—rhythm where the first of a pair of quavers is played longer than the second.

**Texture**

Arpeggiation - when a chord is played by spreading the notes playing (usually) from bottom to top.

Basso continuo—literally continuous bass line. Accompaniment played by a melodic bass instrument, often a cello, and a chordal instrument such as harpsichord, lute or organ

Counterpoint—literally tune against tune—2 rhythmically independent melodies playing at the same time

Homophonic a texture comprising of a melody and an accompaniment

Melody dominant homophony—texture with one clear melody and an independent accompaniment.

Vamp—a short repeated accompanying phrase

**Structure**

Chorus—section in which the lyrics and the music remains the same. Often catchy and memorable, with a lift in mood from the verse. Alternates with the verse

Da Capo aria—ABA or ternary form. Da Capo means again from the beginning.

Ground bass—a repeating bass line pattern played throughout the piece

Intro—opening section of the song before the main parts

Outro—final ending section, like a coda in classical music

Solo—an extended often improvised melodic line played by an instrument. Usually in the middle of the song.

Verse—section in which the lyrics change but the music remains broadly the same each time it is heard

**Melody**

Dominant—5th degree of scale

Grace note—an additional note or notes played or sung before the main melodic note.

Melisma—vocal setting where more than one note per syllable is used

Mordent—ornament where the main note is played followed rapidly by the one above and then the main note.

Passing note—a stepwise note between two harmony notes a 3rd apart

Range—the interval between the highest and lowest notes in any given part.

Sequence—melodic device where a short section is immediately played again at a higher or lower pitch. Used in the ground bass.

Slide—when a performer doesn't move cleanly from one pitch to another, instead sliding through all frequencies in between the two pitches

Syllabic—vocal setting with one note per syllable.

Tessitura—the range of the instrument/voice in which the melody is set

Tonic—1st degree of scale

Trill—rapid alternation of written note and the note above

Word painting—depicting a word in music to imitate its meaning.

This QR code will take you to a Spotify playlist with audio examples of many of the concepts covered on this sheet and in lessons. You will find it helpful to listen to these as you learn.

# Year 10 Autumn term 1

# AoS 2 Vocal music

**Instrumentation**

Bass viol—large bowed and fretted string instrument similar in range to a cello. Plays the ground bass and the basso continuo in this piece.

Countertenor—male voice which sings in the alto range

Distortion—an effect that increases the volume and sustain on an electric guitar, making the timbre more gritty or smoother, depending on settings

Effects—electronic devices used to enhance or alter the basic quality of the sound

EQ stands for equalization, a production technique that adjusts the volume of specific frequencies in a sound

Flanger—and effect with a swirling sound

Harpsichord -keyboard instrument in which the strings are plucked. Has no ability to sustain notes or to vary the dynamics. Plays basso continuo in this piece

Hi Hat—pair of cymbals mounted on a stand so that they can be struck together using a foot pedal

Kick drum or bass drum—biggest drum on a kit, played with a foot pedal

Mix—the relative volume of different tracks in a recording and their place in the stereo field.

Multitracking – separate recordings are made of each sound source and then mixed to give a final recording

Overdubbing—recording a part over previously recorded music

Panning - giving sounds different levels in the left and right speakers to give the impression they are coming from different places.

Pull Offs—when a note is sounded on the guitar by pulling the finger off the fret to alter the note. Makes the pitch lower

Ride—type of cymbal which often has a counter-rhythm to the main beat

Snare - a drum with a series of loose metal wires in contact with the lower skin giving a distinctive buzz or rattle to the sound

Snare roll—a rapid succession of notes on the snare

Soprano—high pitched female voice

Stereo Field—how the sounds are positioned in the left and right speakers

Vibrato—technique used to cause rapid variations in the pitch of a note.

**Tonality**

A minor—minor key starting on A

Modulation—changing key.

**Harmony**

Added notes—notes that are added to the basic triad

Circle of 5ths – chords with their root a 5th apart

Diatonic—chords which only use notes from the key

Figured Bass—system of notating chords for the continuo instruments. Numbers are written underneath the bassline to indicate the intervals to be played above the bass note.

False relation – a type of dissonance where to versions of the same note are used in quick succession e.g. in b1 the F♯ in the bass is followed by an F natural in the right hand of the harpsichord

Functional—chords which help to define the key

Ground Bass—bass line which repeats throughout the whole piece and over which the rest of the music is composed.

Perfect cadences - chord progression V-I. Used to cement modulations

Suspension—prepared dissonance. Prolonging a note to create a dissonance with the next chord before resolving the dissonance.

Tierce di Picardy—ending a minor key piece with a major chord

This QR code will take you to a Spotify playlist with audio examples of many of the concepts covered on this sheet and in lessons. You will find it helpful to listen to these as you learn.

**Personal Development is**

**Personal** – to do with ourselves
**Relationships** – how we relate to others and how they relate to us
**Sex** – how we interact and relate to others in a sexual sense
**Health** – about looking after our bodies, mentally and physically
**Careers** – how we plan and develop our careers
**Economics** – all about managing our money (the E also stands for education too)




| Keyword | Learn | ✓ |
|---|---|---|
| Curriculum Vitae (CV) | a short written description of your education, qualifications, previous jobs, and sometimes also your personal interests, that you send to an employer when you are trying to get a job | |
| Cover Letter | a one-page business letter that you submit when applying to a job, along with your CV. As a piece of persuasive writing, your cover letter will aim to convey to the employer why you're a great candidate for the role. | |

## Useful Careers Websites

The **Unifrog** platform is designed to support learners in making the most informed decisions about their futures and has a range of tools that are suitable for all year groups. Each student has their own personal account that provides a wide range of information related to their interests and aspirations. www.unifrog.org

Information on apprenticeships, including a range of different schemes:
https://amazingapprenticeships.com/

General careers information:
https://careerpilot.org.uk/

## PD Classroom Rules

**Openness**: Be open and honest. However, do not discuss others' personal/private lives - try to use examples.
**Keep the conversation in the room**: You should feel safe discussing issues and be confident that you contributions will not be shared outside this room. If your teacher has concerns that someone is at risk of harm they have a duty to refer.
**Non-judgmental approach**: It is okay for us To disagree with another person's point of view but do not judge, make fun of, or put anybody down. - 'challenge the opinion, not the person'.
**Right to pass**: Taking part is important. However, you have the right to pass on answering a question and you will not put anyone 'on the spot'.
**Make no assumptions**: Do not make assumptions about people's values, attitudes, behaviours, identity, life experiences or feelings. Listen to other people's views respectfully and expect to be listened to.
**Use appropriate language**: Use the correct terms rather than slang terms - they can be offensive.
**Ask questions**: You are encouraged to ask questions. However, do not ask personal questions or say anything to embarrass someone.

## Year 10 Work Experience – 18th – 22nd May 2026

Work experience gives students the chance to learn about what type of job they might enjoy, and develop their CV. Students are responsible for sourcing their own work experience placements.
We are using **Unifrog** (www.unifrog.org) to manage the administration of the work experience programme – for example collecting information from the employer about their Risk Assessment and Health & Safety policy, as well as obtaining parental consent.

**Some important logistics:**

- Students need to agree the placement with the employer **first**, and then students will add the placement to their Unifrog account (you will find the Placements tool on the Unifrog homepage).
- The Unifrog system will then email the employer, the parent / guardian, and the school, to collect the necessary information and permissions. For the process to work, **it is essential that students add the initial information about the placement accurately**.
- Placements should be secured by **15th December**

## Components of Fitness:

1) **Cardiovascular endurance:** the ability of the heart and lungs to supply oxygen to the working muscles.
2) **Agility:** The ability to move and change direction quickly (at speed) whilst maintaining control.
3) **Balance:** maintaining the centre of mass over the base of support.
4) **Co-ordination:** the ability to use different (two or more) parts of the body together smoothly and efficiently.
5) **Flexibility:** the range of movement possible at a joint.
6) **Muscular endurance:** Ability of a muscle or muscle group to undergo repeated contractions avoiding fatigue.
7) **Power / Explosive strength:** the product of strength and speed (strength x speed).
8) **Reaction Time:** the time taken to initiate a response to a stimulus.
9) **Speed:** the maximum rate at which an individual is able to perform a movement or cover a distance in a period of time (speed = distance divided by time)
10) **Strength:** the ability to overcome a resistance
    a) **Maximal** – the largest force possible in a single maximal contraction
    b) **Dynamic** – repeated contractions
    c) **Explosive** – (see POWER)
    d) **Static** – the ability to hold a body part in a static position.

**When asked to explain remember to give specific sporting examples:**

- Power is needed in football to kick the ball harder when shooting so it is more difficult for the goalkeeper to save.
- A gymnast uses power gain height when jumping. This will give them more time to complete the move.
- Cardiovascular fitness is important in hockey as each game lasts a long time therefore they need to be able to transport oxygen around the body effectively for the duration of the match. This will help them maintain the quality of performance throughout game.

**Health:**
State of complete mental, physical and social wellbeing and not merely the absence of disease or infirmity.

**Fitness:**
Ability to meet the demands of the environment

## 3.1.3.1 The relationship between health and fitness and the role that exercise plays in both & 3.1.3.2 The components of fitness, benefits for sport and how fitness is measured and improved

**Reasons for Fitness Testing:**

- To identify strengths and weaknesses, this allows them to work on weaknesses
- To allow you to plan your training
- To show a starting level of fitness
- To monitor improvement
- To monitor the success of a training programme
- To compare against normative data
- To motivate and set goals

**Limitations with Fitness Testing:**

- Tests are often not sports specific (give an example)
- They do not replicate the movements in a sport
- They don't replicate the high-pressure environment of sporting activities/non-competitive
- Some are not reliable
- Some are maximal which means the performer is required to try their best

Protocols MUST be followed or else the tests are invalid

**Fitness Tests**

**Agility = Illinois agility run:** Cones arranged in 10m x 5 m rectangle with 4 cones down the middle, performer starts face down, performer runs around the cones as fast as possible, performer is timed, compare results to national averages.
**Balance = Stork Balance Test:** start balanced on 2 feet, hands placed on hip, one leg lifted so that the toes of the lifted leg touch the inside of the planted leg, timekeeper tells the individual to raise the heel on the planted leg and starts the stopwatch, individual balances for as long as possible, timer stops clock when the individual loses their balance, compare to national averages.
**Cardiovascular endurance = multi-stage fitness test:** Cones set out 20m apart, test gets progressively harder, individual runs 20m in time with 'bleeps', time between bleeps gets shorter as levels increase, performer runs for as long as possible, score recorded as a level when performer finishes e.g. level 8 bleep 4, compare to national averages.
**Co-ordination = wall toss test:** tennis ball starts in one hand, stand 2m from wall, on 'GO' the performer works for 30 seconds, performer throws ball against wall and catches it with opposite hand, if ball is dropped the time continues, compare to national averages.
**Flexibility = sit and reach test:** Remove shoes, sit on floor with feet flat against sit and reach board, performers legs must be straight, performer pushes forward slider as far as possible, score is recorded in centimetres, compare to national averages.
**Muscular endurance = abdominal curl conditioning test:** Performer lies on mat in a sit-up position, partner holds ankles, performer sits up on bleep and down on bleep (staying in time), the test gets progressively harder as bleeps get faster, score is how many sit ups you did, compare to national averages
**Power / Explosive strength = vertical jump test**: with flat feet, stand and push the wall ruler with fingertips as high as possible, apply chalk to finger tips, from a standing position jump as high as possible marking the ruler with chalk, record height jumped, compare to national averages.
**Reaction time = ruler drop test:** Place thumb and index finger together of dominant hand, partner holds metre ruler above, without warning partner drops ruler, individual being tested must catch the ruler, measure in 'cm', compare to national averages
**Maximal Strength test = one rep max:** lift weight once using the correct technique, if completed attempt a heavier weight until heaviest weight is discovered, take 1 rep max weight and divide it by body weight, compare to national averages.
**Strength = handgrip dynamometer test:** hold dynamometer in dominate hand, bend elbow at 90 degrees and place against body, squeeze with maximum effort, record best score, compare to national averages.
**Speed = 30m speed test:** set up two cones 30m apart, use a flying start, individual is timed running as fast as they can for 30m, compare to national averages.

**Worship:**

Liturgical worship- a church service that follows a set structure and pattern. Non-liturgical worship- a church service that does not follow a set text or ritual

Why do Christians worship? To praise God, give thanks, for forgiveness, to strengthen relationship with God.

| Liturgical worship | Non-liturgical worship |
|---|---|
| takes place in a church | no set order |
| set prayers with set response | Services follow themes |

**Holy Communion and celebrating it:**

**Holy Communion** sacrament that uses bread and wine to remember sacrificial death of Jesus. Remembers the events of the Last Supper

**Different understandings of Holy Communion**

Catholic transubstantiation (bread and wine actually becomes the body and blood of Jesus) **Protestant** see the bread and wine as symbolic to remember Jesus' sacrifice

"**Do this in remembrance of me"**

**Role of the Church in the local community**:

Food banks The Church the holy people of God, also called the Body of Christ, among who Christ is present and active A church building in which Christians worship **What does the Church do?** Support projects such as food banks, providing social services and campaigning for justice. **The Trussell Trust** runs over 400 foodbanks in the UK, provides food for those in need . **The Oasis Project** provides an internet café, CV support and a safe meeting place.

**Church growth and the importance of the worldwide Church:**

Ways Christians spread the faith; praying, via social media, fellowship meals, sharing what God has done for them with others. Working towards reconciliation. Church has a mission to restore people's relationship with God and one another.

**Set prayer**-prayers that have been said more than once and written And written down for example the Lord's prayer.

**Informal prayer** -a prayer that is made up by the individual using his/her own words

**Why is prayer important?** - Allows Christians time to reflect, find peace, allows them to communicate with God - The Lord's prayer is important as it reminds Christians to forgive others in order to be forgiven - **Key quote - "Our Father, who art in heaven**

**Pilgrimage:**

Religious journey of moral and spiritual importance

**Lourdes** – France in the South West of France. Bernadette had numerous visions of the Virgin Mary who told her to dig for spring water. The water is believed to have healing powers and miracles are said to happen there. Pilgrims bathe in the water and there is a big focus on the sick and disabled.

**Iona** – island off the coast of Scotland  Ecumenical community pilgrims spend time praying, reading the Bible, reflecting and meditating. It is said the veil between earth and heaven is thin here.

**Christian persecution:**

Persecution hostility and ill treatment Examples of persecution paying extra taxes, job discrimination, being forbidden to build churches, attacks on Christian homes, churches and families, including murder **Christian responses to persecution :**To stand up against persecution  Persecution can strengthen faith – 'if one suffers, every part suffers with it'. They are encouraged to show love and forgiveness towards persecutors

**Baptism:**

Infant baptism -is for babies and young children Believers' baptism people who are old enough to make the decision to be baptized.

Why are people baptised? To become a member of the Church, to be cleansed of sin, follow in Jesus' footsteps.

| Believer's baptism | Infant baptism |
|---|---|
| Attend baptism classes | Parents make promises |
| Gives a brief testimony | Removes original sin |

**Celebrating festivals** Two main festivals in Christianity are Easter and Christmas **Christmas** commemorates the incarnation of Jesus Ways it is celebrated carol services, nativity scenes, giving to charity, Midnight Mass, Christmas cards and gifts **Easter c**elebrates the resurrection of Jesus from the dead Ways it is celebrated on Good Friday there are special services and processions led by a person carrying a cross, Saturday night some churches hold a special service to celebrate the resurrection, Easter Sunday churches are filled with flowers and hymns are sung **"He is Risen!"**

**Mission and evangelism: Mission**- vocation or calling to spread the faith

**Evangelism-** showing faith in Jesus by example or by telling others. The Great Commission Jesus instructs his disciples to go and spread the gospels and make disciples of others through baptism. "Go and make disciples of all nations." **Missionary work** to persuade people to accept Jesus as their Saviour. Alpha is an example of evangelism in the UK. It is an introductory course to Christianity for those that are interested.

**The Church's response to world poverty** Helping those in need  Jesus taught it was important to help others and often taught his message through parables  The parable of the Rich man and Lazarus sees a rich man sent to hell for not helping the poor **Christian charities that help those in poverty :**Christian Aid, Tearfund, CAFOD What do they do? Provide short term and long-term aid including, food, medical supplies, shelter and sanitation

**Role of the Church in the local community**: Street Pastors, selfless, sacrificial, unconditional love. Jesus taught the importance of helping those in need. **Key quote 'Faith, by itself, if it is not accompanied by action, is dead' James 2:17 NIV Street Pastors** -Volunteers who stroll the streets at night helping those that are drunk and supporting the police and local councils with anti-social behaviour. They listen to people's problems and give them advice.

| Los miembros de la familia – family members | | |
|---|---|---|
| **mi padre / madre** | my father / mother | |
| **mi padrastro / madrastra** | my stepfather / stepmother | |
| **mi hermano / hermana** | my brother / sister | |
| **mi hermanastro / hermanastra** | my step-brother / step-sister | |
| **primo / prima** | cousin | |
| **hijo único / hija única** | only child (boy / girl) | |
| **abuelo / abuela** | grandfather / grandmother | |
| **gemelos** | twins | |
| **tío** | uncle / aunt | |
| **bebé** | baby | |

| ¿Cómo eres? – What do you look like? | | |
|---|---|---|
| **Soy…** | I am | |
| **Es…** | He / she is | |
| **alto / bajo** | tall / short | |
| **más alto que…** | taller than… | |
| **rubio** | blonde | |
| **moreno** | dark-skinned | |
| **pelirrojo** | red-haired | |
| | | |
| **Tengo el pelo…** | I have … hair | |
| **castaño** | brown | |
| **negro** | black | |
| **largo / corto** | long / short | |
| **Tengo los ojos…** | I have … eyes | |
| **azules** | blue | |
| **marrones** | brown | |
| **verdes** | green | |
| **Llevo gafas** | I wear glasses | |

| ¿A quién sigues? – Who do you follow? | | |
|---|---|---|
| **Sigo** | I follow | |
| **a artistas** | artists | |
| **a cantantes latinos** | South American singers | |
| **canales de…** | channels | |
| **cocina** | cookery | |
| **videojuegos** | videogames | |
| **mis deportistas favoritos** | my favourite athletes | |
| **videotutoriales de dibujo** | art video tutorials | |
| **vlogs de estilo de vida** | lifestyle vlogs | |

| ¿A quién admiras? – Who do you admire | | |
|---|---|---|
| **Admiro a…** | I admire | |
| **Lo / la sigo / admiro porque** | I follow / admire him / her because | |
| **apoya a otras personas** | He / she supports others | |
| **es un buen modelo de conducta** | he /she is a good role model | |
| **es una inspiración para otros** | he / she is an inspiration to others | |
| **lucha / luchó por** | he fights / fought for | |
| **los derechos de otras personas** | the rights of others | |
| **la igualdad de oportunidades** | equality of opportunity | |
| **fue la primera persona en** | he / she was the first person to | |
| **participar en** | participate in | |
| **ganar** | win | |

| ¿Qué es lo más importante para ti? | | |
|---|---|---|
| **Lo más importante es…** | The most important thing is… | |
| **mi familia** | my family | |
| **mi educación** | my education | |
| **mi cultura** | my culture | |
| **mis amigos** | my friends | |
| **la amistad** | friendship | |
| **mi religion / mi fe** | my religion / my faith | |
| **la paz** | peace | |
| **el amor** | love | |

| ¿Cómo es un buen amigo? – What is a good friend like? | | |
|---|---|---|
| **Un buen amigo…** | A good friend | |
| **te comprende** | understands you | |
| **te conoce bien** | knows you well | |
| **te hace reír** | makes you laugh | |
| **te respeta** | respects you | |
| **te acepta como eres** | accepts you as you are | |
| **te ayuda cuando tienes problemas** | helps you when you have problems | |
| **te apoya en lo bueno y lo malo** | supports you in the good and the bad | |
| **te da buenos consejos** | gives you good advice | |
| **no te critica** | doesn't criticise you | |
| **es fiel** | is loyal | |
| **puede guardar un secreto** | he / she can keep a secret | |

| ¿Cómo es tu relación con tus amigos? | | |
|---|---|---|
| **me llevo** | I get on | |
| **nos llevamos** | we get on | |
| **me peleo con** | I argue with | |
| **nos peleamos** | we argue | |
| **me divierto** | I have fun | |
| **nos divertimos mucho** | we have a lot of fun | |
| **me hace reír** | he / she makes me laugh | |
| **me conoce bien** | he / she knows me well | |
| **puedo confiar en él / ella** | I can trust him / her | |
| **siempre estamos juntos** | we are always together | |
| **casi nunca nos peleamos** | we never argue | |
| **puedo contar con él / ella** | I can count on him / her | |
| **tenemos los mismos intereses** | we have the same interests | |

| ¿Qué piensas de las redes sociales? | |
|---|---|
| **Son buenas / útiles para** | They are good / useful for |
| **compartir fotos** | sharing photos |
| **buscar información** | looking for information |
| **estar en contacto con tus amigos** | being in contact with your friends |
| **participar en la comunidad** | participating in the community |
| **expresarse** | expressing yourself |
| **chatear con…** | chatting with… |
| **Lo malo es que…** | The bad thing is that… |
| **causan** | they cause |
| **adicción / presión / acoso** | addiction / pressure / bullying |
| **problemas para dormir** | problems sleeping |
| **son una gran distracción** | they are a big distraction |

| ¿Qué puedo hacer? – What can I do? | |
|---|---|
| **Mi problema es que** | My problem is that |
| **me siento / estoy** | I feel / I am |
| **diferente / triste / solo** | different / sad / alone |
| **muy mal** | very bad |
| **no me relaciono con nadie** | I don't relate to anyone |
| **ignora todos mis mensajes** | he / she ignores all my messages |
| **es muy negativo** | he / she is very negative |
| **me peleo mucho con él / ella** | I argue with him / her a lot |
| **siempre me crítica** | he / she always criticises me |

| Giving advice | |
|---|---|
| **Deberías** | You should |
| **Podrías** | You could |
| **Es importante / necesario** | It is important / necessary |
| **limitar el tiempo en línea** | to limit your time online |
| **organizar actividades** | to organise activities |
| **apoyar a tu familia** | to support your family |
| **explicarles cómo te sientes** | to explain to them how you feel |
| **expresar tus sentimientos** | to express your feelings |
| **hablar con él cara a cara** | to talk to him face to face |
| **crear nuevas rutinas** | to create new routines |
| **tienes que ser fuerte** | you have to be strong |

| Describing a photo | |
|---|---|
| **En la foto** | In the photo |
| **Hay** | There is/are |
| **Puedo ver** | I can see |
| **Puedes ver** | You can see |
| **A la izquierda** | On the left |
| **A la derecha** | On the right |
| **En el centro** | In the centre |
| **En el fondo** | In the background |
| **En primer plano** | In the foreground |
| **Al lado de** | Next to |

| Adding more detail to a photocard description | |
|---|---|
| **está …** | he/she is … |
| **están …** | they are … |
| **sonriendo** | smiling |
| **corriendo** | running |
| **comiendo** | eating |
| **bebiendo** | drinking |
| **chateando** | chatting |
| **jugando** | playing |
| **en un campo** | in a field |
| **en una cocina** | in a kitchen |
| **en un salon** | in a lounge |
| **en la playa** | on the beach |
| **en el cine** | in the cinema |

## Ser and Estar

Use the verb **estar** for talking about **location**.

**Estoy/Están** en el jardín.
**I am / They are** in the garden.

Use the verb **ser** when talking about **physical description.**

**Soy/Es** moreno/a.
**I am / He/She** is dark-haired.

## Possessive adjectives

Most possessive adjectives have two forms, singular and plural

*-In addition, nuestro (our) and vuestro (your, plural) also have masculine and feminine forms:*

*Nuestr**o** hermano* — *Our brother*
*Nuestr**as** hermanas* — *Our sisters*

| | Singular | Plural |
|---|---|---|
| my | mi | mis |
| your | tu | tus |
| his/her/its | su | sus |
| our | nuestr**o/a** | nuestr**os/as** |
| your (plural) | vuestr**o/a** | vuestr**os/as** |
| their | su | sus |

## Desde hace

To say how long you have been doing something, use **desde hace** + period of time and the present tense of the verb.

***Sigo** muchas caneles en YouTube **desde hace** meses / un año.*
***I have been following** lots of YouTube channels **for** months / a year*

*Notice that **seguir** is a stem-changing verb in the present tense (sigo, sigues, etc)*

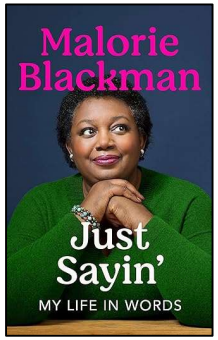
## Personal 'a'

Use the **personal a** when the object of the verb is a person.

*Admiro **a** esta persona desde hace mucho tiempo.*
*I have admired this person for a long time.*

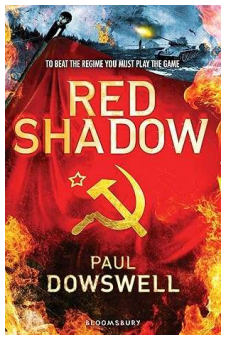
*Do **not** use it when the object is **not** a person.*

*Veo videotutoriales sobre cocina.*
*I watch video tutorials about cooking*



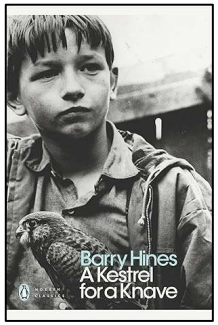

**Just Sayin': My Life in Words** by Malorie Blackman

The long-awaited autobiography of one of the world's greatest children's writers, and an empowering and inspiring account of a life in books. It is an account of her journey, from a childhood surrounded by words, to the 83 rejection letters she received in response to sending out her first project, to the children's laureateship.



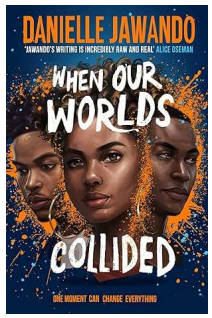

**Red Shadow** by Paul Dowswell

Russia, 1940. Fifteen-year-old Misha's life is about to transform when his father is offered a job in Stalin's inner circle. They move into a luxurious apartment in the Kremlin, but doubts about the glorious new Russia quickly surface. Misha realises that the secret police can do whatever they like…



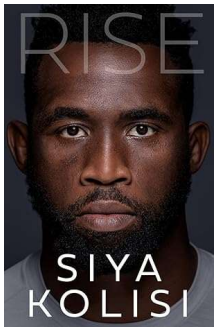

**A Kestrel for a Knave** by Barry Hines

This is the unsentimental story of the remarkable relationship between the desperate Billy, a friendless boy living in a soulless northern town, and the equally destructive, fierce kestrel, Kes, which he raises from the nest.



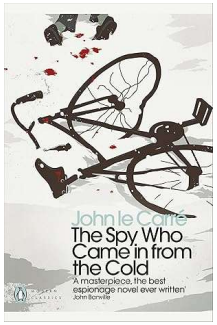

**When Our Worlds Collided** by Danielle Jawando

When fourteen-year-old Shaq is stabbed outside of a busy shopping centre in Manchester, three teenagers from very different walks of life are unexpectedly brought together. What follows flips their worlds upside down and makes Chantelle, Jackson, and Marc question the deep-rooted prejudice and racism that exists within the police, the media, and the rest of society.

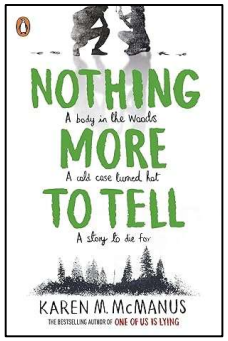



**Rise** by Siya Kolisi

Siya Kolisi shares his story in an extraordinarily intimate memoir, charting his journey from being born into the impoverished Zwide township, to leading his proud nation to an astonishing victory at the Rugby World Cup in 2019. However, 'Rise' is not simply a chronology of matches played and games won; it is an exploration of a man's race and his faith, a masterclass in attaining a positive mindset, and an inspirational reminder that it is possible to defy the odds, no matter how they are stacked against you.

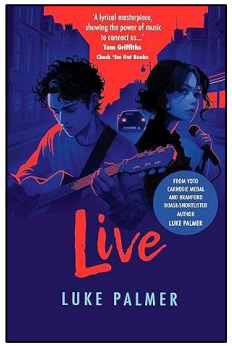



**The Spy Who Came In From the Cold**
by John Le Carré
An agent, desperate to end his career as a spy during the Cold War, is caught up in a breathlessly perilous assignment to come in from the cold and re-enter the West.




**Nothing More to Tell** by Karen McManus

Four years ago, Brynn quit Saint Ambrose School following the shocking murder of her favourite teacher. The case was never solved. When Brynn gets the internship of a lifetime working on a popular true-crime show, she decides to investigate what really happened that day in the woods. But the further she dives into the past, the more secrets she uncovers. Four years ago someone got away with murder. But secrets have consequences…



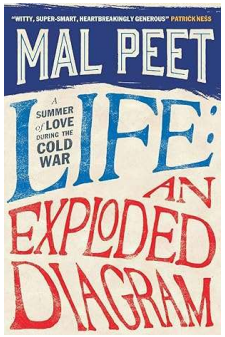

**Live** by Luke Palmer

Sixth-former George leads the school's coolest band - no party is complete without them. But when tragedy strikes, how can he rediscover the bright future they'd all planned?

Bournemouth School – Knowledge Organiser – Year 10

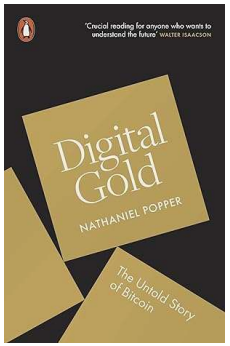
BOOK LIST

Accessit
Bournemouth School Library Catalogue WebApp
https://uk.accessit.online/brn22/#llandingPage



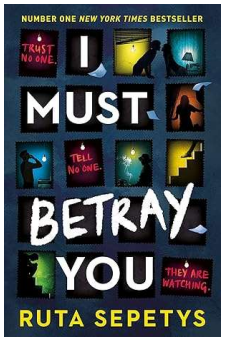

**Life: An Exploded Diagram** by Mal Peet

Clem Ackroyd lives with his parents and grandmother in a claustrophobic home too small to accommodate their larger-than-life characters in the bleak Norfolk countryside. Clem's life changes irrevocably when he meets Frankie, the daughter of a wealthy farmer, and experiences first love, in all its pain and glory.



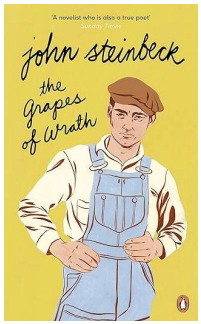

**Digital Gold** by Nathaniel Popper

Here, a New York Times technology and business reporter charts the dramatic rise of Bitcoin and the fascinating personalities who are striving to create a new global money for the Internet age.




**I Must Betray You** by Ruta Sepetys

At 17, Cristian dreams of being free but doesn't know where to turn. In this climate of constant suspicion, can he trust his best friend, his girlfriend or even his family? Closely based on the real events of the Romanian Revolution of 1989.

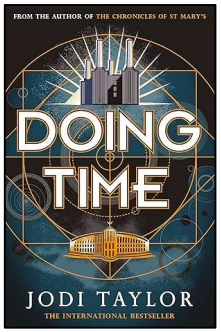



**The Grapes of Wrath** by John Steinbeck

Shocking and controversial when it was first published, The Grapes of Wrath is Steinbeck's Pulitzer Prize-winning epic of the Joad family, forced to travel west from Dust Bowl era Oklahoma in search of the promised land of California. Their story is one of false hopes, thwarted desires and powerlessness, yet out of their struggle Steinbeck created a drama that is both intensely human and majestic in its scale and moral vision.

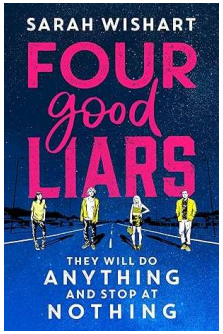

**On The Beach** by Nevil Shute

Australia is one of the last places where life still exists after nuclear war starts. Commander Dwight Towers and his Australian liaison officer is sent to the coast of North America to discover whether a stray radio signal is a sign of life.




**Doing Time** by Jodi Taylor

A long time ago in the future, the secret of time travel became known to all. Everyone seized the opportunity - and the world nearly ended. There will always be idiots who want to change history. And so, the Time Police were formed. An all-powerful, international organisation tasked with keeping the timeline straight. This is the story of Jane, Luke and Matthew - arguably the worst recruits in Time Police history. Or, very possibly, three young people who might just change everything.




**Four Good Liars** by Sarah Wishart

Teenagers, Layla, Kai, Liam, and Fliss, have little in common apart from catching the same seaside bus to travel to school. All four narrowly survive a horrific clifftop crash and discover their dead driver's holdall containing one million pounds - and a gun.  All of them have secrets, and all of them need that money. But someone dangerous is hunting it down, and drawing closer every minute. If Layla, Kai, Liam and Fliss want to survive, they'll need to stick together. But can four good liars really trust one another?


**Successful Applications** by Bruce Woodcock and Jenny Keaveney

Packed with top tips and helpful examples, this concise book takes students through the process of preparing and making successful applications for work placements, internships and graduate jobs.

Accessit
Bournemouth School Library Catalogue WebApp
https://uk.accessit.online/brn22/#!landingPage

# Timetable

| | 1Mon | 1Tue | 1Wed | 1Thu | 1Fri | 2Mon | 2Tue | 2Wed | 2Thu | 2Fri |
|---|---|---|---|---|---|---|---|---|---|---|
| Reg | | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| Break | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| Reg | | | | | | | | | | |
| Lunch | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |