![Trinity logo]

# YEAR 8 KNOWLEDGE ORGANISER
## LENT TERM

Name:

Family Group:

INSIGHTFUL

INDEPENDENT

RESILIENT

REFLECTIVE

KNOWLEDGEABLE

OPEN MINDED

COURAGEOUS

PRINCIPLED

CARING

# LEARNING - LOVING - LIVING

## KNOWLEDGE ORGANISER GUIDANCE

The knowledge organiser is a book of **EVERYTHING** that you should know (and remember) for the whole term.

EACH NIGHT you should spend *at least* **1 hour** per night on homework.
3 subjects per night x 20 minutes per subject= 1 hour. Use the homework timetable as a guide to what subjects to complete each night.

**Complete all work in your exercise book** and make sure you bring your knowledge organiser to school EVERYDAY (in your coloured folder).

Every FRIDAY morning the week's worth of KNOWLEDGE ORGANISER homework will be checked in Family Group time and detentions issued for work not complete, or not up to standard.

## SUBJECT HOMEWORK

All students will also be assigned **ENGLISH** reading activities on www.CommonLit.org with each assignment taking 20-30 minutes to complete and **MATHS** activities with short explanative videos on the online platform of https://mathswatch.co.uk.

Students in years 9-11 will also be provided with additional subject homework to be completed throughout the week. It is also recommended to take advantage of FREE online revision tools such as www.senecalearning.com or the recently updated BBC BITESIZE.

It is also recommended that students regularly **READ** a variety of **fiction and non fiction books** of their choosing. This extra reading will develop and broaden general understanding and context in all subjects.

## HOMEWORK TIMETABLE

| Year 8 | Subject 1 | Subject 2 | Subject 3 |
|---|---|---|---|
| **Monday** | Maths | History | PE |
| **Tuesday** | English | Geography | ICT |
| **Wednesday** | Maths | RE | Music |
| **Thursday** | English | Science | Creative |
| **Friday** | Maths | Languages | Drama |

## HOMEWORK CHECKLIST

| Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 |
|---|---|---|---|---|---|
| | | | | | |
| Half term | | | | | |
| Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 |
| | | | | | |

Here are some activities that you can try at home with your knowledge organiser to help revise.

Copyright © 2018
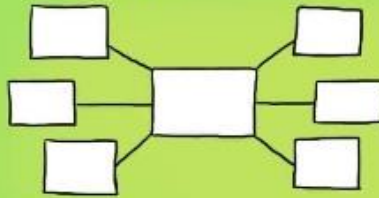
## 4 Methods of Retrieval Practice

@ImpactWales

Before you start put away all your books & classroom materials.

**Retrieval Practice Examples**

* Exit Tickets
* Starter quizzes
* Multiple choice quizzes
* Short answer tests
* Free write
* Think, pair, share
* Ranking & sorting
* Challenge grids

### BRAIN DUMP

Write, draw a picture, create a mind-map on everything you know about a topic.

Give yourself a time limit, say 3 minutes, then have a look at your books & add a few things you forgot.
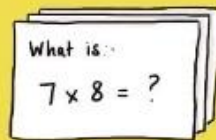
### QUIZZING

Create practice questions on a topic. Swap your questions with a partner & answer.

Question - What is a metaphor?

☐ A comparison using 'like, as, than'.
☐ A comparison where one thing is another.
☐ A comparison with a human attribute.

### FLASHCARDS

Create your own flashcards, question on one side answer on the other. Can you make links between the cards?

What is:
$7 \times 8 = ?$

You need to repeat the Q&A process for flashcards you fail on more frequently & less frequently for those you answer correctly

### KNOWLEDGE ORGANISERS

Complete a knowledge organiser template for key information about a topic.

Definition | Draw a picture
Examples | Topic | Non-examples
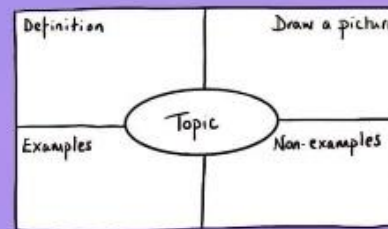
You can use knowledge organisers to learn new vocab & make links in between subjects or ideas.
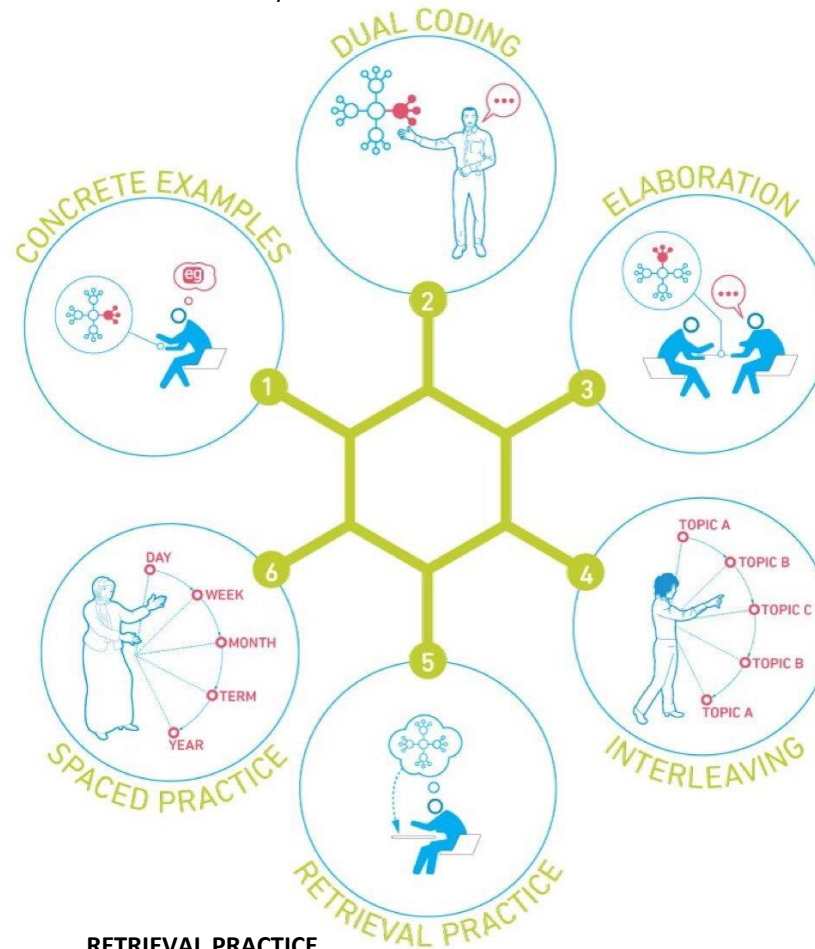
After you have retrieved as much as you can go back to your books & check what you've missed. Next time focus on that missing information

**DUAL CODING**

Dual coding is the process of combining visual and written materials. You can visually represent materials using methods such as info graphics, timelines, cartoon/comic strips, diagrams and graphic organisers. Combing images with words or explaining an image makes it more likely to 'stick'.

**ELABORATION**

When talking about studying, elaboration involves explaining and describing ideas with many details. Elaboration also involves making connections among ideas you are trying to learn. Ask yourself questions about a topic to delve deeper. The more information you have about a specific topic the stronger your grasp and ability to recall.

**CONCRETE EXAMPLES**

When you're studying, try to think about how you can turn ideas you're learning into concrete examples. Making a link between the idea you're studying and a real life example, concrete example, can help students understand abstract ideas and make it 'stick'.



**INTERVEAVING**

Interleaving is a process where you combine multiple subjects and topics while you study in order to improve learning. Switch between ideas and make links between them during a study session. Interleaving has been shown to lead to better long-term retention

**SPACED PRACTISE**

Divide up your revision into short manageable chunks of time . When revising aim for 20 - 30 minutes per session. Five hours spread out over two weeks is better than the same five hours all at once. This is **spaced practice** and it is regarded as one of the most effective revision strategies.

**RETRIEVAL PRACTICE**

Through the act of retrieval, or calling information to mind, our memory for that information is strengthened and forgetting is less likely to occur. Retrieval practice ideas include: Read, cover, write, check, flashcards and brain dumps.

LEARNING - LOVING - LIVING

| | Vocabulary | Definition | | Vocabulary | Definition |
|---|---|---|---|---|---|
| 1 | Itinerant workers | Workers who travel from place to place looking for employment | 19 | Misogyny | Ingrained dislike or prejudice towards women |
| 2 | Animalistic | Characteristic of animals. | 20 | Disparaging | Expressing the opinion that something is of little worth |
| 3 | Irascible | Easily angered | 21 | Ostracise | Excluded from a group or society |
| 4 | Infantile | Childlike or babyish behaviour | 22 | Ignorance | Lack of awareness |
| 5 | Futile | Incapable of producing any useful result; pointless | 23 | Judicious | Showing good judgement |
| 6 | Morosely | In a withdrawn, thoughtful or depressed way. | 24 | Gravitas | Dignity, serious, solemnity of manner |
| 7 | Disempower | Make someone less powerful or confident | 25 | Evoke | bringing strong images, memories, or feelings to mind |
| 8 | Disconcerting | causing one to feel unsettled | 26 | Disconsolate | Very unhappy and unable to be consoled |
| 9 | Apprehensive | Anxious or fearful that something bad or unpleasant will happen. | 27 | Disenfranchised | Deprive someone of a right or privilege |
| 10 | Sceptical | Not easily convinced. | 30 | Domineering | assert one's will over another in an arrogant way. |
| 11 | Immense | Extremely large or great | 31 | Discrimination | The unjust or prejudicial treatment of different categories of people, especially on the grounds of race, age, or sex. |
| 12 | Naïve | Showing a lack of experience, wisdom or judgement (childlike) | 32 | Nostalgic | a sentimental longing or wistful affection for a period in the past |
| 13 | Paternal | Of or appropriate to a father. | 33 | Bucolic | Relating to the pleasant aspects of the countryside. |
| 14 | Patriarchy | Of or appropriate to a father. | 34 | Marginalisation | To isolate someone and make them feel unimportant. |

| | Vocabulary | Definition | Themes and context | | |
|---|---|---|---|---|---|
| 15 | Feminist | A person who supports the rights of women. | | | |
| 16 | Subjugation | To dominate or control someone or something. | Steinbeck encourages us to empathise with **the plight of migrant workers** during the **Great Depression**. | Steinbeck reveals the **predatory nature of mankind**: the **powerless** are targeted by the **powerful**. | |
| 17 | Hyper-masculinity | An exaggeration of traditionally masculine traits or behaviour. | **The American Dream** is shown to be impossible: **reality** defeats **idealism.** | Steinbeck explores the tension between the **inevitability of fate** and the **fragility of human dreams**. | |
| 18 | Derogatory | Showing a critical or disrespectful attitude | The novella explores the human need for **companionship** and the tragedy of **loneliness.** | Steinbeck explores *prejudice* and the *discrimination* of individuals because of their **race** or **gender**. | |

| Vocabulary | | Definition | Example |
|---|---|---|---|
| 1 | Isolation | Being alone or apart from others | Curley's wife felt a sense of *isolation* as her husband did not like talking to others. |
| 2 | Racism | Prejudice, discrimination, or antagonism directed against someone based on the belief that one's own race is superior. | Crooks was subjected to *racism*. He believed that people didn't listen to him as he was "just a ****** talkin." |
| 3 | Segregation | The action or state of setting someone or something apart from others | Crooks feels separated from the other workers, "I ain't wanted in the bunkhouse, and you ain't wanted in my room." |
| 4 | Migrant | A person who moves from one place to another in order to find work or better living conditions. | George and Lennie are migrant workers. They move from place to place to find work. Usually, migrants would travel alone. |
| 5 | Cyclical | Occurring in cycles; recurrent The structure | 'The structure of OMAM is cyclical. There is a sense of things being repeated giving a sense that things are inevitable |
| 6 | Hierarchy | A system in which members of an organization or society are ranked according to relative status or authority. | 'Curley's father is at the top of the hierarchy as he is the boss of the ranch. |
| 7 | Loneliness | Sadness because one has no friends or company. | 'Curley's wife feels a sense of *loneliness* as she is not allowed to have friends on the ranch. |
| 8 | The American Dream | The ideal by which equality of opportunity is available to any American, allowing the highest aspirations and goals to be achieved. | George and Lennie's dream of owning a farm and living off the 'fatta the lan' symbolizes this dream. |
| 9 | Great Depression | **A long and severe recession in an economy or market.** | In October 1929, millions of dollars were wiped out in the Wall Street Crash. This led to the *Great Depression*, which crippled the country between 1930 and 1936. |
| 10 | The Dustbowl | An area of land where vegetation has been lost and soil reduced to dust and eroded, especially because of drought or unsuitable farming practice. | The *dustbowl* was a key reason why workers had to move so regularly due to land being dry and them not being able to farm there. |

| Terminology | Definition | Example |
|---|---|---|
| Animal Imagery | Animal attributes are imposed upon non-animal objects and humans. | "He walked heavily, dragging his feet a little, like a bear drags his paws." |
| Foreshadowing | To give an indication of what is to come. | We get a hint of the final death through the killing of the mouse and puppy. |
| Symbolism | The use of symbols to represent ideas or qualities. | Candy's dog represents the fate of those who are weak and the dream farm, symbolizes unattainable independence and protection from the world. |
| Semantic field | A group of words, which relate to a common theme or motif. | Curley's wife is presented as dangerous through a semantic field of colour imagery, "She had full, *rouged lips* ... Her fingernails were *red*. Her hair hung in little rolled clusters, *like sausages*." |
| Motif | A reoccurring subject, image or idea in a text. | Motif of *loneliness* shown through George's solitaire card game. |
| Metaphor | A figure of speech, which is not literal. | Curley is a terrier. |

## Context

John Steinbeck was born in Salinas, California in 1902. Although his family was wealthy, he was interested in the lives of the farm labourers and spent time working with them. He used his experiences as material for his writing.
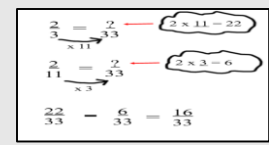
On October 29 1929, millions of dollars were wiped out in the Wall Street Crash. It led to the people losing their life savings and a third of America's population became unemployed. *(*A series of drought in southern mid-western states like Kansas, Oklahoma and Texas led to failed harvests and dried-up land. Farmers were forced to move off their land: they could not repay the bank loans which had helped buy the farms and had to sell what they owned to pay their debts. Racism/sexism were common, especially in Southern states due to economic climate and history of slavery.

| Technique | Definition | Example |
|---|---|---|
| Anaphora | Repetition of a word or phrase at the start of a clause or sentence. | 'They have something to say to every minister of the gospel who has remained silent behind the safe security of stained-glass windows. They have something to say to every politician who has fed his constituents with the stale bread of hatred and the spoiled meat of racism' – Martin Luther King (Eulogy) |
| Hypophora | Asking a question then answering it straight afterwards | Why is America – why does this loom to be such an explosive political year? Because this is the year of politics. This is the year when all of the white politicians are going to come into the Negro community.' – Malcolm X |
| Anadiplosis | Repeating the last word of one clause or sentence as the first word of the next. | And so even though we face the difficulties of today and tomorrow, I still have a dream. It is a dream deeply rooted in the American dream." – Martin Luther King (I have a dream) |
| Antithesis | First you mention one thing, then you mention another. Both elements are often opposites | Kings die and beggars die; rich men and poor men die; old people and young people die' – Martin Luther King |
| Parallelism | Giving two or more parts of the sentences a similar form and structure so as to give the passage a definite pattern | 'It is not aristocracy for some of the people, but a democracy for all of the people.' – Martin Luther King (Eulogy) |
| Epistrophe | Repetition of a word of phrase at the end of a clause or sentence | 'With this faith we will be able to work **together**, to pray **together**, to struggle **together**, to go to jail **together**, to stand up for freedom together' Martin Luther King (I have a dream) |
| Tricolon | Three ideas in a row | 'These children—unoffending, innocent, and beautiful' – Martin Luther King (Eulogy) |
| Imperative | Giving a command or order to the listener or audience | 'Go back to Mississippi, go back to Alabama, go back to South Carolina, go back to Georgia, go back to Louisiana' – Martin Luther King (I have a dream) |

| Appeal | Definition | |
|---|---|---|
| Ethos | An appeal to the authority of credibility of the speaker. It is how well the presented convinces an audience that they are qualified to present (speak) on the particular subject | |
| Logos | This is logical appeal or the simulation of it, and the term *logic* is derived from it. It is normally used to describe facts and figures that support the speaker's claims or thesis. Having a *logos* appeal also enhances **ethos** because information makes the speaker look knowledgeable and prepared to his or her audience | |
| Pathos | It is an appeal to the audience's emotions, and the terms *pathetic* and *empathy* are derived from it. It can be in the form of metaphor, simile, a passionate delivery, or even a simple claim that a matter is unjust | |

| Structure | Purpose | Civil Rights Context |
|---|---|---|
| Exordium | establish your connection with the audience and grab their attention | 18th September 1963 – Martin Luther King delivers Eulogy for Martyred Children |
| Narration | set out your definitions and facts with brevity, clarity, plausibility | 28th August 1963 – Martin Luther King delivers 'I Have a Dream speech |
| Division | summarises the agreements and disagreements with your opponents | 8th March 1964 – Malcolm X delivers The Ballot or the Bullet Speech |
| Probation | set out your arguments with authority, analogy and evidence | **2nd July 1964: Civil Rights Act signed** |
| Refutation | smash your opponents' arguments | 8th January 2008 - Barack Obama delivers 'Yes we Can' speech |
| Peroration | connect into your audience's emotions | |

| Vocabulary | Definition | Vocabulary | Definition |
|---|---|---|---|
| Diametrically Opposed | Complete opposites | Conciliatory | **Intended to placate, pacify or help stop argument** |
| Pacifist | Opposed to violence | Militant | **Aggressive** |
| Advocate | a supporter | Rousing | **Persuasive, stirring or inspirational** |
| An impasse | A barrier that cannot be overcome | Eulogy | A speech or piece of writing about someone who has just died |
| Inclination | Desires, wants | Martryr | A person who is killed because of their beliefs. |
| Eloquent | Persuasive, interesting and intelligent language | Unrelenting | Not yielding in strength, severity, or determination |

| Vocabulary | |
|---|---|
| Numerator, denominator | Numerator is the top number in a fraction, denominator is the bottom number |
| percent | Means out of 100 |
| speed | The rate at which someone or something moves or operates or is able to move or operate |
| density | The density of a substance is its mass per unit volume. |
| Indices | An index number is a number which is raised to a power. The power, also known as the index, tells you how many times you have to multiply the number by itself. For example, $2^5$ means that you have to multiply 2 by itself five times = $2×2×2×2×2 = 32$. |
| Improper fraction | Fractions where the numerator is larger than the denominator |
| Mixed number | A mixed number has an integer and a fraction part. $3\frac{1}{3}$ |
| Ascending | To increase |
| Descending | To decrease |

| MathsWatch References | |
|---|---|
| A7a,7b,A6,8,9,10,11A,B,C,13a, | Algebraic reasoning, $n^{th}$ term |
| R9a,b | Percentage, fraction, decimal conversions |
| R5a,b | Ratio, simplifying and using |
| N25 | Indices |
| R11a,b | Speed and density |

| QUESTION | ANSWER |
|---|---|
| $\frac{4}{7} \div \frac{2}{5}$ Dividing fractions | $\frac{2}{7}\frac{4}{} \times \frac{5}{2}\frac{}{1} = \frac{10}{7} = 1\frac{3}{7}$ Dividing fractions is the same as multiplying by the reciprocal |
| $\frac{2}{3} - \frac{2}{11}$ Adding and subtracting fractions |  |
| Convert 23% to a decimal and fraction | 23 % means 23 out of 100 23/100 as a fraction, simplify if possible. 23/100 is 23 divided by 100 = 0.23 |
| Convert 0.35 to a fraction and percentage | 0.35 is 35 hundredths = 35/100 35/100 means 35 out of 100 = 35% |
| Convert 4/25 to a decimal and fraction | 4/25 = 16/100=0.16 =16% |
| 209 as a percentage of 400 | $\frac{209}{400} \times 100 = 52.25\%$ |
| Write $4\frac{2}{3}$ as an improper fraction. | Think of the mixed number as an addition: $4\frac{2}{3} = 4 + \frac{2}{3}$ Turn the integer part into a fraction: $4 + \frac{2}{3} = \frac{12}{3} + \frac{2}{3} = \frac{12+2}{3} = \frac{14}{3}$ |
| Write $\frac{31}{4}$ as a mixed number. | Divide the top number by the bottom. 1) The answer gives the whole number part. 2) The remainder goes on top of the fraction. $31 \div 4 = 7$ remainder 3  so $\frac{31}{4} = 7\frac{3}{4}$ |

## KEY FACTS AND FORMULA

| | |
|---|---|
| Converting a decimal to a fraction | Look at which column the number ends e.g. tenths , hundredths ,thousandths 0.3 is 3 tenths = 3/10 0.03 is 3 hundredths = 3/100 0.003 is 3 thousandths = 3/1000 |
| Converting a fraction to a decimal | 1. Try to write as a fraction with a denominator of 10 or 100 e.g. 2/5 = 4/10 = 0.4 2. Divide the numerator by the denominator e.g. 2/5 is 2 divided by 5 |
| Converting a decimal to a percentage | To convert a decimal to a percentage we multiply the decimal by 100 E.g. 0.36 is 0.36 x 100 = 36% |
| Speed | Speed is the distance covered in a set amount of time. E.g. 12m/s means 12m travelled every second.  12 mph means 12 miles travelled every hour. 12km/hour means 12 km travelled every hour |
| Rules of Indices | |

| Rule | Example |
|---|---|
| $a^m \times a^n = a^{m+n}$ | $2^5 \times 2^3 = 2^8$ |
| $a^m \div a^n = a^{m-n}$ | $5^7 \div 5^3 = 5^4$ |
| $(a^m)^n = a^{m \times n}$ | $(10^3)^7 = 10^{21}$ |
| $a^1 = a$ | $17^1 = 17$ |
| $a^0 = 1$ | $34^0 = 1$ |
| $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$ | $\left(\frac{5}{6}\right)^2 = \frac{25}{36}$ |
| $a^{-m} = \frac{1}{a^m}$ | $9^{-2} = \frac{1}{81}$ |

## Important Ideas

**Equation of a Straight Line**

$$y = mx + c$$

y – axis intercept

m is the gradient of the line

**Solving Equations by Balancing**

$$3x + 7 = 22$$
$$-7 \quad -7$$
$$3x = 15$$
$$\frac{3x}{3} = \frac{15}{3}$$
$$x = 5$$

**Parts of A Circle**



Surface Area

$$SA = 2 \times (front + side + top)$$

8cm, 5cm, 4cm

## Vocabulary

| Gradient | The steepness or incline of a line |
|---|---|
| Inequality | Inequalities tell the relative size of two values, i.e. 'greater than' or 'less than' |
| Pi - π | A mathematical constant. Defined as the ratio of a circle's circumference to its diameter |
| Prism | A solid figure whose bases or ends have the same size and shape and are parallel to one another, and each of whose sides is a parallelogram |

## Q & A

**Calculate the gradient of the line segment**

$$m = \frac{rise}{run}$$

$$m = \frac{-8}{4}$$

$$m = -2$$

**Calculate the area for a circle with Diameter = 8.4m**

a. $A = \pi r^2$  Write formula for area of a circle.
$= \pi (4.2)^2$  Substitute 4.2 for r.
$= 17.64\,\pi$  Simplify.
$\approx 55.42\,m^2$  Use a calculator.

**Solve this inequality and graph the solution**

$$8a - 2 \geq 13a + 8.$$

$$8a - 2 \geq 13a + 8$$
$$-13a \quad\quad -13a$$
$$-5a - 2 \geq 8$$
$$+2 \quad\quad +2$$
$$-5a \geq 10$$

$$\frac{-5a}{-5} \leq \frac{10}{-5}$$

$$a \leq -2$$

## MathsWatch References

| A12, A17, A19a, A19b | Solving equations |
|---|---|
| A20b | Solving inequalities |
| G2, G22a, G22b | Area and Circumference of Circle |
| G21a, G25a | Volume or cuboids and prisms |
| R11a | Compound Measures - Speed |
| A14c | Straight line graphs |

## Key Facts & Formula

**Gradient**



The Gradient "m" is:
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta Y}{\Delta X}$$
$$m = \frac{6 - ^-2}{2 - ^-2}$$
$$m = 8 / 4 = 2 \checkmark$$

**Convert Fractions to Decimals**

$$\frac{1}{4} = 0.25$$

$$\frac{9}{5} = 1.8$$

**y = x vs. y = -x**

Graph of y = x

Graph of y = -x

Area of a circle = π × **radius**$^2$

Circumference of a circle = π × **diameter**

**Volume of A Prism** = the cross section area (A) X length (or height) of prism
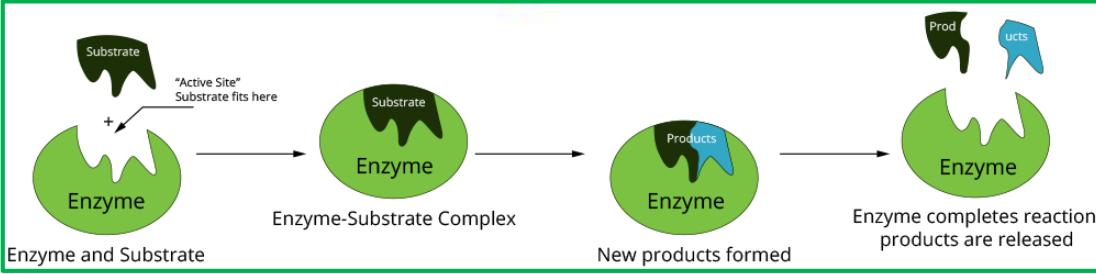
$$V = Al \quad \text{or} \quad V = Ah$$

## What is an Enzyme?

Enzymes are **biological catalysts**: they speed up reactions in living cells.

All enzymes are proteins: they are made of amino acids, and every cell contains enzymes.

Enzymes bind to **substrates** and carry out reactions: they can join substrate molecules together to make larger molecules (**synthesis**), or break the substrate down into smaller molecules (**digestion**).

To catalyse a reaction, the substrate must bind to the enzyme's **active site**. The active site will only bind to a small number of substrates: it is very specific.

To explain how specific enzymes are, scientists proposed **the Lock and Key theory**: just like a specific key is needed to fit into and open a lock, a reaction can only take place if a specific substrate fits into the active site of the enzyme.



"Active Site" Substrate fits here

Enzyme and Substrate → Enzyme-Substrate Complex → New products formed → Enzyme completes reaction; products are released
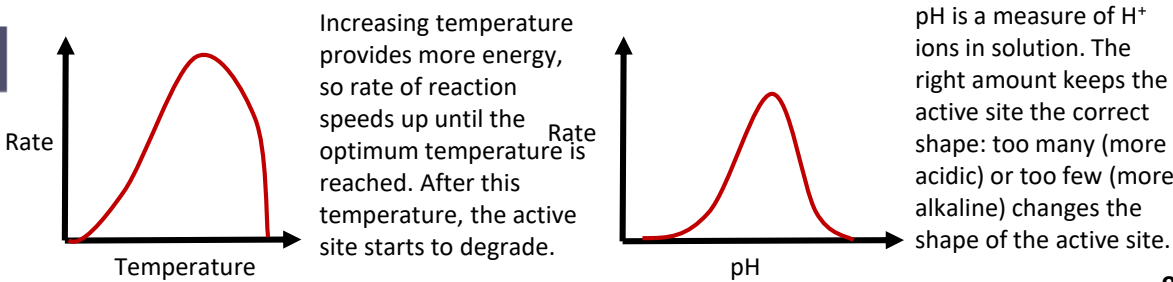
## Enzymes and Digestion

Digestion is the breakdown of complex molecules into their components.

When we eat, chewing breaks the food into smaller pieces and allows enzymes to start breaking down the molecules present.

Different enzymes break down different types of nutrient, and the smaller molecules this produces will be absorbed by the small intestine.
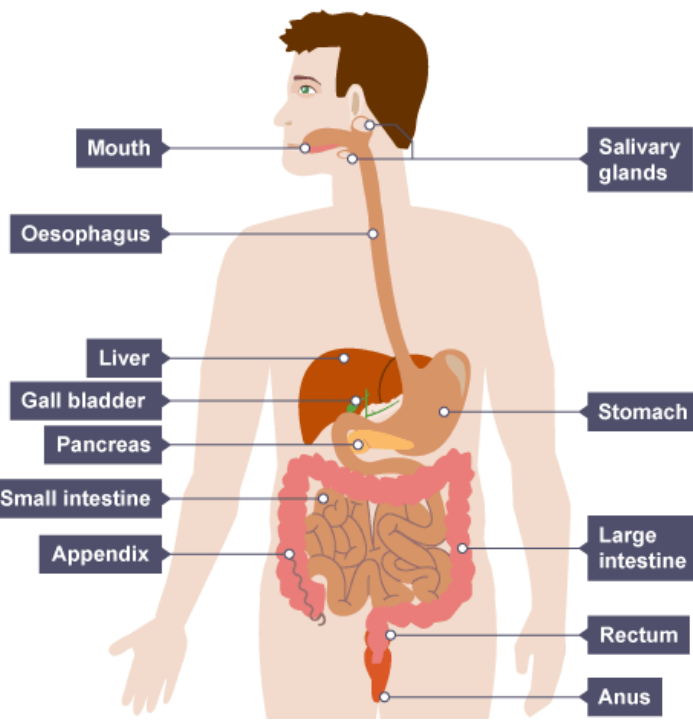


| Enzyme | Enzyme made in..... | Where it breaks food down.... | What it breaks down..... |
|---|---|---|---|
| Amylase | Salivary glands, pancreas, small intestine | Mouth and small intestine | Starch into sugars |
| Protease | Stomach, pancreas, small intestine | Stomach and small intestine | Protein into amino acids |
| Lipase | Pancreas and small intestine | Small intestine | Lipids into fatty acids and glycerol |

## Enzyme Conditions

Rates of enzyme-catalysed reactions can be affected by the temperature and pH of their environment.

The conditions at which the enzyme works best are called **optimum**.

At extremes of temperature and pH, the shape of the active site is permanently changed and the enzyme can no longer function: it becomes **denatured**.



Rate

Temperature

Increasing temperature provides more energy, so rate of reaction speeds up until the optimum temperature is reached. After this temperature, the active site starts to degrade.

Rate

pH

pH is a measure of $H^+$ ions in solution. The right amount keeps the active site the correct shape: too many (more acidic) or too few (more alkaline) changes the shape of the active site.

9

1. All the Elements are listed in the period table.



Periodic Table of the Elements
Physics

2. Key words.
**Elements** are made up of one type of atom.

**Atoms** are the smallest unit of matter than can't be broken down into anything simpler.

**Elements** can exist as a collection of separate atoms or atoms bonded as **molecules**.

A **molecule** is two or more atoms bonded together.

A **compound** is when two or more different elements become chemically combined. A **compound** can only be broken down by a chemical reaction.

A **mixture** is when two or more different elements are in the same space but not chemically combined. A **mixture** can be broken down by a physical reaction.

3. The diagrams below show the general arrangement of particles in an element, a compound and a mixture in gas state.
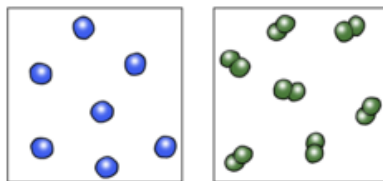


a) Atoms of an element

b) Molecules of an element
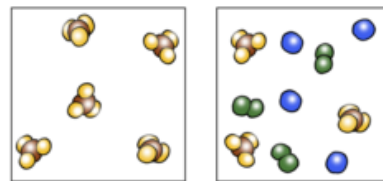
c) Molecules of a compound

d) Mixture of elements and a compound

4. Signs of a Chemical reaction:
- Change in temperature takes place.
- A new substance is formed.
- A change in colour may be observed.
- A gas might be produced.
- Difficult to reverse

5. Signs of a Physical reaction:
- No new substance formed.
- Change in temperature.
- A change in shape may be observed.
- A change in size may be observed.
- Easily reversed.

7. Examples
Physical Reaction – Ice Melting
Chemical Reaction – Baking a cake

6.Key Words.
**Boiling Point** – The temperature at which a substance turns from a liquid into a gas

**Melting point** – The temperature at which a substance turns from a solid into a liquid.

8. Word Equations for chemical reactions.
8a) Iron + Sulphur -----→ Iron sulphate

8b) Iron + Copper Sulphate ----→ Iron Sulphate + Copper

8c)Magnesium + hydrochloric ----→ Magnesium + Carbon + Water
   Carbonate      acid                      Chloride     Dioxide

9. Symbol Equations for chemical reactions.
9a) $Fe_{(s)} + S_{2\,(g)}$ -----→ $FeS_{(s)}$

9b) $2Na_{(s)} + CuSO_{4(aq)}$ ----→ $Na_2SO_{4(aq)} + Cu_{(s)}$

9c) $MgCO_{3(s)} + HCl_{(aq)}$ ----→ $Mgcl_{2\,(aq)} + CO_{2(g)} + H_2O_{(l)}$

10. Balanced Symbol Equations for chemical reactions.
10a) $2Fe_{(s)} + S_{2\,(g)}$ -----→ $2FeS_{(s)}$

10b) $2Na_{(s)} + CuSO_{4(aq)}$ ----→ $Na_2SO_{4(aq)} + Cu_{(s)}$

10c) $MgCO_{3(s)} + 2HCl_{(aq)}$ ----→ $MgCl_{2(aq)} + CO_{2(g)} + H_2O_{(l)}$

| Key Terms | Definitions |
|---|---|
| Pressure | The force exerted over a given area |
| Fluids | A substance that can flow |
| Pascals | The unit for pressure which can also be written as $(N/m^2)$ |

| Equation | Meanings of terms in equation |
|---|---|
| $P = \dfrac{F}{a}$ | $P$ = Pressure (Pa)<br>$F$ = Force (N)<br>$a$ = Area (m²) |

## Pressure on surfaces

Objects exert pressure on the surface that they are on. The size of the pressure depends on the force applied by the object and the surface area of the object.

Pressure is calculated by dividing force by area.

Some objects look to increase pressure for example drawing pins have a very low surface area, so exert a high pressure.

Snow shoes have a very large surface area so exert a very low pressure, stopping people sinking into the snow.

## Pressure in fluids

Fluids (liquids or gases) exert pressure at 90° to the surface. In a gas, particles are constantly colliding with objects, this exerts a pressure. In a liquid like water, the deeper you go, the higher the pressure.
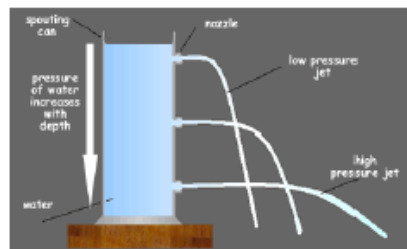
## Gas Pressure

Gas pressure is **caused by gas particles colliding with the walls of the container.** A container also experiences pressure on the outside. Air particles on the outside collide with the outside wall. **An imbalance between the pressure on the inside and outside can cause the container to change its shape.**
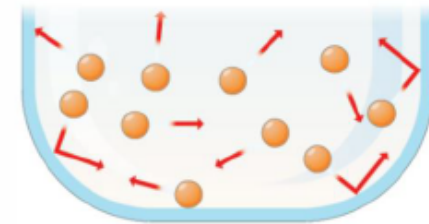


Gas particles hit the walls of their container and cause pressure

There are **3 factors** affecting gas pressure:

**1. Number of particles:**

The more gas particles inside the container, the more often collisions will occur, creating a higher pressure.

**2. Temperature:**

If gas particles are heated up, they move with a higher speed and collide more often with the walls of the container, causing a higher pressure.

**3. Volume:**

If the same amount of gas particles are put into a container of a smaller volume, pressure will increase because particles will collide more frequently with the walls when they have less space.

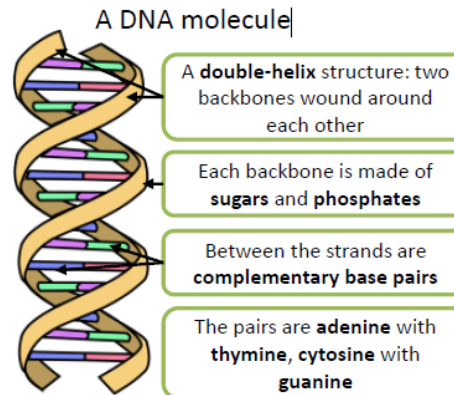| Key Terms | Definition |
|---|---|
| DNA | Deoxyribonucleic acid – the genetic material of all organisms |
| Double helix | Two helical strands wound around each other |
| Chromosomes | DNA wound up tightly. There are 23 pairs in human cells (but a different number of pairs in other species) |
| Bases | The molecules which connect the two strands in DNA together. They are adenine, thymine, cytosine and guanine |
| Complementary | Shapes which fit together e.g. enzymes and substrates have complementary shapes |
| Gene | A short section of DNA which codes for characteristics |
| Allele | A version of a gene e.g. blue eyes |

## DNA Structure

- Genetic information is stored in the **nuclei** of cells, in **DNA**
- DNA has a **double helix** structure with two sugar-phosphate backbones wound around each other. Long strands of DNA are coiled up tightly into **chromosomes**
- Pairs of complementary **bases** connect the two backbones (strands)
- The bases are **adenine, thymine, cytosine** and **guanine** (A, T, C, and G)
- A has a **complementary shape** to T
- C has a **complementary shape** to G
- A short section of DNA (a **gene**) will control for a characteristic (e.g. hair colour). Variants on these characteristics (e.g. **blonde** hair vs. **black** hair) have different orders of bases (genetic "code") and are called **alleles**.

## History of DNA Discovery

We didn't always know that this was the structure of DNA. Main events in the history of DNA research are below:
- **Rosalind Franklin** and **Maurice Wilkins** 1952
  - Using x-ray photography, Franklin and Wilkins produced high-resolution photographs of DNA fibres. Using these they were able to deduce that DNA had a **helical** structure and that the outside of the molecule contained **phosphates**
- **James Watson** and **Francis Crick** 1953
  - Using the x-ray data from Wilkins and Franklin, and using models, Watson and Crick managed to discover the double-helix structure of DNA. They and Wilkins were awarded the Nobel Prize in 1962.

A DNA molecule



A **double-helix** structure: two backbones wound around each other

Each backbone is made of **sugars** and **phosphates**

Between the strands are **complementary base pairs**

The pairs are **adenine** with **thymine**, **cytosine** with **guanine**

**Family trees**
- These are used to show how alleles are inherited within a family
- Symbols to remember are:



|  | Unaffected | Affected | Carrier |
|---|---|---|---|
| Female | ○ | ● | ◐ |
| Male | □ | ■ | ◧ |

**Sexual and Asexual Reproduction**

| Sexual reproduction | Asexual reproduction |
|---|---|
| 2 parents | 1 parent |
| Variation | No variation |
| Offspring have features of both parents | Offspring are clones of the 1 parent |
| Used in the production of offspring | Used in the production of offspring and for growth and replacement cells |

| Key Terms | Definition |
|---|---|
| Dominant allele | The allele that is always expressed |
| Recessive allele | Only expressed if no dominant allele is present |
| Genotype | The combination of alleles a person has |
| Phenotype | The result of the combination of alleles a person has (the physical characteristic) |
| Homozygous | Has two of the same alleles of a gene |
| Heterozygous | Has two different alleles of a gene |
| Punnett square | Used to show the probable outcomes of crossing two sets of genes |

## Punnett Squares

- Dominant alleles are always shown by a capital letter
- Recessive alleles are always shown by a lower case letter
- For example the allele for brown eyes is dominant so is given a "B" whilst the allele for blue eyes is recessive so is given a "b"
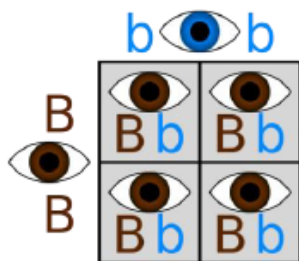


Genotype of offspring:
100% Bb
Phenotype of offspring:
100% brown eyes
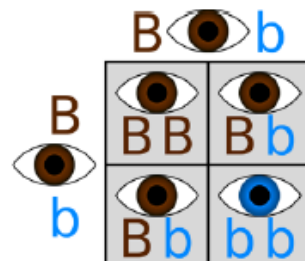
Genotype of offspring:
25% BB
50% Bb
25% bb
Phenotype of offspring:
75% brown eyes
25% blue eyes

## Chromosomes and cell division

- Human body cells contain 23 pairs of chromosomes (46 in total)
- One of each pair comes from the mother and one from the father
- Females have two X chromosomes (XX)
- Males have one X and one Y chromosome (XY)
- When cells divide the chromosomes make copies of themselves before splitting them into new cells
- During mitosis two new cells are produced that are clones of the original cell and contain 23 pairs of chromosomes
- During meiosis four new cells are produced that are not clones of the original cell and only contain 23 chromosomes
- Mitosis is used to produce body cells
- Meiosis is used to produce gametes

## Genetic diseases

**Sickle cell anaemia** is a recessive genetic disease. Red blood cells are the wrong shape and get stuck in capillaries causing pain & cell death. Historically in African countries being a carrier (Ss) gave a survival advantage over malaria as the sufferers (ss) died of sickle cell, and the healthy individuals (SS) died of malaria, leaving carriers to reproduce. Carriers are highly resistant to the parasite, giving them a great advantage against malaria.

**Huntington's Chorea** is an incurable dominant genetic disease
There are no carriers as carriers are sufferers (Hh)
Symptoms are damage to the neurones in the brain leading to gradual physical, mental and emotional changes

**Haemophilia** is a sex linked genetic disease where the blood doesn't clot. The faulty gene is carried on the X chromosome. This affects only boys as girls have 2 X chromosomes so with usually have the healthy copy of the allele on their other X chromosome whereas boys only have 1 X chromosome so any faulty alleles on this will be expressed

| Property | Metals | Non-metals |
|---|---|---|
| Appearance | Shiny | Dull |
| State at room temp | Solid (except mercury) | Half are solids, half are gases, one is liquid (bromine) |
| Density | High | Low |
| Strength | Strong | Weak |
| Malleable or brittle | Malleable (can bend without breaking) | Brittle (will shatter when hammered) |
| Conduction (heat/electricity) | Conduct both well | Poor (graphite only non-metal conductor) |
| Magnetic | Only iron, cobalt and nickel | None |

**Metals and Non-Metals**

Metals are found on the left hand side of the periodic table, the majority of elements are metals. Some elements are known as amphoteric, meaning they have the properties of metals and non-metals.

- Properties of metals are: high density, high melting point (except mercury) and good conductors of electricity
- Only three metals are magnetic (iron, cobalt and nickel)

**Embryo Screening**

Preimplantation genetic PGD diagnosis is a technique in which the embryos prepared through IVF are tested for genetic defects **before implantation**

Pre-natal genetic diagnosis tests occur once the embryo is developing inside the uterus. The main two methods are amniocentesis and chorionic villus sampling (CVS).

**Cloning**

Dolly the sheep was born in 1996 and she was the first cloned mammal. She died age 6.5 which was a lot younger than expected. Some have speculated that a contributing factor to Dolly's death was that she could have been born with an older genetic age.

The cloning process is highly inefficient and so for ethical reasons would probably never be used to create human cloned babies. However could be used to raise the numbers of endangered species or bring back extinct ones.

All the different elements are arranged on the periodic table. The elements are arranged in order of increasing atomic number. On the periodic table, we can see the metal elements on the left and non metal elements on the right.



The section in the middle of the periodic table is known as the transition metals.

| Key Terms | Definition |
|---|---|
| Genome | All of a species' genetic code |
| Sequencing | Working out what each section of the genetic code codes for in the organism's phenotype |
| Cloning | Creating an identical copy of a cell or organism |

## Levers

Levers involve turning, or rotation. Levers allow forces applied to be **multiplied**.

- Levers have a **pivot**: a fixed centre of rotation
- The force applied to a lever is called the **effort**
- The output force of the lever is called the **load** (because levers can be used to lift large masses – loads!).
- Both the effort and load are forces that have a **turning effect**, meaning they make the lever rotate.
- The size of the forces' turning effects is called the **moment of the force**.
- The moment of a force can be **increased** by:
  1. Increasing the size of the force
  2. Increasing the perpendicular distance from the pivot

| Key terms | Definitions |
|---|---|
| lever | A simple machine that multiplies applied forces (efforts) through rotation around a pivot. |
| rotation | Turning, with a fixed centre of rotation. Rotation can be clockwise or anticlockwise – see diagram. |
| turning effect | The rotation of a lever caused by a force (effort OR load force). |
| moment | Another, more formal, name for 'turning effect of a force'. *See equation.* |
| perpendicular | At right angles to. |
| equilibrium | Describes a lever that is NOT rotating because the clockwise and anticlockwise moments are equal. |

## Equilibrium in lever systems

- When a lever is at **equilibrium**, it is NOT rotating.
- Equilibrium happens when:
  the clockwise moments = the anticlockwise moments
- The forces in each direction are not necessarily equal, but the *moments* of the forces in each direction are equal at equilibrium.
- Where there are multiple forces in one direction (clockwise or anticlockwise), the TOTAL moment in one direction is found by <u>adding up</u> the moments of each force in a particular direction.

| Equation to calculate the moment of a force |
|---|
| $$moment = force \times perpendicular\ distance\ from\ pivot$$ |
| Forces are usually measured in newtons (N) |
| Distances are usually measured in metres (m) |
| Moments are measured in a compound measure using the units for force and distance, usually newtonmetres, Nm. |



Ways to describe the direction of moments of a force
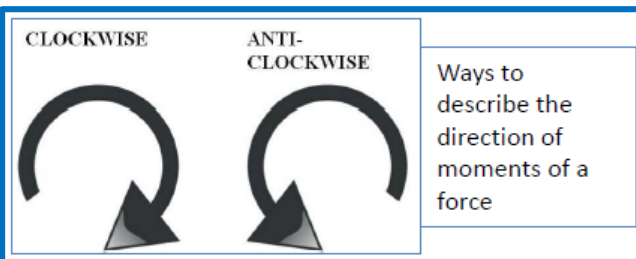
| 1 | Coriolis force | Apparent force, due to the spinning of the Earth, which deflects movement of particles and wind. |
|---|---|---|
| 2 | Drought | A long period of low rainfall that creates a major shortage of water. |
| 4 | Evacuation | When people are moved from an area, often temporarily and for their safety. |
| 5 | Habitat | A place where plants, animals and microorganisms live. |
| 6 | Levee | Ridges or banks formed by deposits of alluvium left behind by the periodic flooding of rivers. Can also be artificially constructed banks or walls. |
| 7 | Storm surge | Sea level rises above the normal tidal range. |
| 8 | Tornado | Fast rotating winds that can cause a lot of damage. |

A weather hazard is an extreme weather event that threatens people or property.
Weather hazards include:
- Tropical storms
- Tornadoes
- Droughts
- Storms, floods, fog
- Tropical storms (including hurricanes).
Tropical storms are given different names in different parts of the world.
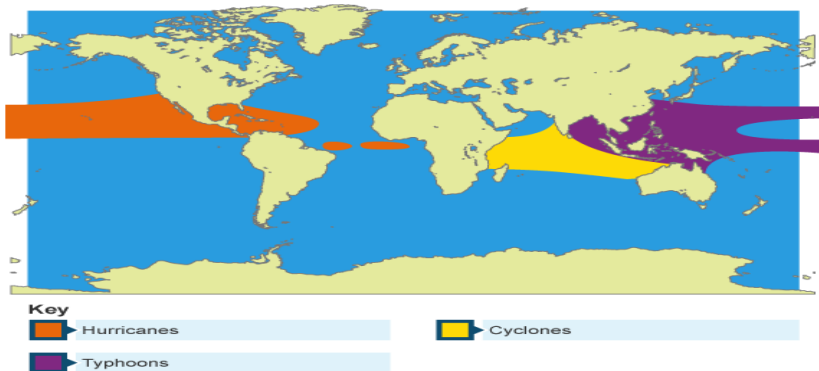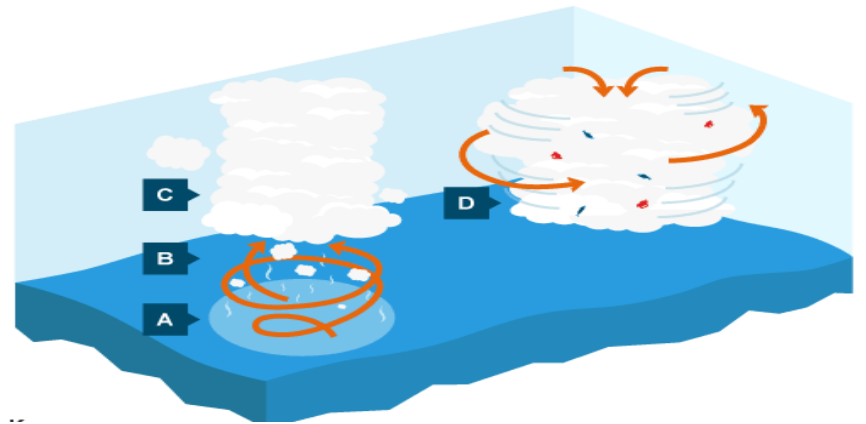


Key
- Hurricanes
- Cyclones
- Typhoons

- A tropical storm is a hazard that brings heavy rainfall, strong winds and other related hazards such as mudslides and floods.
- Tropical storms usually form between approximately 5° and 30° latitude and move westward due to easterly winds. The Coriolis force sends them spinning towards the poles.
- In most areas, tropical storms are given names. The names are alphabetical and alternate between male and female. This makes storms easier to identify, especially when they are close together.
- It is hard to predict the path of a tropical storm, and therefore difficult to manage an adequate evacuation of an area if needed.

How do tropical storms form?
•Hurricanes need a lot of heat to form, which is why they usually occur over tropical seas (at least 26°C).
•The sun is close to the equator, providing energy to heat the ocean.
•The warm ocean heats the air above it causing it to rise rapidly.
•Water evaporates quickly from the hot surface of the ocean, so the rising air contains great amounts of water vapour.
•The rising air starts to spin (anti-clockwise in the northern hemisphere)
•The centre of the storm - the eye - is calm.
•As the air rises it cools, condenses and forms towering cumulonimbus clouds.
•The rapidly rising air creates an area of intense low pressure. The low pressure sucks in air, causing very strong winds.
•Once the storm moves over land it starts to lose energy and fades.

| 1 | Development | The level of well being of a country. |
|---|---|---|
| 2 | Human Development Index (HDI) | It is measured 0-1 – using years in education, income and life expectancy as indicators. The nearest to 1 the better the quality of life. |
| 3 | Gross Domestic Product (GDP) | The total of wealth in a country. If divided by the total population it is the average income per person (per capita). |
| 4 | NGOs | Non-governmental organisations (charities) |
| 5 | Bottom-Up Approach | Development projects that originate in local communities. |
| 6 | Top-down Approach | Approaches that are organised by governments often with little consultation with local communities. |
| 7 | Periphery | On the outside. Often refers to countries with less power. |
| 8 | Appropriate Technology | Equipment that the local community is able to use relatively easily at low cost. |
| 9 | PPP | Purchasing Power Parity- takes into account the cost of living in a country not just the GNI/GDP |
| 10 | Corruption Perception Index | Measured from 0-100. A highly corrupt country is 0 with a very clean country= 100 |
| 11 | Gini Coefficient | Measures the extent to which income is equally distributed across a country. It is measured 0-1 with 0 meaning that everyone in the country would have the same income and 1 would mean that one person had all the money. |
| 12 | Maternal mortality Rates | The annual number of deaths of pregnant women per 100,000 live births. |

| Uganda – Barriers to Development. | | |
|---|---|---|
| 13 | Rural isolation | 86% of Uganda is rurally isolated. Transportation and telecommunications to these regions are poor and prevent populations from becoming involved in national and global economies. |
| 14 | Dirt tracks | A large proportion of Uganda's roads are dirt tracks. These roads can be muddy and impassable. They prevent people travelling to the market place to sell crops, prevent children travelling to school and stop people travelling to the doctors and health careers. |
| 15 | Imbalance of trade. | 80% of Uganda's exports are agricultural. The main exports are coffee (22%), tea, cotton, copper, oil and fish. These items are largely low value and vulnerable to fluctuating prices. Uganda imports high value products such as oil, pharmaceutical products and manufactured products. This puts Uganda into debt. |
| 16 | Gender inequality | Literacy rate for men is 80% and for women it is 60%. Lack of education means that women are likely to get married at a very young age and have a lot of children. It also prevents them from finding paid employment. |
| 17 | Lack of medical care | Uganda has a doctor to population ratio of 8 per 100 000. Making it one of the lowest in the world. This puts people at great risk of disease and childbirth. 1.3 million people have HIV/AIDS and few have access to medicine to help them. |

**Rostow's model of development.**

This theory of development was published by an American Economist Walt Rostow in 1960. Rostow proposed that all nations need to move through each stage to improve their development. In recent years it has come under great scrutiny because it ignores inequalities, informal employment and the social and environmental costs of **"mass consumption".**
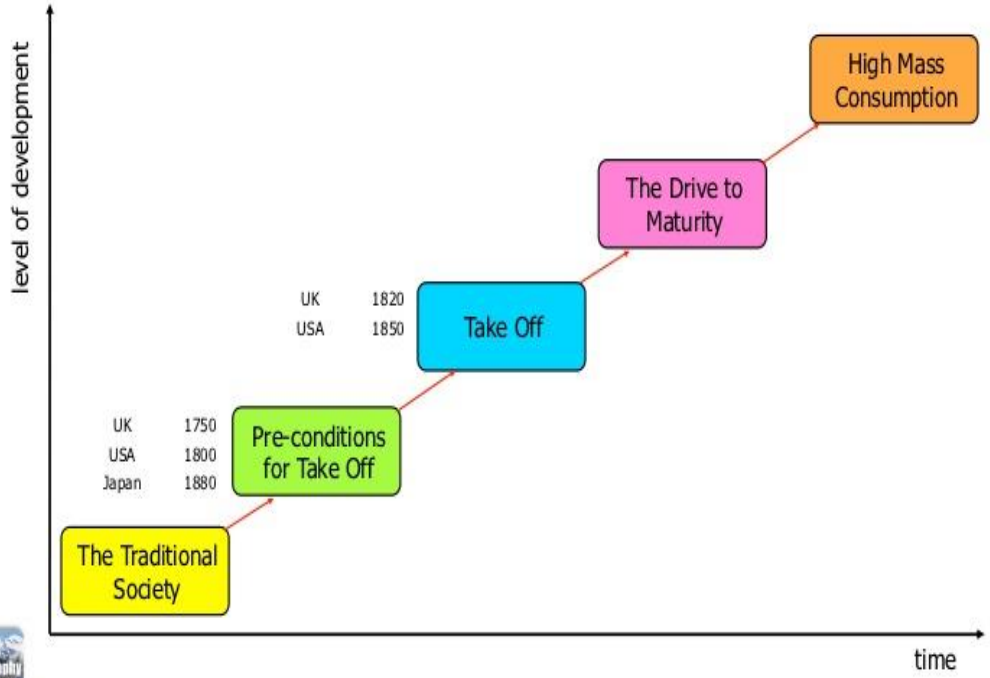


| | Development indicator | Uganda |
|---|---|---|
| 14 | **Total population –** the number of people in an area. | 42.6 million |
| 15 | **Gross Domestic Product (GDP) per capita** - the total value of goods produced and services provided by a country in a year, divided by the total number of people living in that country. | $604 US |
| 16 | **Life expectancy -** the average number of years a person born in a particular country might be expected to live. | 59.4 years |
| 17 | **Literacy Rate -** the proportion of the total population able to read and write. | 70% |
| 18 | **Infant morality rate -** the number of babies dying before their first birthday per 1000 live births. | 37 per 1000 |
| 19 | **Fertility rate –** number of live births | 5.59 per woman |
| 20 | **HDI -** This is a measure of development used by the UN which combines indicators of life expectancy, educational attainment and income into one measure. | 0.56 |
| 21 | **Average age** | 15.8 years |
| 22 | **Deforestation –** removal of trees. | 2% is removed every year. |

| 1 | Industrial Revolution | a huge change in Britain between 1750-1900 where the country changed from living and working on the land, to living in cities and working in new factories. |
|---|---|---|
| 2 | Urban | Built-up areas in which people live in close proximity. This refers to either towns or cities |
| 3 | Urbanisation | The movement of people from rural towns into cities. |
| 4 | Rural | countryside area in which the population is spread thinly |
| 5 | Agriculture | Producing food. Farming. |
| 6 | Industry | the process of making products by using machines and factories |
| 7 | Enclosures | Fields that were now surrounded by fences with the introduction of sheep farming rather than crops. |
| 8 | Common land | Land not owned by anyone that poorer villages can use for grazing animals. |
| 9 | Population growth | In 1750, only about **15 per cent of the population lived in towns**. By **1900 it was 85 per cent** and London had 4.5 million inhabitants. |
| 10 | Toll | A fee charged for using a lock or certain roads |
| 11 | Canal | Man made rivers that were used to transport goods instead of the roads. |
| 12 | Lock | When canals cross hilly areas locks were used to allow barges to move from one water level to the next. |
| 13 | Barge | Boats used on canals to transport goods. |
| 14 | Textile mill | Factories that were used to create cotton products. This was one of the biggest exports in Britain. |
| 15 | Luddites | Workers who protested against the use of machines and smashed them. |
| 16 | Apprentice | A person who agrees to work for an employer for a period of time while learning a trade. |
| 17 | Cholera | a disease that causes diarrhoea and was spread by the faeces in the streets. |
| 18 | Workhouse | a house to look after the poor. In return they would work to produce goods |
| 19 | Middle Class | Social group between upper and working class. |
| 20 | Slums | Overcrowded dirty houses lived in by the poor. |
| 21 | Quack Doctor | Someone who pretends to have medical skills |
| 22 | Miasma theory | The idea that disease is caused by bad air, miasma. |

| Similarities/ Differences before and after Industrial Revolution | | |
|---|---|---|
| | **1750** | **1900** |
| Population | 7mil – 8-% lived in the countryside | 37mil - 80% lived in towns or cities |
| Suffrage | Only 5% had the vote in elections – women could not vote | Most men could vote – but still not women |
| Policing | No police force and the death penalty | A professional police force. Prisons were reformed |
| Life expectancy | Average life expectancy was 40 | Average life expectancy was 55 |
| Jobs | Farming was the largest employer | Industry dominated by coal, iron, steel and clothes |
| Education | Children did not go to school – few could read or write | School compulsory for all 5-12 years old |

| Living conditions during the Industrial Age | | |
|---|---|---|
| 23 | Pollution | Coal was used to heat houses, cook food and heat water to produce steam to power machines in factories. The burning of coal created smoke, which led to terrible pollution in the cities. |
| 24 | Overcrowding | Due to large numbers of people moving to the cities, there were not enough houses for all these people to live in. Low wages and high rents caused families to live in as small a space as possible. |
| 25 | Disease | Typhus, typhoid, **tuberculosis** and **cholera** all existed in the cities of England. Cholera reached England for the first time in 1830, and there were further major epidemics in 1832 and 1848. |
| 26 | Waste disposal | Gutters were filled with litter and the streets were covered in horse manure, collected by boys to sell to farmers. Human waste was discharged directly into the sewers, which flowed straight into rivers. Parliament had to stop work because the smell from the Thames became too much. |
| 27 | Poor quality housing | Houses were built very close together so there was little light or fresh air inside them. They did not have running water and people found it difficult to keep clean. Many households had to share a single outside toilet that was little more than a hole in the ground. |
| 28 | Lack of fresh water | people could get water from a variety of places, such as streams, wells and stand pipes, but this water was often polluted by human waste. |

| 1 | 1914-1918 | Years World War One was fought |
|---|-----------|--------------------------------|
| 2 | Long term Cause | Factors / causes which happen a long time before an event takes place |
| 3 | Short term cause | Factors / causes which happen just before an event takes place – usually a catalyst |
| 4 | Militarism | An emphasis on military ideals and strength. Wanting your country to have a strong army and navy. |
| 5 | Alliances | A group of countries who promise to support and protect each other. Rival groups have rival alliances. |
| 6 | Imperialism | The desire to conquer colonies, especially in Africa. This brought the powers into conflict: Germany wanted an empire. France and Britain already had empires. |
| 7 | Nationalism | The belief that your country is better than others. This made nations assertive and aggressive |
| 8 | Franz Ferdinand | A member of the Austrian Royal Family - nephew of Emperor Franz Josef and heir to the Austrian throne (next in line to be the Emperor / ruler of Austria-Hungary) |
| 9 | Gavrilo Princip | Member of the Black Hand who shot Franz Ferdinand |
| 10 | Black Hand | A Serbian terrorist organisation which wanted to hurt Austria and get it out of Bosnia and planned to assassinate Franz Ferdinand |
| 11 | Trench | Long, narrow ditches dug into the ground where soldiers lived all day and night. |
| 12 | Trench foot | Wet and muddy conditions in the trenches caused feet to swell up and go black. The flesh would go rotten and the soldiers would be in terrible pain. |
| 13 | No Man's Land, | In the middle of the two front line trenches , was 'no-mans land'. So-called because it did not belong to either army. Soldiers crossed No Man's Land when they wanted to attack the other side. |

### 13. European powers concerns in 1914

**Britain**: Germany's growing military and naval strength. Germany was also producing more goods.
**Germany**: Jealousy of Britain. Fear of having hostile neighbours (France and Russia).
**Russia**: Rivalry with Austria-Hungary. Russia was keen to increase its influence in the Balkans.
**Austria Hungary**: Many regions in the Empire wanted their independence. Russia was prepared to support these regions. Huge rivalry with Russia.
**Italy**: To try and remain neutral in the event of a major European war.
**France**: Wanted revenge after losing an earlier war to Germany and losing the territory of Alsace-Loraine

### 14. Alliances in 1914
For a number of years tension between the main European powers has been increasing. In 1914 there were two main power blocks / alliances:
***The Triple Entente-*** Great Britain / France / Russia
***The Triple Alliance-*** Germany / Italy /Austria-Hungary

### 15. Imperialism:

**European countries Empires in 1914.**

| | Population of country | Population of colonies | Area in km2 of colonies |
|---|---|---|---|
| Great Britain | 40.8 million | 390 million | 27 million |
| France | 39.6 million | 63 million | 11 million |
| Germany | 63 million | 15 million | 2.5 million |
| Austria | 50 million | none | none |
| Russia | 139 million | none | none |

### 16. Militarism:

**European Military spending and the size of their armies, 1913 - 14.**

| Country | Soldiers | Money spent in millions. |
|---------|----------|--------------------------|
| Britain | 750,000 | 50,000,000 |
| France | 1,500,000 | 40,000,000 |
| Germany | 8,250,000 | 60,000,000 |
| Austria | 750,000 | 22,500,000 |
| Russia | 1,250,000 | 15,500,000 |
| Italy | 750,000 | 10,000,000 |

### 17. Inside a trench
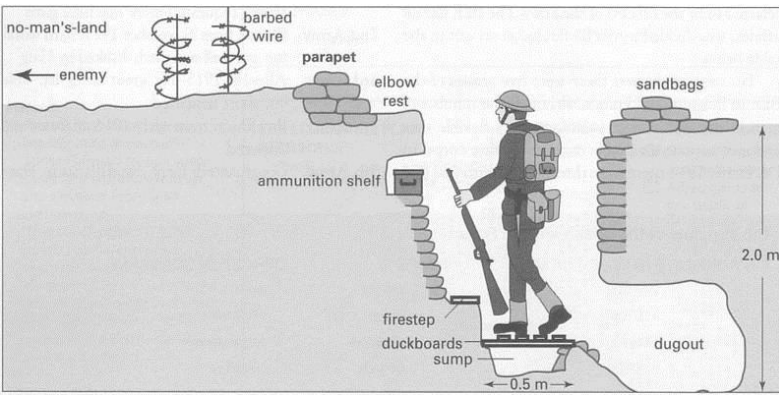


### 18. Life in the trenches:
Soldiers in the trenches did not get much sleep. When they did, it was in the afternoon during daylight and at night only for an hour at a time. They were woken up at different times, either to complete one of their daily chores or to fight. During rest time, they wrote letters and played card games. The trenches could be very muddy and smelly. There were many dead bodies buried nearby and the latrines (toilets) sometimes overflowed into the trenches. Millions of rats infested the trenches and some grew as big as cats. There was also a big problem with lice that tormented the soldiers on a daily basis.

### 19. Problems in the trenches:
**Lice:** The trenches did not have running water or showers, so soldiers found it very hard to keep clean. They soon became infected with lice that lived on all parts of their bodies.
**Rats:** The dirty conditions and the lack of storage attracted rats to the trenches. The rats ate the soldiers' rations and crawled all over them when they slept. They carried diseases.
**Toilets:** There was no running water or sewage pipes in the trenches. This meant that proper toilets could not be fitted.

## History and Belief

### People

| Muhammad | Believed to be the final prophet who received God's full revelation. He lived from **570-632 CE.** Muslims write PBUH after his name to show respect. |
| --- | --- |
| Abu Talib | Muhammad's uncle. |
| Khadija | A wealthy businesswoman and widow who became Muhammad's wife when she was 40 and was also the first to believe his message after the Night of Power. |
| The caliphs | Abu Bakr (632-634), Umar (634-44), Uthman (644-56) and Ali who was Muhammad's cousin and nephew (656-61) Ali was succeeded by Muawiya. |
| Fatima | Muhammad's daughter, who married Ali. |
| Hussein | Ali's son, who was killed in the battle of Karbala. |
| The prophets | The Qur'an names 25 including Adam, Musa, Ibrahim, and Isa. |

### Vocabulary

| Caliphate | The Islamic community ruled over by the caliph. |
| --- | --- |
| Shi'a | Muslims who believe that Ali and his descendants should have succeeded Muhammad as leaders of Islam. |
| Sunni | The majority (about 85%) of Muslims who believe that the 'Rightly Guided Caliphs' (first four caliphs) were the rightful successors of Muhammad. |
| Surah | A chapter of the Qur'an; there are 114 surahs in total. |
| Hafiz | A man who has memorised the Qur'an. A woman is called a **hafiza.** |
| 99 names of God | 99 characteristics of God used by Muslims to try and describe what God is like. |
| Tawhid | Belief in the oneness of God. |
| Shirk | The Arabic word for the sin of worshipping anything other than God. |
| Day of Judgement | A day when all people's faith and deeds will be judged by God and they will go to **Jannah** (paradise or heaven) or **Jahannam** (hell). |

### Vocabulary

| **Prophet** | A messenger sent from God. |
| --- | --- |
| **Revelation** | A message revealed by God to humans. |
| **Qur'an** | The holy book of Islam, which Muslims believe contains the word of God; it literally means 'recitation.' |
| **Mosque** | The place of worship for Muslims. It literally means 'place of prostration.' The Arabic word for mosque is **'masjid'.** |
| **Mecca** | A city in present-day Saudi Arabia; Muhammad was born here In **570 CE.** |
| **Medina** | One of the main cities in Arabia at the time of Muhammad (originally called **Yathrib**). |
| **Polytheism** | Belief in many gods. Muhammad was born into a polytheistic tribe called the **Quraysh.** |
| **The Night of Power** | The night in **610 CE** on which the angel Jibril appeared to Muhammad and he received his first revelation from God. |
| **The Night Journey** | Muhammad's journey between Mecca and Jerusalem on a winged horse and ascension to the heavens in 620 CE. |
| **Hijrah** | The emigration of Muhammad and his followers to Yathrib (Medina) in **622 CE.** |
| **Constitution of Medina** | The laws passed by Muhammad in Yathrib when he and his followers first settled there. |
| **Idol** | A picture or object that people worship as part of their religion. |
| **Ka'aba** | A holy site in Mecca which Muhammad dedicated to God after destroying its 360 idols. |
| **Caliph** | The Arabic word for the leader of the whole Muslim community after the death of Muhammad; it literally means 'successor'. |

## Key Terms:

**Procreation** – To have sex and produce children.

**Cohabitation** - Living together in a sexual relationship but without legalising the union through marriage.

**Marriage** – The legal union of a man and a woman or a same-sex couple.

**Adultery** – voluntary sexual intercourse between a married person and a person who is not their spouse.

**Abstinence** - Choosing to restrain oneself from doing something, for example, having sex or eating food (fasting).

**Homosexuality** – Sexual attraction to members of the same sex.

**Heterosexuality** -Sexual attraction to members of the opposite sex.

**Promiscuity** - Sexual relations with multiple partners on a casual basis.

**Sanctity of Marriage** - The idea that marriage has a special significance as a holy gift of God.

**Faithfulness** - Not having a sexual relationship with anyone other than a partner.

**Sacrament** – is a rite of passage or ceremony where the grace and the power of God can be received. Protestant communities refer to the sacraments of Baptism and Eucharist as ordinances.

**Rites of Passage** - Events marking key stages in the life of a Christian.

## What do Christians believe about rituals of life?

**4. Ethics and relationships in Christianity – Christian views of sex and sexuality**
**The nature and importance of sexual relationships in Christianity:**

Christians believe sex is a gift from God intended for procreation, therefore they believe that sex should take place only within marriage. They believe that sex is an important way for man and woman to show commitment to each other. All forms of sexual activity are forbidden outside of marriage.

Marriage is an important rite of passage in Christianity. For Christians, marriage is traditionally accepted as being between man and a woman, and is seen as the correct context in which to have sexual relationship and children.

**Sexual relationship in the Bible:**
➤ Casual relationships are wrong – marriage is intended for sexual relationships.
➤ Adultery is forbidden in the Ten Commandments, which are rules from God.
➤ Married couples should be faithful to each other as spoken in the marriage vows.
➤ St Paul in the Bible condemns homosexual acts, stating that they are 'shameful'.
➤ Being sexually pure is advised, and many Christians take a vow of chastity before marriage.

## Source of Wisdom and Authority:

**Marriage** – Therefore what God has joined together, let no man separate. (**Mark 10:6-9**)

**Adultery –** You should not commit adultery. (**Exodus 20:14**)

God bless them and said to them, 'Be fruitful and increase in number; fill the earth and subdue it'. (**Genesis 1:28**)

Flee from sexual immorality. All other sins a person commits are outside the body, but whoever sins sexually, sins against their own body. Do you not know that your bodies are temples of the Holy Spirit.. Therefore honour God with your bodies. – (**1 Corinthians 6:18-20**)

1 Corinthians 6:18-20 – can be interpreted to mean that the body is sacred and sexual relationship should no be abuses, or that a sexual relationship is a way of honouring the body, with sex being a gift from God.

**Stewardship:** The Lord God took the man and put him in the Garden of Eden to work it and take care of it. (**Genesis 2:15**)

## 4a. Similar and different Christian views and attitudes to marriage:

### Christians beliefs about marriage

➤ Most Christians believe marriage is a sacrament – a ceremony in which God is involved. Vows, such as being faithful, are made between the man and woman and also to God, showing marriage is sacred and binding.

➤ Marriage is believed to be a gift from God – it is part of God's plan for men and women to live together as stated in the Bible.

➤ Marriage is seen to provide security and a stable environment for children to be raised as Christians.

➤ Although marriage is important, some Christians believe that God doesn't want everyone to be married. Jesus himself wasn't married and some Christians believe they have a vocation from God (for example, being a monk or nun) where marriage is not a requirement.

**4b. Similar and different attitudes to sex and sexuality:**

Christians hold some key beliefs about sexual relationships, including the belief that a sexual relationship should only take place between a man and a woman who are married to each other.

**Alternative Christian views of sexual relationships:**

Some Christians believe that, in modern society, some ideas about sexual relationships are outdated. They believe that love is important and should be celebrated in whatever form it occurs.
This may allow them to accept cohabitating couples who have a sexual relationship as well as homosexual couples who are in a permanent and stable relationship.

**6a. Rituals of life and death, including burial, according to Christianity:**
All Christians believe there is an afterlife for those who believe in God. Eschatology is the word used for 'end times'. It can refer to the end of human life or the end of the world.

Funeral Services for Christians are typically held in the church they were affiliated with, and the focus of the service is usually on their religious life. During most Christian funerals, there is a sermon, prayer, reading of Scripture and singing hymns. It is also common for a eulogy or funeral resolution to be read that details the religious life of the deceased. A wake is sometimes held prior to the start of a funeral service. This is a time when close family members come together to view the body and offer support to one another in their time of loss.
**A Catholic funeral is slightly different and can be with or without Mass:**
Burial Customs - Christians are typically buried in consecrated ground, which is an area that has been blessed or a cemetery where other Christians are buried. In the past, Christians were encouraged not to be cremated but to imitate Jesus' burial in the tomb. However, most Christian denominations now accept cremation as an option.

**5. Christian attitudes to rights and responsibilities, global issues and interfaith dialogue – Christian beliefs about their responsibility to care for the elderly in their families and community:**
Today's natural world faces many threats, often from humans.

**Threats in the world –** The world today is being damaged by pollution, global warming and humanity's excessive use of natural resources. Many animals species are threatened with extinction, while the world's fast-growing human population is becoming unsustainable.
**Christian responses:**
1. the Bible teaches that we should care for the world
2. Christians see the world as a sacred gift from God
3. Christianity teaches that human will be judge after death on how they treated the Earth
4. God gave human the responsibility of stewardship of the Earth – caring for it for future generations.
**The purpose of the family** – Christians believe the family was God's intention for humans when he created them.

**6b. Similarities and differences of belief between faiths:**

**Resurrection** – Christians believe that death is not end. They believe that the resurrection of Jesus – when he came back to life from the dead – proves life after death.

**The Soul –** Death is only the end of the body; the soul is immortal.
- Souls that have been saved either go to heaven or to **purgatory** (which is the Catholic idea of a 'waiting room', where souls go to be cleansed before entering heaven).
- Souls that have not achieved salvation will go to hell.

**Judgement –** Christian accept God is just and it is God who will decide the destination of every human's soul after death. They believe that Jesus is also involved in judgement and will offer every human the opportunity of salvation. Those who refuse will face the 'Last Judgement'.

**Heaven –** Heaven is mentioned in the Bible, yet it is rarely described. Some Christians believe heaven is a physical place, but most think it is a spiritual state of being united with God. The Bible teaches there is no sin, sadness or suffering in heaven.

**6. Christian beliefs about religion and science – Body and Spirit:**
Religion and science ask different kind of questions about the universe and its origins. Most Christians embrace scientific discoveries but in ways that differ according to Christian denomination. Christians believe that God took human form as Jesus Christ and that God is present today through the work of the Holy Spirit and evident in the actions of believers.

| Key skills: | Rules, techniques, tactics: |
|---|---|
| **1. How do you dribble?** Head up, spread fingertips over ball, bounce at waist height. | **12. How many players are on the court during a game?** A game is played between 2 teams with 5 players on the court. |
| **2. How do you perform a chest pass?** W shape behind ball, chest height, follow through. | **13. What is the aim?** Players are aiming to score as many points in the time allocated by shooting through the hoop. |
| **3. How do you perform a bounce pass?** As a chest pass but ball will bounce before player. | **14. Can you move with the ball?** Players cannot travel with the ball or perform a double dribble (dribbling, picking up the ball, continuing to dribble). Players cannot hold the ball for longer than 5 seconds. |
| **4. How do you demonstrate a set shot?** knees bent, strong hand on bottom of ball, other hand supporting, extend elbow to 90 degrees towards net. | **15. What happens of the ball goes out of court or if a point is scored?** If the ball goes out of court then a side line ball is taken by the opposite team. If a point is scored the ball goes to the opposition from the backline. |
| **5. How do you demonstrate a lay up?** Strong hand on the bottom of ball, other hand supporting. Right right hand dribble, step right, jump left, aim for top corner of black box. | **16. What happens after the ball has crossed the mid line of the court in an offensive situation?** Once the offense (attacking team) has brought the ball across the mid line of the court, they cannot go back across the line during possession. |
| **6. How do you perform a jump shot?** Landing on alternate feet, first foot to land is static and pivots, ball must be released as jump is executed. | **17. What is a foul given for?** Hitting, holding or pushing an opponent. |
| **7. How do you man to man defend?** Knees bent, straight back, arms out, follow player (watch their belly button).<br>**What is zone marking?** A strategy of team defense often used around the key. Prevents attacking players getting into the zone. | **18. What happens if the shooter is fouled?** 1 – 3 free throws can be awarded worth 1 point each. |
| **8. What is rebounding?** Regaining possession after a shot has been missed. | **19. How long does a basketball game last?** A game is made up of 4 quarters of 12 minutes so a total of 48 minutes. However regulation time is stopped for many aspects of gameplay including fouls, ball out of bounds and timeouts so a game can be up to 2 and a half hours! |
| **9. What is the offence?** The team with the ball are the offending team and are aiming to shoot at the basket and score.  only chance that the team has a shot at the basket and scoring**.** | |
| **10. What is the defense?** Preventing an opportunity for the opposition to score. | **20. Defensive strategies:**<br>• **Zone defense** – this is where you work as a team to prevent the attacking team moving further up the court. It is a great method of defense but needs a great deal of team work and cooperation.<br>• **Man to man defense** – this is where you mark a specific player and prevent them from getting them ball. Keeping them 'out of the game' through defense.<br>• **Marking the ball** – this is where you follow the ball and try and intercept. |
| **11. What is an assist?** Helping a teammate to score. | |

**21. Attacking strategies:**
• **Early Offense -** The main reason for early offense is to advance the ball into the front court area and attack before the defense is able to become organized into a disruptive force. **Set Offenses -**  Although most teams would prefer to play the up-tempo, fast-break transition game that personifies today's basketball, the "Set Play" is the staple of the game. Set plays use teamwork and screening actions in an effort to create open shots. Explore the most commonly used basketball offenses graphically illustrated and analyzed in great detail.

## BASIC RULES

**1. How do you start a football match?** The football game is started by a kick off in the centre of the pitch.

**2. What's the number of players on each side during a professional match?** In a full sided game each team consists of 11 players.

**3. What happen when the ball goes off at the side of the pitch?** If the ball goes off the side of the pitch it is a throw in to the team that didn't touch the ball last.

**4. What happen if the ball goes off at the end of the pitch?**
If the ball goes off the end of the pitch it is a corner or a goal kick depending who the ball touched last.

## KEY TERMINOLOGY

**4. What is meant by the term offside?**
If a player is past the opponent's last defender and in the opposition half when the ball is passed they are offside and an indirect free kick is awarded to the opposition team.

**5. What is meant by the term corner kick?**
A free kick taken from the corner of the field by an attacker. The corner kick is awarded when the ball has passed over the goal line after last touching a defensive player. The shot is taken from the corner nearest to where the ball went out.

**6. What is meant by the term marking?**
This is where you mark someone on the other team when they have the ball in order to make it harder for them to make a pass or to get free into a space to receive the ball.

**7. What is meant by the term VAR?**
The video assistant referee (VAR) is a match official in association football who reviews decisions made by the head referee with the use of video footage and a headset for communication.

## TEACHING POINTS & STRATEGIES

**8. What are the teaching points for the SHORT PASS?**
• Non kicking foot next to the ball
• Use the side of the kicking foot to contact the ball following a short back swing
• Keep head over the ball to improve accuracy and ensure ball stays on the ground
• Follow foot through to generate more power

**9. What are the teaching points for SHOOTING?**
• Non kicking foot next to the ball
• keep body balanced
• head slightly over the top of the ball
• use side foot for placement or top of the foot for increased power
• flex leg back further when preparing to strike to the football for increased power
• aiming for the area of the goal that the goalkeeper is least likely to save the ball.

**10. What is POSSESION FOOTBALL?**
Possession football is when teams attempt to hold onto the ball for as long as possible, at all times choosing the easiest possible pass (hence the many times you see defenders passing the ball along the defensive line).
-------------------------------------------------------------------------------------------------------
**11. What is a COUNTER-ATTACK?**
Counter attacking football is withdrawing your team into your own half, but keeping a man or two further up the pitch, the goal is to take the ball off the opponent while they have players committed to the attack and thus out of position. Once you have the ball in your own half, you have more space to deliver a through-ball for your strikers, who will be lurking around the halfway line and will have fewer players to negotiate.

### FULL FOOTBALL POSITIONS

1. Goalkeeper
2. Wing-Back
3. Full-back
4. Sweeper
5. Centre-back
6. Defensive midfielder
7. Winger
8. Central Midfielder
9. Striker
10. Attacking Midfielder
11. Forward


POSITIONS EXPLAINED

LEARNING - LOVING - LIVING

| Theatre Makers | Voice and Movement Revision | Rehearsal Techniques |
|---|---|---|
| When see a play you are aware of the performers, but you might not think about the other theatre makers who do not appear on stage.<br><br>**The Playwright** writes the script of the play including the stage directions and the dialogue.<br>**The Performer** has a role on stage. They appear in the production, for example as an actor, dancer or singer.<br>**The Understudy** learns a part, including lines and movements so that they are able to take over a role for someone if needed when there is a planned or unexpected absence.<br>**The Lighting Designer** designs the lighting states and effects that will be used during the performance.<br>**The Sound Designer** design the sound required for a production which may include music and sound effects.<br>**The Costume Designer** designs what the actors wear on stage making sure that the costumes are appropriate for the style and the period of the play.<br>**The Set Designer** designs the set of the play and the set dressing. They may also create/source props. All must be appropriate for the style and period of the play.<br>**The Director** oversees the whole production. They develop a concept for the play and liaise with the designers and performers. | **Voice Key Words**<br>**Volume**: Loud to quiet<br>**Crescendo**: Increasing volume<br>**Pitch**: Deep or squeaky<br>**Pace/Tempo**: Fast or slow<br>**Rhythm**: Fluctuations in pace<br>**Pause**: Breaks in speech<br>**Inflection**: Emphasis on a word<br>**Articulation**: Emphasis on letters.<br>**Tone**: Emotion<br>**Clarity**: Clearly say words<br>**Accent**: A way of speaking that denotes where you are from<br><br><br>**Movement Key Words**<br>**Movement**: e.g. rushing in or stamping their foot excitedly.<br>**Stance**: How the character stands.<br>**Gait**: The way the character walks.<br>**Posture**: How the character stands or sits e.g. slouch or straight.<br>**Proxemics:** The space between the characters creates meaning.<br>**Levels**: Suggest status e.g. a dominant character may be higher up<br>**Space:** A character can demand a lot of space or hide in a small corner. | • **Role on the Wall:** Draw an outline of your character. Annotate it to reflect the character's thoughts, feelings, fears, circumstances etc.<br>▪ **Hot-Seating:** An actor sits in the hot-seat and is questioned in role. They spontaneously answer questions.<br><br>▪ **Inner Thoughts:** Whilst rehearsing a scene, one person will shout "Freeze, inner thoughts". The actor should freeze and spontaneously say out loud what the **character** is thinking.<br>▪ **Conscience Corridor:** Performers make two lines facing each other. The **protagonist** poses a question such as "Should I put Granddad in a basket and leave him by the side of the road"? Actors on each side of the corridor give reasons for and against.<br><br>▪ **Bigger Bigger Bigger:** Rehearse one scene several times increasing the energy in gesture/movement, exaggeration of facial expression and volume<br>▪ **Non-Verbal Body Language:** Perform a scene without speaking. Create meaning through mime. |

**Play Scripts -**This term, you will need to learn all of the lines from ONE play below and be able to perform on stage without a script. Below are the shortened versions. You will receive the full scripts in lessons.

| 'Too Much Punch for Judy' | 'After Midnight Before Dawn' | 'Much Ado About Clubbing' |
|---|---|---|
| Young Adult 1: What are we having? | Elderly Person: God have mercy. | Parent: No, no. Absolutely no way. |
| Young Adult 2: A bottle of wine! | Adult: It was a mistake; they should admit their mistakes. | Child: Why not? |
| Young Adult 1: Cheers! | Elderly Person: God have mercy. | Parent: Because I'm your mum/dad* and what I say goes. |
| Young Adult 2: Cheers! | Adult: They meant to take someone else, not me. | Child: Mum/Dad*! That's a joke. |
| Young Adult 1: Drink! | Elderly Person: God have mercy. | Parent: And what's that supposed to mean? |
| Young Adult 2: Drink! | Adult Stop praying. Nothing's going to save us. | Child: You know what I mean. |
| Young Adult 1: We're totally drunk. | Elderly Person: Why did they beat on my door? | Parent: How dare you talk to me like that? You'll see the back of my hand. |
| Young Adult 2: A bottle of wine, but I'm still standing. | Adult: Someone must have spread tails. | Child: Go on then. Take it out on me/us instead of who you're really angry with... my pathetic drunken dad/mum. |
| Young Adult 1: (Takes out car keys.) I think we better get out of here before we're kicked out. | Elderly Person: They tortured me. | Parent: Don't talk about your dad/mum like that! |
| Young Adult 2 Wouldn't it be better if I drive? | Adult: Be thankful that its over. | Child: It's the truth! |
| Young Adult 1: No, it's my car it's my responsibility! | Elderly Person: Over? | Parent: You leave your dad/mum out of this! |
| Young Adult 2: But I haven't had as much to drink as you. I'll only be a little bit over the limit. | Adult: No more pain. | Child: That's right... stick up for him/her. You're always on his/her side. |
| | Elderly Person: I screamed but they wouldn't stop. | Parent: It's not a question of sides. |
| Young Adult 1: OK then, (throws the keys) you drive. (Silence) | Adult: They laughed when they tortured me. | Child: Could have fooled me... anyway I'm/We're off. |
| Young Adult 2: We got into the car and put on some music. I was in the driving seat. | Both A mistake, a mistake, a mistake has been made. | Parent: Perhaps you didn't hear me... You. Are. Staying. Right. Here. |
| | Elderly Person: Lies, lies. I never worked with the devil. | |
| Young Adult 1: The last thing I remember is driving past a hospital. | Adult: But you confessed. | Child: That's what you think. Why don't you tell dad/mum to leave? |
| Young Adult 2: The accident happened on 20th May. (Mime the accident) | Elderly Person: I confessed because of the pain. | Parent: You are out of control. Your dad's/mum's right. |
| | Adult: Me too. I couldn't take any more. | Child: Dad/Mum is right! S/He's right off his face. Anyway, it takes one to know one. You're just as bad as him/her |
| Young Adult 1: Bro/sis bro/sis! Slow down a bit! | Both: and tomorrow we shall both hang. | Parent: Just one more word... |
| Both: CRASH!!! | | Child: And you'll what? Go on... I'm dying to know. |
| | | Parent: Get out of my sight... before I... |
| | | Child: That's exactly what I've/We've been trying to do (exits and shouts) And don't bother waiting up. (to the audience) As if she would! |

# Sound



**Diegetic** – sound that comes 'from the world of a story'. This means any sound that is part of the action, and therefore experienced by the actors 'on stage'. Can include sound effects (SFX) and background noise.

**Non-Diegetic** doesn't come directly from the world of the story 'onstage'. Characters are not aware of it. It usually creates the atmosphere.

| | |
|---|---|
| **Mark a moment:** | Various ways including Sound Effects (SFX) or silence |
| **Volume:** | Loud to quiet |
| **Crescendo** | Gradually getting louder |
| **Pitch:** | High to low |
| **Pace:** | Fast to slow |
| **Pause:** | Breaks in sound |
| **Silence:** | The removal of all sound |
| **Contrast:** | Opposing sounds (e.g. Loud/quiet, fast pace/slow pace) |
| **Length of notes:** | Sustained (Long notes) Staccato notes (Short sharp notes) |
| **Reverb:** | Echoing effect |
| **Atmosphere:** | The feeling created e.g. cold, scary, romantic, tense, relaxed/calm |
| **Entrance:** | How the sound is first played. (e.g. Dynamic and loud or soft fade in) |
| **Foley sound:** | Replace an original sound (e.g. the digital sound of footsteps) |
| **Sound Bridge:** | The sound from one scene carries over into the next scene. |

# Lighting

**Stylised Lighting State**



Covers specific sections of the stage, harsh colours, hard edges. This does not look like how the sun would light the stage. It is more alien in its appearance.

**Naturalistic Lighting State**



Soft lighting, covers whole stage, gentle colours. This would look like how the sun would like the stage.

**Key Lighting Terms**

**Lantern:** The correct term for stage lights

**Gels:** Sheets placed in front of the lights to change the colour

**Intensity:** Full beam or low light or black out

**General Wash:** Covering the stage with light

**Spot Light:** Focusing the light on a specific area of the stage

**Transition:** Slow fade or snap (quick) fade

**Edge:** The edges of the light can be soft or hard

**Gobo:** Create shapes in lighting (e.g. Batman's emblem)

**Floor Lantern:** Light from below. Creates non-naturalistic shadows. Can look scary

**Cyclorama:** Large white sheet onto which images are projected

**Projection:** Projected images onto a cyclorama

**Crossfade:** When the light travels from one side of the stage to the other

**Lighting State:** The light(s) used in a specific scene

**Blackout:** When the stage is completely dark

# Costume, Hair and Makeup

Costume, hair and make-up can suggest character, time and the style of the play, eg naturalistic or abstract. Look at the four pictures of actor Adrian Lester. Note how the change of costume helps the audience to understand the role he is playing.



**Things to consider when designing costume, hair and make-up:**

When is the play set?
Is the play naturalistic or non naturalistic?
What is the character's personality?
What is your character's status?
Do the actors need to change?
What materials will be used?
What colours will be used?

**Make-Up**
Bright stage lighting can wash out facial features and make performers appear pale, so make-up is used to enhance features and make sure that the audience can see the actors' facial expressions. It can also be used to age an actor who is playing an older character or to create fantasy characters. It is worn by both male and female actors.



Colour can be used symbolically. White may represent innocence and purity, and red may represent danger.

Green = nature / harmony

Black = sadness / darkness / worry

Red = danger / romance/extrovert

White = peace / purity / innocence

# Set and Props

Set means the scenery and furniture onstage. Some theatre sets are very elaborate and detailed (naturalistic). However, a simple or minimalistic set can be also be very effective (non-naturalistic). The two images show a row of houses in two different plays. Which one is naturalistic and which one in non naturalistic?

**Things to consider when designing Set and Props:**

When is the play set?
Is the play naturalistic or non naturalistic?
How can levels create meaning?
How can proxemics create meaning?
Are there set changes?
What materials will be used?
What colours will be used?
Will images be projected onto a cyclorama or painted onto flats?

**Props**
Items that the actors use on stage.

**Key Terms for Set and Props**

**Flats:** Large sheet of canvas or wood that the scenery is painted on to.

**Fly:** Ropes used to pull flats on/off stage.

**Wings:** The side of the stage

**Apron:** A small piece of stage in front of the Proscenium Arch

**Trap door:** Door covering exit hole in the stage

**Cyclorama:** A large cloth onto which scenery can be projected

**Gobo:** Creates shapes that can be projected

**Birdseye View:** Draw the stage looking down on it.



A row of houses in 'Curious Incident'



A row of houses in 'Blood Brothers'

## Environmental Issues

Negative Impacts: What is Energy Consumption?
Provide examples of E-Waste and health affected by chemical leaks from computers – which chemicals are dangerous?
What is recycling and sustainability, how can we do this with IT equipment?
What are the positive Impacts of environmental technology
What is climate monitoring (see image and link: https://www.itu.int/themes/climate/docs/report/06_monitoringClimateChange.html)
o   Why Reduced printing

## Types of Software

Proprietary
        e.g. Windows, iOS and MacOS
        Microsoft Office, Adobe Photoshop
        – license needed per machine
Open Source
        e.g. Linux and Android
        LibreOffice, The GIMP – (can sell or
        be free) - code can be changed

## Privacy and Security

• Location monitoring
• Mobile Phone providers
• Surveillance Cameras
• Encrypted messaging
• Data Protection Act
• Cybersecurity
• Threats and Defences

Use Quizlet study sets 06… to learn the definitions associated with this topic.
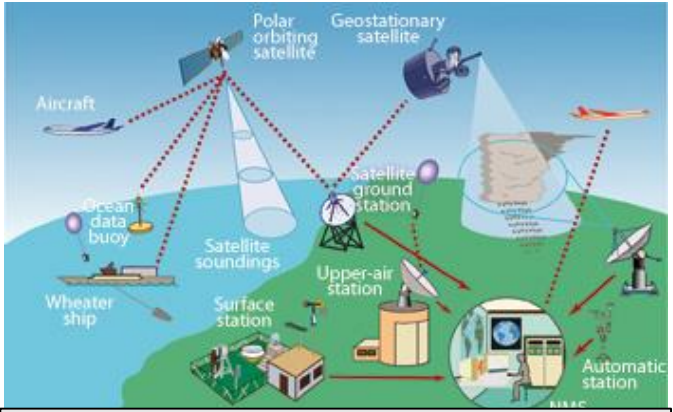
What is Data Protection Act 1998. Protects Personal data:
• Used fairly, lawfully and transparently
• Used for specified, explicit purposes
• Used in a way that is adequate, relevant and limited to only what is necessary
• Accurate and, where necessary, kept up to date
• Kept for no longer than is necessary
• Handled in a way that ensures appropriate security, including protection against unlawful or unauthorised processing, access, loss, destruction or damage

**Emerging Technologies**
Robotics, AI –list technology examples

Internet of Things. What is Quantum Computing:
An example of a living, breathing quantum computer is Google's 72-qubit quantum chip dubbed Bristlecone

**Ethical Impact**
Does technology help with Inclusion / Accessibility

The Digital Divide: Members of an elite corps specialize in the recondite skills of the computer age while the vast majority of North Koreans have never seen a computer, much less gone on line

**Legislation (find out what the following are)**
What is the  Copyrights, Designs & Patents Act 1988
        What is Intellectual Property
        What s Hardware patents
What is the Computer Misuse Act I link to;
        Hacking / viruses
What is Data Protection Act 1998
        *Privacy, accuracy, security*
**Software license** is a legal instrument governing the **use** or redistribution of software.
**volume licensing** is the practice of selling a **license** authorizing one computer program to be used on a large number of computers or by a large number of users
**Personal license** is an option for private individuals who purchase a **license** with their **own** funds

Export of e-waste

NORTH AMERICA
WESTERN EUROPE
EASTERN EUROPE
CHINA
SENEGAL
IVORY COAST
GHANA
BENIN
NIGERIA
EGYPT
PAKISTAN
INDIA
VIETNAM HONG KONG

■ From North America
■ From Western Europe

Source: Greenpeace, Basel Action Network

## Pseudo-code

- Written Description
- Write an Algorithm
- Complete an unfinished Algorithm
- Code in a HLL (e.g. Python)

- Pseudocode is a kind of structured English for describing algorithms
- It allows the designer to focus on the logic of the algorithm without being distracted by the syntax of the programming language
- You will see pseudocode statements written in a consistent style in exam questions, but you can use alternative statements so long as the meaning is clear
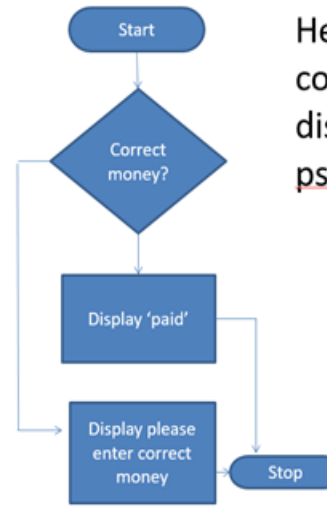
## Analyze the Problem (3)

•*Example. Making tea.* Suppose we have a robot which carries out household tasks. We wish to program the robot to make a cup of tea. An initial attempt at an algorithm might be:

1. Put tea leaves in pot
2. Boil water
3. Add water to pot
4. Wait 5 minutes
5. Pour tea into cup

## Designing Solutions
Analyse a Problem
Decompose it
Abstract the Data Structure
Identify inputs, process, outputs
Design an Algorithm

Cup of Tea Algorithm: Set of precise instructions to solve a problem or make something happen.

## Interpreting Algorithms

- Purpose of a given algorithm
- Explain how it works
- Determine output for given inputs
- Identify Logic Errors
- Discuss efficiency

Here is a program to control a car park pay and display. Copy and fill the pseudocode gaps in.

IF _____ THEN
SEND _____ TO DISPLAY
ELSE
SEND _____ TO DISPLAY
END IF

This is the algorithm in pseudocode
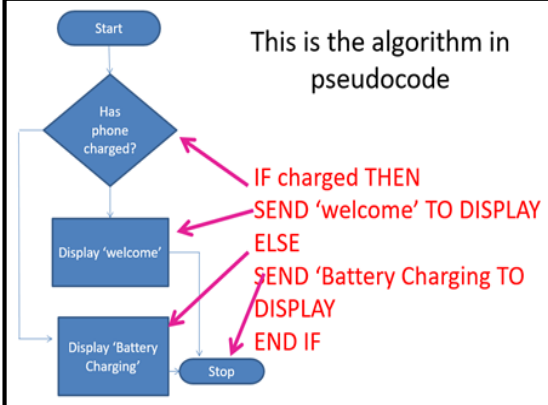
IF charged THEN
SEND 'welcome' TO DISPLAY
ELSE
SEND 'Battery Charging TO DISPLAY
END IF

## Algorithms
Sequence, Selection, Iteration
Flowcharts
    Interpreting
    Creating your own
    Using symbols correctly

| Symbol | Name | Function |
|---|---|---|
|  | Start/end | An oval represents a start or end point |
| → | Arrows | A line is a connector that shows relationships between the representative shapes |
|  | Input/Output | A parallelogram represents input or output |
|  | Process | A rectangle represents a process |
|  | Decision | A diamond indicates a decision |

30

## Guitar Tab

**What is Guitar Tab?**
- Tab or tablature is a way of notating or writing down music.
- It shows a graphic representation of the strings and frets on the guitar fretboard.
- Each note is indicated by placing a number, which indicates the fret to play, on the appropriate string.

**The Lines**
- When reading guitar tab you will see six lines.
- The thickest string on the guitar or bass is the one nearest your chin, with the thinnest string being the closest to the floor.

**The Numbers**
- The numbers show which **fret** to play – where the number is written will show which string is to be played.
- Frets are the metal strips that run across the fretboard.

## Blues

**Set Work:** Sweet Home Chicago, Robert Johnson
**Musical features:** 12 bar blues chords; Walking bassline; AAB melodic structure; Improvisation; blues scale

The blues is the name given to a style of music created by African Americans at the end of the 19th century. Blues music was originally performed by one singer accompanied by a guitar or banjo.
Until the end of the 19th century, America was largely a rural community. In the early 20th century large numbers of people started to move to industrial cities. After the Civil War and the emancipation of slaves, the blues spread, together with the people who sang and played it. Many former slaves moved from the cotton fields of the southern states to northern cities such as Chicago and Detroit, where the blues became hugely popular.

## Jazz – Big Band/Swing

**Set Work:** In the Mood, Glenn Miller
**Musical features:** Improvisation; syncopation; swing rhythms

African music combined with the music of the European settlers produced new styles of music including jazz, blues and ragtime.
Towards the end of the nineteenth century marching bands were popular in America. African American musicians began to jazz up the marches, adding syncopated rhythms, 'bending' notes and improvising on the melodies.

## Ragtime

**Set Work:** The Entertainer, Scott Joplin
**Musical features:** predominantly piano-based; strong on-beat left hand accompaniment; syncopated right hand melody

Ragtime was also a modification of the march style, with additional polyrhythms coming from African music.
By the start of the 20th century, it became widely popular throughout North America and was listened and danced to, performed, and written by people of many different subcultures. A distinctly American musical style, ragtime may be considered a synthesis of African syncopation and European classical music.

## KEYWORDS

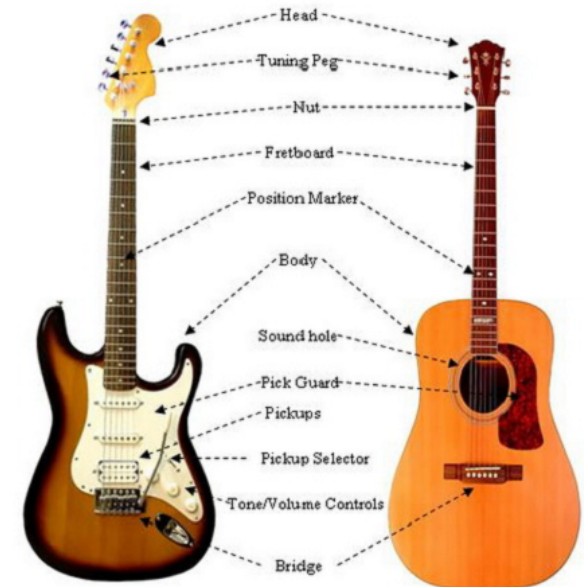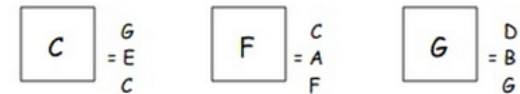| | |
|---|---|
| **1-12-bar Blues** – A chord structure of 12-bars using chords I, IV and V. | **7- Syncopation** – playing on/stressing the weak beat. |
| **2- Chord** – 2 or more notes played simultaneously. | **8- Off-beat** – playing on the unaccented notes in a bar. |
| **3- Walking Bassline** – a bassline that moves by step. | **9- Introduction** – the first section of a piece before the verse starts. |
| **4- Swung rhythm** – a rhythm that emphasizes the first pair of quavers. | **10- Coda** – the ending section of a piece. |
| **5- Blues Scale** – a scale with a flattened 3$^{rd}$, 5$^{th}$ and 7$^{th}$. | **11- Vamp** – a repeated, improvised accompaniment based around the chords. |
| **6- Improvisation** – making something up on the spot, within a given structure. | **12- Guitar TAB** –musical notation indicating fingering rather than musical pitches. |

Chord sequence:

| 1. | 2. | 3. | 4. |
|---|---|---|---|
| C | C | C | C |
| **5.** | **6.** | **7.** | **8.** |
| F | F | C | C |
| **9.** | **10.** | **11.** | **12.** |
| G | F | C | C |

| C | G = E C | F | C = A F | G | D = B G |
|---|---|---|---|---|---|

- Head
- Tuning Peg
- Nut
- Fretboard
- Position Marker
- Body
- Sound hole
- Pick Guard
- Pickups
- Pickup Selector
- Tone/Volume Controls
- Bridge

## Relating Notation durations to MIDI sequencer note lengths

| Note | Name | Duration | Piano roll | Snap/Quantise |
|---|---|---|---|---|
| 𝅝 | Semibreve | 4 | | 1/1 |
| 𝅗𝅥. | Dotted Minim | 3 | | - |
| 𝅗𝅥 | Minim | 2 | | 1/2 |
| 𝅘𝅥. | Dotted Crotchet | 1 ½ | | - |
| 𝅘𝅥 | Crotchet | 1 | | 1/4 |
| 𝅘𝅥𝅮. | Dotted Quaver | ¾ | | - |
| 𝅘𝅥𝅮 | Quaver | ½ | | 1/8 |
| 𝅘𝅥𝅮𝅘𝅥𝅮𝅘𝅥𝅮 | Triplet quavers | 1/3 each | | 1/8 triplet (1/12) |
| 𝅘𝅥𝅯 | Semiquaver | ¼ | | 1/16 |

## Relating stave pitches to DAW Piano & Drum rolls for inputting notes



### KEYWORDS

**1-DAW (Digital Audio Workstation):** a digital system designed for recording and editing digital audio. It may refer to audio hardware, audio software, or both.

**2-MIDI (Musical Instrument Digital Interface):** the interchange of **musical** information between **musical** instruments, synthesizers and computers.

**3-MIDI controller:** any hardware or software that generates and transmits MIDI data to electronic or digital MIDI-enabled devices, typically to trigger sounds and control parameters of an electronic music performance.

**4-Sequencer:** a software application or a digital electronic device that can record, save, play and edit audio files.

**5-Arrange Window:** the main window of Logic Pro. It incorporates other Logic Pro editors and it's where you do most of your work.

**6-Drum Machine:** An electronic device containing a sequencer that can be programmed to arrange and alter digitally stored drum sounds.

**7-Tempo:** the pace or speed at which a section of music is played.

**8-Quantise/Quantisation:** the rhythmic correction of audio or MIDI regions to a specific time grid.

**9- Fader:** a device for gradually increasing or decreasing the level of an audio signal.

### Basic Functions of a DAW

**Audio Recording:** The basic function of any DAW is record audio. DAWs can handle dozens to hundreds of audio tracks without causing too much strain on most systems.

**Audio Editing:** Audio clips can be cut, copied and pasted.

**Audio Routing/Mixing:** DAWs generally have an edit window for recording, editing, and arranging clips; the other essential window is the mixer. It usually resembles a hardware mixer, with a fader to mix levels, input and output selection, pan, mute, and solo.

**Applying Audio Effects:** Audio effects can alter dynamics, time, placement, filter, pitch, and just about anything else you can think to do with audio. The most common effects are compression to level out audio, EQ to fix undesirable frequencies, and spatial/panning effects to place audio in different sonic locations.

**Automating Effects:** Effects don't have to be static, nor do you have to physically move a knob during a performance. Automation can alter any parameter of any effect over time.

**Working with MIDI Data:** DAWs read MIDI data, from notation programs and prior MIDI performances or programming. They also have the ability to write new MIDI data from controllers. The most common MIDI creation tool is the MIDI keyboard.

**Playing Instruments with MIDI Data:** All DAWs have a set of software instruments that can be assigned to your MIDI data, imitating the sound of any instrument you wish to use.

### KEY QUESTIONS

**Q1:** Each box in the editing window is worth what note & duration length?

Semiquaver (1/4 beat)

**Q2:** On the Piano roll, which C is the same pitch as 'Middle C'?

C3

**Q3:** What is the name of the DAW that we use?

Logic Pro X

**Q4:** If I want to edit a note to be perfectly in time to the beat, I would use what function?

Quantisation

**Q5:** The Kick on a drum machine/drum kit is on which key of the drum roll?

C1 and/or B1

## A.  Key Terms

| Keyword | Description |
|---|---|
| 1.   Tone | This refers to the lightness or darkness of something. This could be a shade or how dark or light a colour appears. Tones are created by the way light falls on a 3D object. The parts of the object on which the light is strongest are called **highlights** and the darker areas are called **shadows**. |
| 2. Texture | This is to do with the **surface quality** of something, the way something feels or looks like it feels. There are two types of texture: **Actual texture** really exists, so you can feel it or touch it; **Visual texture** is created using marks to represent actual texture. |
| 3. Pattern | A design that is created by repeating lines, shapes, tones or colours. The design used to create a pattern is often referred to as a **motif**. Motifs can be simple shapes or complex arrangements |
| 4.  Media | The materials and methods used to produce a piece of art or design. |
| 5. Composition | how objects or figures are arranged in the frame of an image |
| 6. Annotation | Key information alongside your work. A record of your experiences, thoughts and emotions connected to an image. |
| 7. Refinement | Developing your idea or image |

## B. Command Words

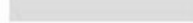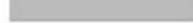| Keyword | Description |
|---|---|
| 8. Study | To examine, consider, investigate, research and show an in-depth understanding of what you have found or experienced. |
| 9. Explore | To investigate, examine and look into with an open mind about what might be found and developed. |
| 10. Create | To conceive, make, craft or design something new or invent something. |
| 11. Analyse | To examine in depth, study thoroughly, question, investigate and consider your own opinion or visual investigation of something |

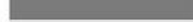## D. Tonal Shading
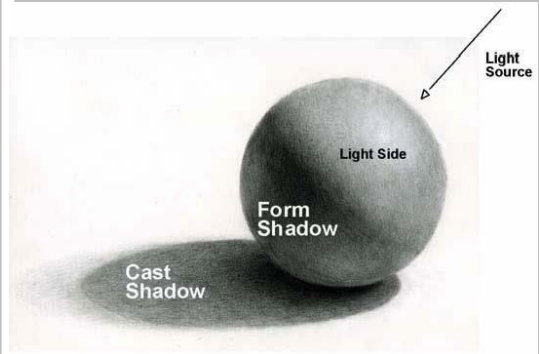


13. **Cast Shadow:** The shadow created by an object
14. **Form Shadow:** The shadow on an object
15. **Light Side**: The area of an object with the most light
16. **Light Source**: The Direction of the light in an image.

## C. Value Scale



Denman Ross nine step value scale

| Value | Sample | Value Name |
|---|---|---|
| 1 | | white |
| 2 | | high light |
| 3 | | light |
| 4 | | low light |
| 5 | | midvalue |
| 6 | | high dark |
| 7 | | dark |
| 8 | | low dark |
| 9 | | black |

12. This is called a **tonal scale.** You will need to identify different light and dark values.

**Key words: Nutrients and Eatwell Guide**

1. **Wholegrain** - All parts of the cereal grain **is used**.
2. Nutrient – Chemical in food that give nourishment.
3. Energy – the strength needed for physical effort
4. **Immune system** – the body's defence against infectious diseases
5. **Clotting** – the process that blood undergoes to prevent bleeding
6. **Antioxidant** – a molecule that is able to stop the oxidation process in other molecule
7. **Haemoglobin** – a protein responsible for transporting oxygen in the blood
8. **Saturated fats** – Type of fat mostly from animal sources
9. **Absorb** – to take in or soak up
10. **Maintenance**– routines that are necessary for keep the body in good health.
11. **Diabetes**– a condition that causes a person's blood sugar level to become too high.
12. **Obesity**– diet related disease where the body contains too much stored fat.
13. **Cardiovascular disease (CHD)**- The narrowing of the arteries that supply your heart with oxygen rich blood, due to the build up of fatty deposits within the artery walls

**1. Starchy Foods**
2. Provide slow release carbohydrate used by the body for energy
3. Choose wholegrains for increased fibre (good digestion, reduced risk of heart disease)

**37%**

The Eatwell Guide is the UK Healthy Eating Model. It shows what we should eat as a balanced diet. The size of the sections represents the proportion of our diet that particular food group should make up.

**Water Intake**
A balanced diet must include water, it is required for nearly all brain and other bodily functions

**39%**

**Fruits & Vegetables**
1. Eat 5 portions s a day!
2. Choose a variety
3. Provides fibre for healthy digestion
4. Provides vitamins and minerals

**Fats, Oils & Spreads**
1. Provide fat soluble vitamins A,D,E & K
2. Are high in calories & energy so keep use to a minimum
3. choose unsaturated oils like olive oil

**1%**

**8%**

**3%**

**12%**

Food high in sugar are saturated fats are not part of a healthy diet and should be eaten in moderation
1. increased risk of weight gain/obesity
2. diabetes
3. tooth decay cardiovascular disease (CHD)

**Beans, Pulses, Eggs, Meat, Fish**
1. Provide protein for growth, repair and maintenance of body cells
2. Choose a combination of plant proteins
3. Avoid eating too much processed meat like bacon and sausages

**Dairy Foods**
1. Provide calcium for healthy bones, teeth and nails
2. The body needs Vitamin D to absorb calcium effectively

| Nutrient | Function in the body |
|---|---|
| 1. Macronutrient: Carbohydrates (Starch, sugar, fibre) | Needed by the body because they are the main source of energy in the body for movement. Needed by the body for digestion. (fibre0 |
| 2. Macronutrient: Protein | Needed by the body for growth Repair the body when it is injured Gives the body energy ( only if the body doesn't have enough carbohydrates |
| 3. Macronutrient: Fat | Insulates the body from the cold and provides a 'cushion' to protect bones and organs such as the kidneys The body breaks down the fat stores to release energy Vitamins A, D, E and K are fat soluble vitamins so are stored in our body fat and released when needed. |
| 1. Micronutrient: Vitamin A | Maintains normal vision Good maintenance of skin and the mucus membranes Helps with a healthy immune function **F**at **soluble** |
| 2. Micronutrient: Vitamin D | Absorption and use of calcium Maintenance and strength of bones and teeth **Fat soluble** |
| 3. Micronutrient: Vitamin E | Antioxidant that helps protect cell membranes Maintains healthy skin and eyes **Fat soluble** |
| 4. Vitamin K | Normal clotting of the blood Fat soluble |
| 1. Micronutrient: Vitamin B complex | Healthy nervous system Energy release from foods **Water soluble** |
| 2. Micronutrient: Vitamin C | Absorption of iron Production of collagen that binds connective tissues An antioxidant **Water soluble** |
| 1. Mineral Calcium | Strengthens bones and teeth Bones are able to reach peak bone mass Clots blood after injury Promotes nerves and muscles to work properly |
| 2. Mineral Iron | Supports the production of haemoglobin in red blood Helps transport oxygen around the body Vitamin C is required for absorption of iron |


Eatwell Guide

**34**

# The digestion process



Mouth

Oesophagus

Stomach

Small intestine

Colon

Rectum

Anus

| | Keyword | Definition |
|---|---|---|
| 1 | Gluten | A protein found in wheat flours, that makes the dough elastic |
| 2 | Coeliac disease | An intolerance to Gluten which causes the inflamation of the intestine walls and damage them making nutrient absorbtion more difficult for the body |
| 3 | Amylase | Releases when starch is heated and enables sauces to thicken |
| 4 | Viscosity | The thicknes of a liquid |
| 5 | Gelatinisation | When starch particles swell and burst, thickening a liquid |
| 6 | Durum wheat | A yellowy, high-protein wheat that is grown especially for making pasta |
| 7 | Milling | The process which separates the different parts of the grain |
| 8 | Semolina | A coarse-ground flour which comes from wheat |
| 9 | Whole grain | The whole seed in its natural state, none of the layers have been removed |
| 10 | Gluten -free | Products which does not have any wheat, rye, barley and sometimes oats |
| 11 | Al dente | 'Firm to the bite' describes the texture of pasta |
| 12 | Extraction Rate | The keyword for how much of the orginal wheat grain is in the flour and used in products |
| 13 | Fermentation | A chemical breakdown of sugar to acid, gas or alcohol by bacteria, yeasts or other microorganisms |
| 14 | Proving | When bread is left to rest in a warm, damp environment to enable fermentation |
| 15 | Germ | Part of the grain which provides fat and B vitamins, it is also used to grow new plants |
| 16 | Glutenin and Gliadin | The two names of the proteins which are kneaded and stretched in the production of bread. |
| 17 | Harvesting | The process of gathering or reaping crops |
| 18 | Knock back | To re-knead the dough which knocks out some of the carbon dioxide allowing the yeast to produce more carbon dioxide |
| 19 | Starch | A polysaccharide and a complex carbohydrate |
| 20 | Strong flour | A type of flour with the highest gluten content |
| 22 | Unleavened | Refers to bread, cake and biscuits made without raising agents |
| 23 | White flour | Contains just the endosperm, the bran and the germ have been removed |
| 24 | Yeast | A microorgnaism belonging to the fungi family, made up of single oval cells that reproduce by budding, this means they multiply and the one cell divides into two |
| 25 | Weevils | Tiny black bugs that can live and breed in flour |
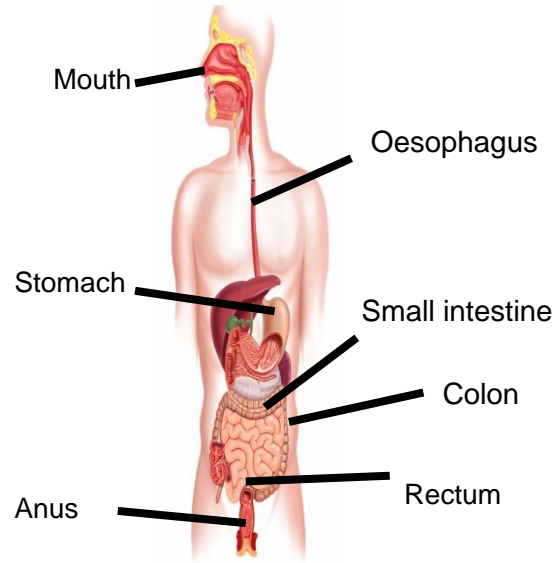
The gastrointestinal (GI) tract comprises:

- mouth;
- oesophagus;
- stomach;
- small intestine – duodenum, jejunum and ileum;
- liver and gall bladder;
- pancreas;
- colon
- anus.

**Key questions:**
- Name 2 properties of gluten that give bread its unique texture
- What needs to be added to glutenin and gliadin to make gluten?
- Describe the energy balance in one sentence.
- Name three enzymes that are involved in human digestion;
- Draw a flowchart to show how food passes through the digestive system, ensuring that each organ and stage is properly labelled.
- Where is pasta thought to have its origins?
- When making a white sauce, the starch grains in the flour swell and thicken the sauce.  Name the process and describe how it happens with the aid of diagrams.
- Can you explain why sauces are used in the production of recipes/meals?

35

## MATERIALS AND SOLDERING PROCESS

**M1 Manufactured**—make (something) on a large scale using machinery.

**M2 Switch**—a device for making and breaking the connection in an electric circuit.

**M3 Battery**—a container in which chemical energy is converted into electricity and used as a source of power.

**M4 Motor**— a machine, especially one powered by electricity that supplies motive power for a device with moving parts.

**S1 Strip the wires**—Use the wire strippers to remove the insulating plastic

1. Measure the wood carefully with a steel rule. Draw a line with a sharp pencil.

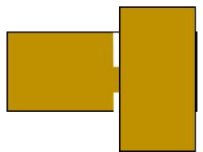2. You must you a tri square to draw a 90° line on the MDF

3. You must cut in a waste part of the wood. Draw TWO lines (black) and cut in the middle (white).
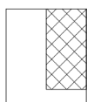
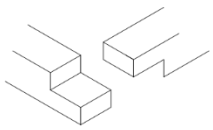4. Cut the wood using a bench hook and tenon saw

6. Using the tenon saw remove half the wood to make the half joint.

5. Using the piece of wood as a measure, draw around the piece.

**S2 Twist the wires**— the cable is stranded cable— twist the wires together

**S3 Solder the wires**— use a bead of solder to make a permanent join.

**S4 Apply tape to secure**—wrap the join in electrical tape to seal.

## TYPES OF WOOD

Softwood—noun The wood from a conifer (such as pine, fir, or spruce) as distinguished from that of broadleaved trees.

Hardwood—noun The hard, compact wood or timber of various trees, as the oak, cherry, maple, or mahogany.

## CAR PARTS

**Axel -** a rod or spindle (either fixed or rotating) passing through the centre of a wheel or group of wheels.

**Chassis -** the base frame of a car, carriage, or other wheeled vehicle.

Motor - a machine that supplies motive power for a vehicle or for another device with moving parts.

## PROPERTIES AND CHARACTERISTICS OF MATERIALS

| | | |
|---|---|---|
| | Absorbency | To be able to soak up liquid easily. |
| | Strength | The capacity of an object or substance to withstand great force or pressure. |
| | Elasticity | The ability of an object or material to resume its normal shape after being stretched or compressed; stretchiness. |
| | Plasticity | The quality of being easily shaped or moulded. |
| | Malleability | To be able to be hammered or pressed into shape without breaking or cracking. |
| | Density | The quantity of mass per unit volume of a substance |
| | Effectiveness | The degree to which something is successful in producing a desired result; success. |
| | Durability | The ability to withstand wear, pressure, or damage. |

## UNDERSTAND THE MAKING PROCESS

| 1 | Preparation | Drawing, CAD, sketches, plans. |
|---|---|---|
| 2 | Marking Out | Pencil, scribe, steel rule, tri square, marking gauge, calipers, centre punch. |
| 3 | Modification | Saw, jigsaw, scroll saw, laser cutter, pliers, hammer, drill, file, glass paper. |
| 4 | Joining | Riveting gun, spanner, screwdriver, hot glue, gun , soldering iron, nail gun. |
| 5 | Finishing | Hand sander, glass paper, disc sander, buffing wheel, polish, spray paint, varnish. |

## (T) TOOLS AND EQUIPMENT

| Coping saw – cutting curves | Tenon Saw – cutting straight | Bench hook – holding wood | Glass paper – file filing |
|---|---|---|---|
| Hand file – rapid filing | Pillar drill – making holes | Steel rule – accurate measure | Disc sander – rapid sanding |

## HEALTH & SAFETY LEGISLATION

| Health and Safety at work Act | Personal Protective Equipment | Manual Handling Operations | Control of Substances Hazardous to Health | Reporting of Injuries RIDDOR |
|---|---|---|---|---|

## Semaine 1

### Les rapports • Relationships

| | |
|---|---|
| s'amuser | to have fun |
| se chamailler | to squabble |
| se confier des secrets | to tell each other secrets |
| se dire | to tell each other |
| se disputer | to argue |
| s'entendre | to get on |
| se fâcher | to get angry |

### Mon caractère • My character

| | |
|---|---|
| Je suis ... | I am ... |
| Je pense que je suis ... | I think I'm ... |
| Je ne suis pas ... | I'm not ... |
| Je ne suis pas du tout ... | I'm not at all ... |
| Mon meilleur ami/Ma meilleure amie est ... | My best friend is ... |
| adorable | adorable |
| arrogant(e) | arrogant |
| amusant(e) | funny |
| casse-pieds | annoying |
| curieux/curieuse | curious |
| débrouillard(e) | resourceful |
| drôle | funny |
| égoïste | selfish |
| gentil(le) | nice |
| intelligent(e) | intelligent |
| optimiste | optimistic |
| paresseux/paresseuse | lazy |
| patient(e) | patient |
| pénible | annoying |
| pessimiste | pessimistic |
| rigolo(te) | funny |
| sociable | sociable |
| sympa | nice |

## Semaine 2

### Les opinions • Opinions

| | |
|---|---|
| Mon chanteur/ma chanteuse préféré(e), c'est ... | My favourite singer is ... |
| Mon groupe préféré, c'est ... | My favourite group is ... |
| J'adore/Je déteste la musique de X. | I love/I hate X's music. |
| J'adore la chanson ... | I love the song ... |
| Ça me donne envie de ... | It makes me want to ... |
| danser/chanter/pleurer/dormir | dance/sing/cry/sleep |
| Ça me rend joyeux/joyeuse/triste. | It makes me happy/sad. |

### La musique • Music

| | |
|---|---|
| le hard rock | hard rock |
| le jazz | jazz |
| la musique classique | classical music |
| le pop-rock | pop |
| le rap | rap |
| le R'n'B | R'n'B |
| un peu de tout | a bit of everything |
| les chorégraphies | choreography |
| les mélodies | tunes |
| les paroles | words |

## Semaine 4 – partie A

### Le style • Style

| | |
|---|---|
| J'ai un style plutôt ... | My style is rather ... |
| classique | classic |
| décontracté | relaxed |
| skateur | skater |
| sportif | sporty |
| C'est ... | It's ... |
| moche | ugly |
| horrible | horrible |
| cool | cool |
| chic | chic |

## Semaine 3

### Les vêtements • Clothes

| | |
|---|---|
| Normalement, je porte ... | Normally, I wear ... |
| des baskets | trainers |
| des bottes | boots |
| des chaussures | shoes |
| une chemise | a shirt |
| un chapeau | a hat |
| un jean | jeans |
| une jupe | a skirt |
| un pantalon | trousers |
| un pull | a jumper |
| un sweat à capuche | a hoodie |
| un tee-shirt | a T-shirt |
| une veste | a jacket |

### Les couleurs • Colours

| | |
|---|---|
| beige | beige |
| blanc(he) | white |
| bleu turquoise | turquoise |
| gris(e) | grey |
| marron chocolat | chocolate brown |
| noir(e) | black |
| orange | orange |
| vert kaki | khaki |

## Semaine 4 – partie B

### Au futur • In the future

| | |
|---|---|
| Qu'est-ce que tu vas faire/porter? | What are you going to do/wear? |
| ce weekend | this weekend |
| cet été | this summer |

### Les interjections • Interjections

| | |
|---|---|
| alors | so |
| ben | well |
| euh | huh |
| ouah! | wow! |
| voyons | let's see |

## Semaine 5

**Special Test : you will only translate from English into French.
Revise the spelling of all vocabulary learnt in Lent 1**

### Les mots essentiels • High-frequency words

| | |
|---|---|
| avec | with |
| bien | well |
| comme d'hab | as usual |
| en général | in general |
| en plus | in addition |
| ensemble | together |
| même | same |
| normalement | normally |
| ou | or |
| par moments | at times |
| partout | everywhere |
| plutôt | rather |
| quand | when |
| sinon | otherwise |
| surtout | especially |
| souvent | often |
| tout(e) | all, every |
| tout le temps | all the time |
| vraiment | really |

## Semaine 1

### Les domiciles • Homes

| | |
|---|---|
| j'habite | I live |
| la maison | house |
| l'appartement (m) | flat |
| la rue | street/road |
| à la campagne | in the country |
| dans un village | in a village |
| dans une ville | in a town |

### Les adjectifs • Adjectives

| | |
|---|---|
| petit | small |
| grand | big |
| beau/belle | beautiful |
| joli(e) | pretty |
| vieux/vieille | old |
| nouveau/nouvelle | new |
| neuf/neuve | brand new |
| moderne | modern |
| confortable | comfortable |
| gros(se) | big (for animals and objects)/fat |

### Les adjectifs • Adjectives

| | |
|---|---|
| petit | small |
| grand | big |
| beau/belle | beautiful |
| joli(e) | pretty |
| vieux/vieille | old |

## Semaine 2

### Les adjectifs • Adjectives

| | |
|---|---|
| petit | small |
| grand | big |
| beau/belle | beautiful |
| joli(e) | pretty |
| vieux/vieille | old |
| nouveau/nouvelle | new |
| neuf/neuve | brand new |
| moderne | modern |
| confortable | comfortable |
| gros(se) | big (for animals and objects)/fat |

### Les pièces • Rooms

| | |
|---|---|
| Chez moi, il y a … | In my home, there is/ are … |
| la chambre (de mes parents/de ma sœur) | (my parents'/my sister's) bedroom |
| ma chambre | my bedroom |
| la cuisine | kitchen |
| le jardin | garden |
| la salle à manger | dining room |
| la salle de bains | bathroom |
| le salon | living room |
| les toilettes | toilet |
| Il n'y a pas de … | There isn't a …/There aren't any … |

## Semaine 3

### Les prépositions • Prepositions

| | |
|---|---|
| dans/devant | in/in front of |
| derrière | behind |
| entre | between |
| sous | under(neath) |
| sur | on |
| à côté de | next to |
| à droite de/à gauche de | on the right of/on the left of |
| en face de | opposite |

### Les meubles et les appareils • Furniture and appliances

| | |
|---|---|
| l'armoire (f) | wardrobe |
| le bureau | desk |
| le canapé/la chaise | sofa/chair |
| la douche | shower |
| la fenêtre | window |
| le frigo | fridge |
| le lavabo | wash basin |
| le lit | bed |
| la machine à laver | washing machine |
| la télé (satellite) | (satellite) TV |

## Semaine 4

### Le dîner • Evening meal

| | |
|---|---|
| du fromage/du poisson | cheese/fish |
| du poulet/du riz | chicken/rice |
| de la soupe | soup |
| de la viande | meat |
| des crêpes | pancakes |
| des crudités | crudités |
| des escargots | snails |
| des légumes | vegetables |
| des pâtes | pasta |
| des plats à emporter | takeaway food |
| des pommes de terre | potatoes |
| des tomates | tomatoes |
| un fruit | a piece of fruit |
| un steak-frites | steak and chips |
| un yaourt | a yoghurt |
| une mousse au chocolat | a chocolate mousse |
| Je suis végétarien(ne). | I'm a vegetarian. |

### Le petit déjeuner • Breakfast

| | |
|---|---|
| Qu'est-ce que tu prends pour le petit déjeuner? | What do you have for breakfast? |
| Je mange/Je prends … | I eat/I have … |
| du beurre/du pain | butter/bread |
| de la confiture | jam |
| des céréales | cereals |
| un croissant | a croissant |
| un pain au chocolat | a pain au chocolat |
| une baguette | a baguette |
| une brioche | a brioche (sweet loaf) |
| une tartine | a slice of bread and butter |
| Je bois/Je prends … | I drink/I have … |
| du café/du lait/du thé | coffee/milk/tea |
| du chocolat chaud | hot chocolate |
| du jus d'orange | orange juice |

## Semaine 5

### Les provisions • Food shopping

| | |
|---|---|
| Il faut acheter … | I/We/You must buy … |
| du chocolat | chocolate |
| du fromage/du jambon | cheese/ham |
| de la crème Chantilly | whipped cream |
| de la farine | flour |
| des bananes | bananas |
| des champignons | mushrooms |
| des fraises | strawberries |
| des œufs | eggs |
| des pommes | apples |

### Les quantités • Quantities

| | |
|---|---|
| un litre de … | a litre of … |
| un paquet de … | a packet of … |
| une tranche de … | a slice of … |
| cinq cents grammes de … | 500 grams of … |
| un kilo de … | a kilo of … |
| une tablette de … | a bar of … |
| une bombe de … | a spray can of … |

### Les mots essentiels • High-frequency words

| | |
|---|---|
| chez (exemple: chez moi) | at someone's home (e.g. at my home) |
| ici | here |
| là | there |
| là-bas | over there |
| voici | here is/here are |
| plus | more |
| moins | less |
| il y a | there is/there are |
| pour | for |

LEARNING - LOVING - LIVING

## Semana 1

**¿Qué te gusta comer y beber?** **What do you like to eat and drink?**

| | | | |
|---|---|---|---|
| ¿Qué no te gusta comer/ beber? | What don't you like to eat/drink? | los caramelos | sweets |
| Me gusta(n) mucho... | I really like... | la fruta | fruit |
| Me encanta(n)... | I love... | las hamburguesas | hamburgers |
| No me gusta(n) nada... | I don't like... at all. | los huevos | eggs |
| Odio... | I hate... | la leche | milk |
| Prefiero... | I prefer... | el marisco | seafood/shellfish |
| el agua | water | el pescado | fish |
| el arroz | rice | el queso | cheese |
| la carne | meat | las verduras | vegetables |

## Semana 2

**¿Qué desayunas?** **What do you have for breakfast?**

| | | | |
|---|---|---|---|
| Desayuno... | For breakfast I have... | Como... | I eat ... /For lunch I have... |
| cereales | cereal | un bocadillo | a sandwich |
| churros | churros (sweet fritters) | ¿Qué cenas? | What do you have for dinner? |
| tostadas | toast | | |
| yogur | yogurt | Ceno... | For dinner I have... |
| café | coffee | patatas fritas | chips |
| Cola Cao™ | Cola Cao (chocolate drink) | pollo con ensalada | chicken with salad |
| té | tea | ¿A qué hora desayunas/ comes/cenas? | At what time do you have breakfast/lunch/dinner? |
| zumo de naranja | orange juice | | |
| No desayuno nada. | I don't have anything for breakfast. | Desayuno a las siete. | I have breakfast at 7:00. |
| | | Como a las dos. | I have lunch at 2:00. |
| ¿Qué comes? | What do you have for lunch? | Ceno a las nueve. | I have dinner at 9:00. |

## Semana 3

**En el restaurante** **At the restaurant**

| | | | |
|---|---|---|---|
| buenos días | good day, good morning | nada más | nothing else |
| ¿Qué va a tomar (usted)? | What are you (singular) going to have? | La cuenta, por favor. | The bill, please. |
| | | la ensalada mixta | mixed salad |
| ¿Qué van a tomar (ustedes)? | What are you (plural) going to have? | los huevos fritos | fried eggs |
| | | la sopa | soup |
| ¿Y de segundo? | And for main course? | el pan | bread |
| ¿Para beber? | To drink? | las chuletas de cerdo | pork chops |
| ¿Algo más? | Anything else? | el filete | steak |
| Voy a tomar... | I'll have... | el pollo con pimientos | chicken with peppers |
| de primer plato | as a starter | la tortilla española | Spanish omelette |
| de segundo plato | for main course | el helado de chocolate/ fresa/vainilla | chocolate/strawberry/ vanilla ice cream |
| de postre | for dessert | | |
| Tengo hambre. | I am hungry. | la tarta de queso | cheesecake |
| Tengo sed. | I am thirsty. | la cola | coke |

## Semana 4

**Una fiesta mexicana** **A Mexican party**

| | | | |
|---|---|---|---|
| ¿Qué vas a traer/ comprar? | What are you going to bring/buy? | un pimiento verde/rojo | a green/red pepper |
| | | un aguacate | an avocado |
| Voy a traer... | I'm going to bring... | un kilo de tomates | a kilo of tomatoes |
| quesadillas | quesadillas (toasted cheese tortillas) | medio kilo de queso | half a kilo of cheese |
| | | 200 gramos de pollo | 200 grammes of chicken |
| limonada | lemonade | un paquete de tortillas | a packet of tortilla wraps |
| Voy a comprar... | I am going to buy... | una botella de limonada | a bottle of lemonade |
| una lechuga | a lettuce | | |

## Semana 5

**Una fiesta mexicana** **A Mexican party**

| | | | |
|---|---|---|---|
| ¿Qué vas a traer/ comprar? | What are you going to bring/buy? | un pimiento verde/rojo | a green/red pepper |
| | | un aguacate | an avocado |
| Voy a traer... | I'm going to bring... | un kilo de tomates | a kilo of tomatoes |
| quesadillas | quesadillas (toasted cheese tortillas) | medio kilo de queso | half a kilo of cheese |
| | | 200 gramos de pollo | 200 grammes of chicken |
| limonada | lemonade | un paquete de tortillas | a packet of tortilla wraps |
| Voy a comprar... | I am going to buy... | una botella de limonada | a bottle of lemonade |
| una lechuga | a lettuce | | |

## Semana 6

**¿Y tú? ¿Qué opinas?** **And you? What do you think?**

| | | | |
|---|---|---|---|
| Pues... | Well... | Eh... | Er... |
| Depende... | It depends... | A ver... | Let's see... |
| No sé... | I don't know... | Bueno/Vale... | OK... |

**Lo siento, pero no entiendo** **I'm sorry, but I don't understand**

| | | | |
|---|---|---|---|
| ¿Qué significa '...'? | What does '...' mean? | ¿Puedes hablar más despacio, por favor? | Can you speak more slowly, please? |
| ¿Puedes repetir? | Can you repeat that? | | |

**Palabras muy frecuentes** **High-frequency words**

| | | | |
|---|---|---|---|
| a las... | at... o' clock | lugar | place |
| bastante | quite | para | for |
| día | day | por ejemplo | for example |
| favorito/a | favourite | pasado/a | last |
| hora | time | que viene | next |

**Special Test : you will only translate from English into Spanish Revise the spelling of all vocabulary learnt in Lent 2.**

**Assessments: Speaking and Listening**

LEARNING - LOVING - LIVING

## Semana 1

### ¿Te gustaría ir al cine?    Would you like to go to the cinema?

| | | | |
|---|---|---|---|
| ¿Te gustaría ir...? | Would you like to go...? | al parque | to the park |
| a la bolera | to the bowling alley | a la pista de hielo | to the ice rink |
| a la cafetería | to the café | al polideportivo | to the sports centre |
| al centro comercial | to the shopping centre | ¿Te gustaría venir a mi casa? | Would you like to come to my house? |
| al museo | to the museum | | |

## Semana 2

### Reacciones    Reactions

| | | | |
|---|---|---|---|
| De acuerdo. | All right. | ¡Ni hablar! | No way! |
| Vale. | OK. | ¡Ni en sueños! | Not a chance!/Not in your wildest dreams! |
| Muy bien. | Very good. | | |
| ¡Genial! | Great! | No tengo ganas. | I don't feel like (it). |
| Sí, me gustaría mucho. | Yes, I'd like that very much. | ¡Qué aburrido! | How boring! |

### ¿Dónde quedamos?    Where do we meet up?

| | | | |
|---|---|---|---|
| al lado de la bolera | next to the bowling alley | enfrente del polideportivo | opposite the sports centre |
| delante de la cafetería | in front of the café | | |
| detrás del centro comercial | behind the shopping centre | en tu casa | at your house |

## Semana 3

### ¿A qué hora?    At what time?

| | | | |
|---|---|---|---|
| a las... | at... | seis y media | half past six |
| seis | six o'clock | siete menos cuarto | quarter to seven |
| seis y cuarto | quarter past six | siete menos diez | ten to seven |

### Lo siento, no puedo    I'm sorry, I can't

| | | | |
|---|---|---|---|
| ¿Quieres salir? | Do you want to go out? | pasear al perro | walk the dog |
| Tengo que... | I have to... | salir con mis padres | go out with my parents |
| cuidar a mi hermano | look after my brother | No quiero. | I don't want to. |
| hacer los deberes | do my homework | No tengo dinero. | I don't have any money. |
| lavarme el pelo | wash my hair | No puede salir. | He/She can't go out. |
| ordenar mi dormitorio | tidy my room | | |

## Semana 4

### ¿Cómo te preparas?    How do you get ready?

| | | | |
|---|---|---|---|
| ¿Cómo te preparas cuando sales de fiesta? | How do you get ready when you go to a party? | Me visto. | I get dressed. |
| | | Me maquillo. | I put on make-up. |
| Me baño. | I have a bath. | Me peino. | I comb my hair. |
| Me ducho. | I have a shower. | Me aliso el pelo. | I straighten my hair. |
| Me lavo la cara. | I wash my face. | Me pongo gomina. | I put gel on my hair. |
| Me lavo los dientes. | I brush my teeth. | | |

## Semana 5

### ¿Qué vas a llevar?    What are you going to wear?

| | | | |
|---|---|---|---|
| ¿Qué llevas normalmente los fines de semana? | What do you normally wear at weekends? | una gorra | a cap |
| | | unos pantalones | some trousers |
| Normalmente los fines de semana llevo... | At weekends I normally wear... | unos vaqueros | some jeans |
| | | unas botas | some boots |
| una camisa | a shirt | unos zapatos | some shoes |
| una camiseta | a T-shirt | unas zapatillas de deporte | some trainers |
| un jersey | a jumper | ¿Vas a salir esta noche? | Are you going to go out tonight? |
| una sudadera | a sweatshirt | | |
| una falda | a skirt | Voy a ir al/a la... | I am going to go to the... |
| un vestido | a dress | Voy a llevar... | I'm going to wear... |

## Semana 6

### Los colores    Colours

| | | | |
|---|---|---|---|
| amarillo/a | yellow | naranja | orange |
| azul | blue | negro/a | black |
| blanco/a | white | rojo/a | red |
| gris | grey | rosa | pink |
| marrón | brown | verde | green |
| morado/a | purple | de muchos colores | multi-coloured |

### ¡No es justo!    It's not fair!

| | | | |
|---|---|---|---|
| Estoy de acuerdo... | I agree... | Eres demasiado joven. | You're too young. |
| con tu madre/padre | with your mother/father | En mi opinión, tienes razón. | In my opinion, you're right. |
| con tus padres | with your parents | | |
| contigo | with you | ¿Tú qué opinas? | What do you think? |

### Palabras muy frecuentes    High-frequency words

| | | | |
|---|---|---|---|
| al/a la | to the | este/esta/estos/estas | this/these |
| del/de la | of the | por eso | for this reason |
| demasiado/a | too (much) | por supuesto | of course |
| demasidos/as | too many | ¡Lo pasé fenomenal! | I had a fantastic time! |

**Special Test : you will only translate from English into Spanish
Revise the spelling of all vocabulary learnt in Lent 2.**

**Assessments: Speaking and Listening**

| Key term | Definition |
| --- | --- |
| 1. Employment | When an individual works part-time or full-time under a contract of employment. |
| 2. Labour market | The supply and demand for labour (employees provide the supply and employers the demand). |
| 3. Labour force | All people who are of working age, and able and willing to work. |
| 4. Employee | Someone who is paid to work for someone else. |
| 5. Employer | A person or organization that you work for. |
| 6. Salary | A fixed regular payment, typically paid on a monthly basis but often expressed as an annual sum. |
| 7. Wage | A fixed regular payment earned for work or services, typically paid on a daily or weekly basis. |
| 8. Bonus | An extra amount of money given to an employee, often based on work performance. |
| 9. Contract | A contract is an agreement that sets out an employee's employment conditions, rights, responsibilities & duties. |
| 10. Economy: | System of how money is made and used within a particular country or region. |
| 11. Economic Growth | An increase in the capacity of an economy to produce goods and services. |
| 12. Trade | To take part in the exchange, purchase, or sale of goods and services. |
| 13. Industry | A group of manufacturers or businesses that produce a particular kind of goods or services. |
| 14. Unemployment | When a person who is actively searching for employment is unable to find work. |

**The 5 Sectors of the Economy.**

**Primary Sector:** this involves acquiring raw materials. For example, metals and coal have to be mined, oil drilled from the ground, rubber tapped from trees, foodstuffs farmed and fish trawled. This is sometimes known as extractive production.

**Secondary Sector:** this is the manufacturing and assembly process. It involves converting raw materials into components, for example, making plastics from oil. It also involves assembling the product, e.g. building houses, bridges and roads.

**Tertiary Sector:** this refers to the commercial services that support the production and distribution process, e.g. insurance, transport, advertising, warehousing and other services such as teaching and health care.

**Quaternary Sector**: this sector includes government, culture, libraries, scientific research, education, and information technology. These intellectual services and activities are what drives technological advancement, which can have a huge impact on short- and long-term economic growth.

**Quinary Sector**: this contains the highest levels of decision making in a society or economy, including top executives or officials in such fields as government, science, universities, non-profit, health care, culture, and the media. It may also include police and fire departments, which are public services as opposed to for-profit enterprises.

| Key Term | Definition |
| --- | --- |
| 1. Career | The job or series of jobs you do during your working life. |
| 2. Occupation | Your job or profession. |
| 3. Promotion | When an employee moves from one job or position to another that is higher in pay, responsibility, and status. |
| 4. Redundancy | When an employer no longer requires the job role that is being carried out by an employee. |
| 5. Retire | To leave your profession or job and end your active working life. |
| 6. Pension | An amount of money paid regularly by the government or private company to a person who has retired. |
| 7. Apprenticeship | Apprenticeships combine practical training in a job with study. |
| 8. Internship | A period of work experience offered by an organization for a limited period of time, either paid or voluntary. |
| 9. Traineeship | A traineeship is a course that includes a work placement. It can last from 6 weeks up to 6 months. |
| 10. CV | A document that presents your skills and qualifications effectively and clearly. |
| 11. Cover Letter | A letter that should accompany your application form or CV. It is short, introduces you, and explains why you are applying for a job. |
| 12. Job Interview | A meeting in which an employer asks the person applying for a job questions to see whether they suitable. |
| 13. Video Resume | A short video created by a candidate for employment and uploaded for prospective employers to review. |
| 14. Entrepreneur | A person who sets up a business or businesses, taking on financial risks in the hope of profit. |

**What is the future of the Labour Market?**

Young people will have longer careers. Rising life expectancy means young people will have an extended number of years in the workforce and will need to be **adaptable** and **flexible**.

A rise in average qualification levels will make a **lack of skills and qualifications** a bigger barrier to finding work and building a career.

More opportunities for young people to **work flexibly** with changes in technology and employment policy such as job share, remote working and flexible office space.

The working population will be **more diverse** with more younger, older, women & people with disabilities joining the labour market.

The growth in sectors such as **health** and **social care** is likely to continue to grow, and the nature of work will continue to change.

| Key Term | Definition |
| --- | --- |
| 1. Ambitious | Having or showing a strong desire and determination to work hard and succeed. |
| 2. Motivated | Enthusiastic or determined to achieve goals. |
| 3. Reliable | Someone who can be trusted to behave well, work hard and do what is expected of them. |
| 4. Persistent | Refusing to give up or stop trying. |
| 5. Team Player | A person who plays or works well as a member of a team |
| 6. Self-Starter | A person sufficiently motivated or ambitious to work on their own initiative without needing direction. |