# Knowledge Organisers
# Year 9
# Spring 2021

# Knowledge Organisers

Some subjects like Design Technology organise the curriculum on a carousel, as such all the organisers for that subject are in the Spring Term booklet.

**Contents**

An introduction to Knowledge Organisers

Art

Computing

Drama

Design Technology (DT)

English

Geography

History

Mathematics

MFL

Music

PSHE

Religion, Ethics and Philosophy (REP)

Science

*Some subjects have Knowledge Organisers which last two terms or a year, therefore it will be the same as the Autumn Term.

# An Introduction to Knowledge Organisers

## What is a Knowledge Organiser?

A knowledge organiser is a document, usually one side of A4, occasionally two, that contains key facts and information that children need to have a basic knowledge and understanding of a topic, or in some cases a series of topics.

Students are expected to bring their Knowledge Organiser Booklet to school every day. Students will be issued with a new booklet to bring each term. However, it is import they keep the old booklets to help with revision for end of year exams.

## What are the benefits of knowledge organisers?

The main benefit of knowledge organisers is that they give students and parents the 'bigger picture' of a topic or subject area. Some topics can be complicated, so having the essential knowledge, clear diagrams, explanations and key terms on one document can be really helpful.

Research shows that our brains remember things more efficiently when we know the 'bigger picture' and can see the way that nuggets of knowledge within that subject area link together. Making links, essentially, helps information move into our long-term memory.

## How can the students use them?

As mentioned earlier, students are expected to bring their Knowledge Organiser Booklet to school everyday. In lessons they can be used in a number of ways, for example, to look up the meaning of key words, spell words correctly and do some additional work if they have finished classwork.

At home knowledge organisers can be used to support homework, independent work and revise for tests and exams. Two quick and easy ways to do this are:

1. Look, cover write, check – look at part of the knowledge organiser, cover it, write as much as you can remember and then check it
2. Word up – Pick out any words you don't understand. Use a dictionary or thesaurus to find the meaning. If they don't help as your teacher.

The more often you do this the better. YouTube has some clips on them; search 'Mr Garner look, cover, write, and check 'and 'Mr Garner word up'

## How can parents use them?

- Read through the organiser with your son/daughter – if you don't understand the content then ask them to explain it to you – 'teaching' you helps them to reinforce their learning.
- Test them regularly on the spellings of key words until they are perfect. Get them to make a glossary (list) of key words with definitions or a list of formulae.
- Read sections out to them, missing out key words or phrases that they have to fill in. Miss out more and more until they are word perfect.

## How the booklet is organised

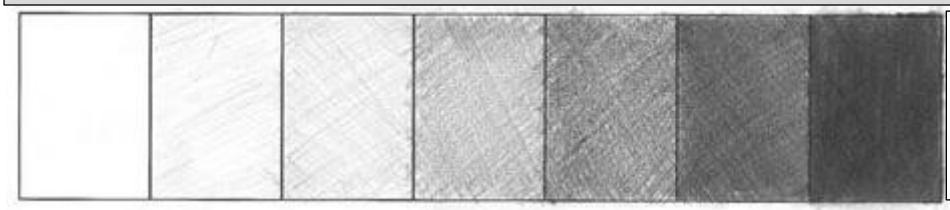
The knowledge organisers are in alphabetical order by subject.

# Y9 ART SKILLS

Term 2

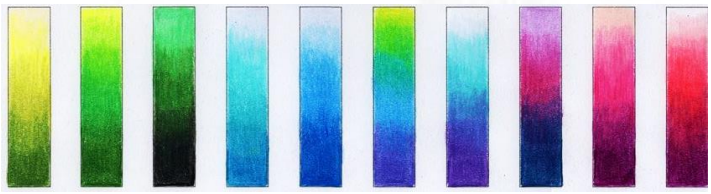
# KNOWLEDGE ORGANISER

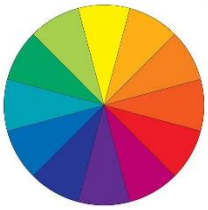
**You will be completing a series of skills-based work during the January half term**
**These skills will be revisited throughout the year in class and homework – and can transfer across different materials and in different combinations**



## PENCIL TONE

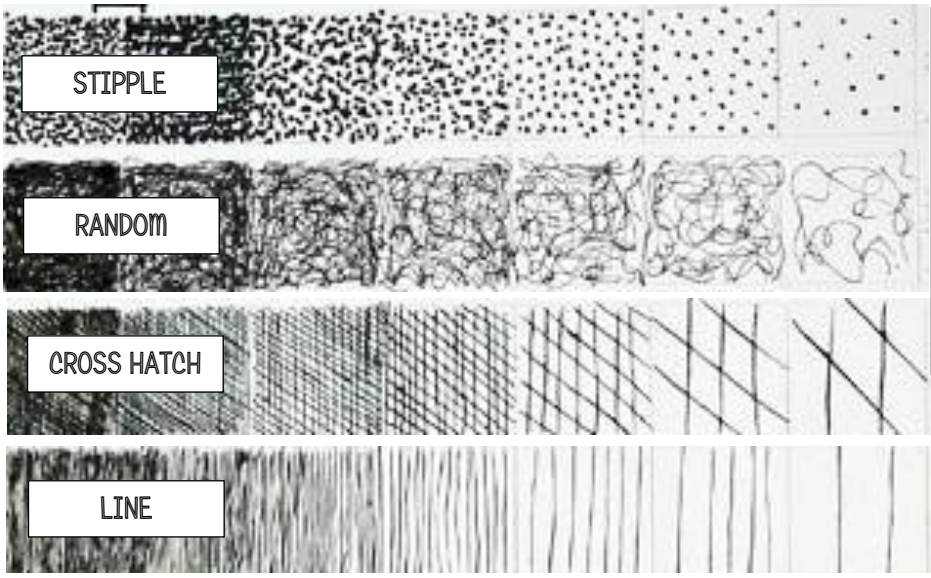
Complete drawings to show a full range of tone
Try a 2B pencil to achieve this
Use your pencil lightly in planning work





## COLOUR BLENDING

Layer different colour pencils to mix the correct shade
Build up layers lightly
Use colour wheel to help you mix shades




## MARK MAKING

Shows the surface of an object &/or highlights a materials qualities
Look at the different ways the marks have been applied - the more marks – the darker the tone
Surface detail/pattern can also reference an artist's application technique
This is about control of the marks & focus to maintain it

**Top Tip**
*Always draw what you see – not what you think you see*


## PAINTING

Mix your colours carefully
Follow the structure/steps from staff
Use the brush as directed
Consider paint consistency– wash, flat block, thick, textured
Allow layers to dry
Start with base layers & work towards details & darker colours

## COLLAGE

Plan accurate shape of your object/image
Cut & tear paper carefully
Select colours to show tone
Use magazines, free papers, scrap

**Top Tip**
*You must focus on your work to build on your skills*
*Use lesson time as directed*

Check out our Instagram for inspiration and our YouTube channel for some videos of many of these skills

```
from turtle import *

down()
fd(50)
rt(90)
fd(50)
rt(90)
fd(50)
rt(90)
fd(50)
rt(90)
up()
```

This program draws a square. The **sequence** of instructions is important. If they are in a different order, the outcome of the program will be different.

down() and up() tell the turtle to start and stop drawing.

fd(50) moves the turtle forward 50 steps.

rt(90) rotates the turtle 90 degrees to the right (clockwise)

```
from turtle import *

down()
for i in range(4):
    fd(50)
    rt(90)
up()
```

This program does exactly the same thing. However, it uses a loop to repeat instructions, making it shorter and therefore easier to edit if necessary. This is known as **iteration**.

`for i in range(4):`

means to repeat the instructions that are indented 4 times.

```
from turtle import *

sides = 4
steps = 50

down()
for i in range(sides):
    fd(steps)
    rt(360/sides)
up()
```

The program has been improved further here. It uses two **variables**, *sides* and *steps*.

This makes the program more flexible, by being able to draw shapes of different number of sides.

The number of degrees to rotate has been calculated by an **arithmetic operation**: 360 ÷ sides. We use '/' as the division operator (instead of ÷) in computing.

# Computing: Programming with Python

```
from turtle import *

sides = input("How many sides?")
sides = int(sides)
steps = 50

down()
for i in range(sides):
    fd(steps)
    rt(360/sides)
up()

print("I've drawn a shape with",sides,"sides")
```

This time the program asks the user how many sides the shape should be. This is known as **user input** and the answer is stored in the variable *sides*.

Once the shape has been drawn, the program **outputs** text to the screen.

```
from turtle import *

print("Type r for a red shape, or b for blue")
col = input("")
if col == "r":
    color("red")
else:
    color("blue")
```

Finally, the user is given a choice of colours.

The user enters a colour which is stored as variable 'col'

This part of the program uses a **Boolean expression** to compare col variable with 'r'.

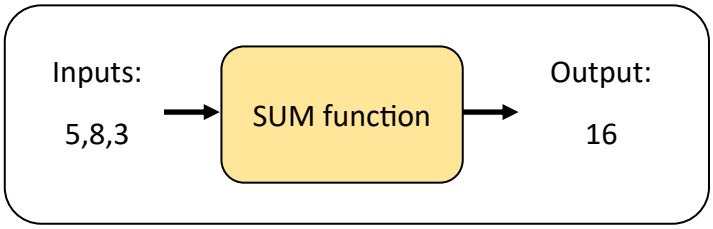
If this is *true* (the users types 'r'), the pen colour is red.

If this is *false* (the user doesn't type 'r'), the pen will be blue. *If... else* statements are known as **selection**.

# Computing: Spreadsheet software for data analysis

A range of **functions** can be used to analyse data.

A function can be thought of as a machine that takes in some data and converts it into something else.




| | A | B |
|---|---|---|
| 1 | **Name** | **Grade** |
| 2 | Student 1 | 6 |
| 3 | Student 2 | 8 |
| 4 | Student 3 | 8 |
| 5 | Student 4 | 3 |
| 6 | Student 5 | 8 |
| 7 | Student 6 | 6 |
| 8 | Student 7 | 5 |
| 9 | Student 8 | 8 |
| 10 | Student 9 | 9 |
| 11 | Student 10 | 9 |
| 12 | Student 11 | 7 |
| 13 | Student 12 | 7 |
| 14 | Student 13 | 8 |
| 15 | Student 14 | 7 |

Here is a list of students and their grades. There are 205 students in the list. The last name is in cell A206. Their grade is in B206.

**Functions with a single input**

These functions take either a single cell, or range of cells as the input:

- =AVERAGE(B2:B206) would find the *mean* grade.
- =MODE(B2:B206) would find the most common grade.
- =MIN(B2:B206) and MAX(B2:B206) find the lowest and highest grades.
- =COUNT(B2:B206) tells you how many cells have numbers in; useful for finding missing data.

**Functions with more than one input**

These functions have their inputs separated by a comma:

- =COUNTIF(B2:B206,">6") would find the number of grades that met specified criteria. In this case, all grades higher than 6.
- =IF(B2>3,"Target met","Target not met") would check whether a the value in C2 is greater than 3. This is a Boolean expression. If the result is *true*, "Target met" is output. If the value is *false*, "Target not met" is output.
- =VLOOKUP(B2,D2:E5,2) would look in range D2:E5 for student 1's grade and return a value from the second column. B2 is between 4 and 7, so Pass is returned.

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Name | Grade | | **Grade** | **Description** |
| 2 | Student 1 | 6 | | 0 | Fail |
| 3 | Student 2 | 8 | | 4 | Pass |
| 4 | Student 3 | 8 | | 7 | Merit |
| 5 | Student 4 | 3 | | 9 | Distinction |

# Drama Knowledge Organiser: Year 9

## Too much punch for Judy

- This documentary play focussed on the feeling of characters after a drink driving incident.
- Non-naturalistic style – synchronisation, ensemble, canon, narration and tableaux.
- Verbatim – A play that is written from real life words and interviews.
- Swapped gender roles to create comedy.
- Dark comedy play that uses exaggeration of character.

## Urban Legends


- Stories which have been passed down from generation to generation which are not factual
- Focus on building of suspense and tension through lighting, sound and performance technique
- The Hitch Hiker – a girl hitch hikes to her home and upon arrival disappears. Her parents disclose she has been dead for 6 years.
- The Cross Roads – A suspected haunted cross roads which two friends discover to be true

## Devising from a Stimulus

- A stimulus is a starting point in drama – a source of inspiration
- Devising from various stimuli such as photograph, text, video, music, poem, prop, costume, historical event or quote.
- Performance is inspired by NOT a direct representation of the stimulus
- Collaboration of creative ideas leads to a good devised performance
- A script is created throughout the process not given before
- Rehearsal techniques explored – hot seating, improvisation and peer assessment.

## Little Boy Blue

- A real life story about a boy aged 11 that was shot dead on the streets of Liverpool. Rhys Jones was walking home from football when he was caught in a gang shooting.
- Devising techniques and scenes – news report, gang scene, monologues and court scene.
- Non-naturalistic techniques used - synchronisation, ensemble, canon, narration and tableaux.
- Bertolt Brecht – Theatre for social change.
- Characterisation through research.

## Hillsborough

- Understanding language and dialogue to interpret plot and character.
- Verbatim – A play that is written from real life words and interviews.
- Exploring how characters develop as the plot progresses
- What is the purpose of the play? Why was it written?
- Hillsborough was a sporting disaster in 1989 where sports fans were crushed to death and 96 people lost their lives.

## Artaud

- Theatre of cruelty
- Inspired by Surrealism
- Believed in world change through dreams
- Appeals to the irrational mind
- Aims to release the audience's intense emotions through intense tension and suspense
- Plays on fear

## KEY WORDS FOR YEAR 9 DRAMA

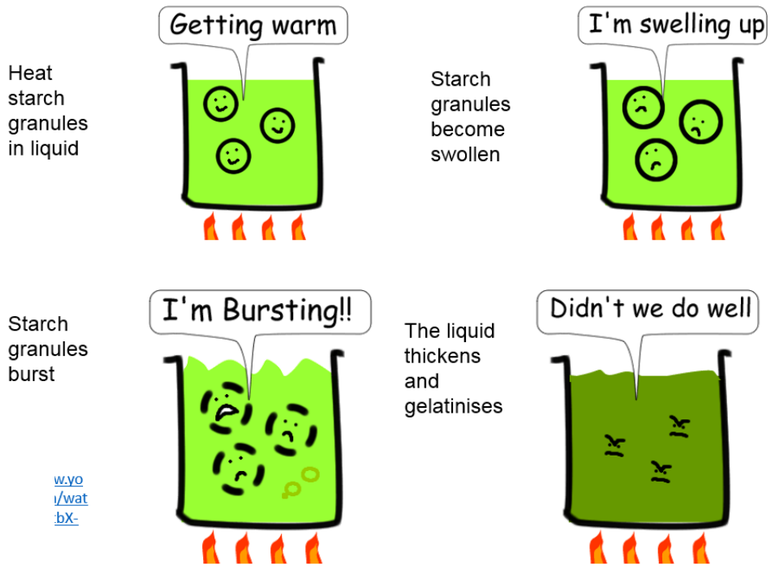
| | | | | | |
|---|---|---|---|---|---|
| Devising | Cross-cutting | Atmosphere | Suspense | Tension | Verbatim |
| Stimulus | Characterisation | Monologues | Ensemble | Non-naturalism | Documentary |
| Theatre for social change. | Subtext | Theatre of the absurd | Theatre of Cruelty | Audience emotions | Heightened tension |

# Year 9 Cooking and Nutrition Knowledge Organiser

## Food Investigation

### Key Skills

- Analyse a task, explaining the background research
- Carry out secondary research, focusing on the working characteristics, functional and chemical properties of the ingredients
- Establish a hypothesis/ predict an outcome as a result of the research findings. The hypothesis should be a statement which may be proved or disproved.




Starch gelatinises when heated in a liquid, producing a thickened liquid


## Food Preparation Task

### Key Skills

- Analyse the task by explaining the key areas for consideration
- Carry out relevant research and analysis related to the dietary group (Vegetarians)
- Identify a range of suitable dishes
- Select your own choice dish to make in one hour, using a range of technical skills

## Hygiene and Safety – The four C's

Food hygiene & safety is a about protecting people and minimising the risk.

- Cleaning – e.g. following routine, meeting standards using correct materials, cloths and PPE ,
- Chilling – storing food at appropriate temperatures
- Cooking – making sure food is cooked and served at correct safe temperatures.
- Cross-contamination – avoiding food poisoning.

| Key vocabulary | |
|---|---|
| Food Investigation | Testing the function and properties of ingredients. |
| Hypothesis | A proposed explanation of what will happen based on limited evidence. |
| Task analysis | Detailed examination if the given task. |
| Gelatinisation | The process where starch and water are subjected to heat causing the starch granules to swell. |
| Vegetarian | Someone who doesn't eat meat, and mostly eats foods that come from plants, like grains, fruits, vegetables, and nuts. |
| Cross Contamination | Process by which bacteria or other microorganisms are unintentionally transferred from one substance or object to another, with harmful effect. |

# Year 9 Textiles Knowledge Organiser

## Bag for Life Design


### Key Skills

- Responding to a Design Context
- Analysing existing products
- Identifying a target audience or intended user
- Writing a Product Specification
- Demonstrate an understanding of how to change the appearance of textiles through the application of decorative techniques:
    - Tie dye (concentric & concertina techniques)
    - Dip dye (ombre effect)
    - Stencil printing
    - Computerised embroidery
    - Hand embroidery stitches
- Using a range of hand and sewing machine to complete a range of construction & decorative techniques:
    - Seams
    - Hems
    - Strengthening materials
    - Computerised embroidery
    - Applying components
- Understanding the properties of materials:
    - Natural fibres & fabrics
    - Polymer based materials
- Understand CAM using computerised embroidery



dt design technology

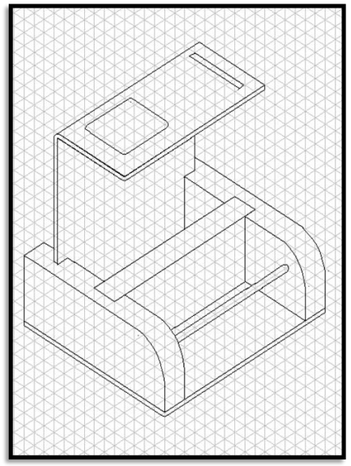
| Product features | |
|---|---|
| Use of woven, knitted & non woven materials | Consideration of a specified target market |
| Organic Cotton | Application of colour through dyeing |
| Original slogan & design | Creative carrying solution |
| Application of decorative techniques | Components used for function & decoration |
| CAD/CAM embroidery | Personalised features |

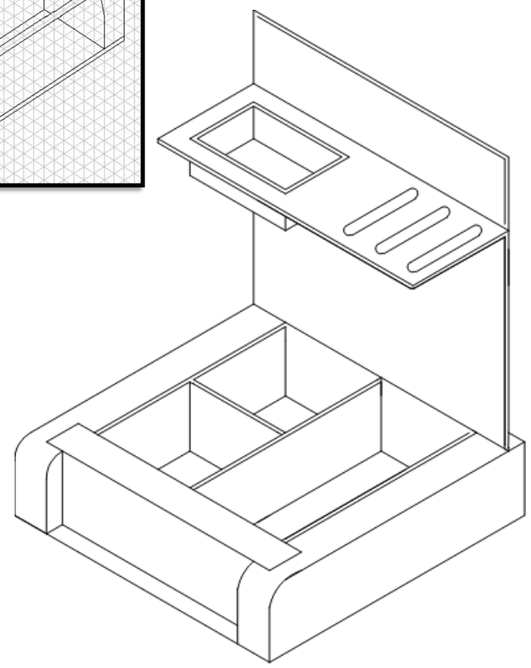
| Health & safety |
|---|
| Follow teacher instructions |
| Move slowly around the room do not run |
| Tie long hair back |
| Hold scissors or shears correctly when walking around the room. |
| Only one person operating a sewing machine at one time |
| Never use a sewing machine unless supervised by a teacher/ technician |
| Turn off the sewing machine when not in use. |
| Report any injuries or breakages to the teacher immediately |

| Key vocabulary | |
|---|---|
| Design Context<br>Design Brief | The circumstances, problem or setting in which a product will be used.<br>An written outline which explains the aims and objectives of a project. |
| Target Audience | The person or people most likely to be interested in your design or product. |
| Function | What a product does, how it works and what it will be used for? |
| Original | A product that has unique, creative and functional features |
| Specification | A detailed description of the design and materials used to make a product. |
| Tie dye | Patterns in cloth created by tying parts so its resists the dye. |
| Dip dye | Fabric is immersed in dye to colour to create an ombre effect. |
| Stencil print | A method of transferring a pattern by dabbing fabric paint through the open areas of a cut out card stencil. |
| CAD/CAM | Computer Aided Design/Computer Aided Manufactured |
| Embroidery | Even stitch widths and lengths completed by hand sewn stitches |
| Components | The parts/materials/threads needed to make a product. |

# Year 9 Product Design Knowledge Organiser

## Desk Organiser





### Key Skills

- Responding to a Design Context
- Analysing & researching information
- Creating a brief & identifying an audience
- Writing a product specification
- Developing CAD skills using:
  - Techsoft 2D Design
  - Google SketchUp
  - Serif Draw Plus
- Applying Health & Safety procedures when modelling your prototype.
- Developing practical skills to create an effective 3D prototype of your final proposal.
- Knowledge of timbers, manufactured boards, thermosetting polymers for an awareness of construction methods of how your model could be commercially produced.
- Prototype modelling, finishing & presentation skills.
- Evaluating the prototype design & manufacturing processes.

| Key vocabulary | |
|---|---|
| Design Context | The circumstances, problem or setting in which a product will be used. |
| Design Brief | An written outline which explains the aims and objectives of a project. |
| Specification | A statement that details exactly a products function and the design requirements. |
| CAD | Computer aided design |
| CAM | Computer aided manufacture e.g. laser cutter |
| Finishing | The process of applying a finish to preserve or protect a material & improve aesthetics. |
| Prototype | A prototype is a model that is built to test to see if it is successful or whether it needs further modification or improvements. |
| Materials | What something is made from. |
| Function | What a product does, how it works and what it will be used for? |
| Isometric Drawing | Isometric drawing is way of presenting designs in 3D a 30 degree angle is applied to its sides. |
| Rendering | The process of adding shading, colour, texture or material to a drawing. |

### Tools for working with Card

Craft Knife

Cutting Board

Safety ruler

Scissors

| Timber is a natural material with imperfections, knots and grain – always sand with the grain | |
|---|---|
| Softwood  | From coniferous trees that are evergreen, which are faster to grow and are less expensive than hardwoods. Softwoods are a sustainable material as the resource can be regrown and not depleted. Softwoods are strong and easy to work with. |
| **Manufactured boards are timber produced by gluing wood layers or wood fibres together.** | |
| Medium Density Fibreboard  | Medium Density Fibreboard or also known as MDF is made from wood fibres which are glued together. MDF has a smooth even surface which makes it easier to work than natural timber. |

# ENGLISH KNOWLEDGE ORGANISER: A VIEW FROM THE BRIDGE

YEAR: 9 UNIT: 3

## CONTEXT – 1955

**Arthur Miller** – Arthur Asher Miller (1915-2005) was an American playwright and essayist. Amongst his most popular plays are Death of a Salesman, (1949) The Crucible (1953) and A View from the Bridge (1955). Miller worked in the Brooklyn shipyards for two years in young adulthood, where he befriended the Italian Americans he worked with. There, he heard stories of men coming over to work and being betrayed.

**House UnAmerican Activities Committee** –The HUAC was created in 1938 to try and investigate alleged disloyalty and subversive activities by American citizens– most notably it was utilised to investigate those with supposed links to Communism. Miller was made to testify before this committee, and give up the names of those that sympathised with Communism. He refused to do this, which landed him with a contempt of court charge but showed his integrity

**Conditions in Italy** – Italy in the 1950s was a very poor country. The country had suffered huge losses in the Second World War, and the economy was extremely slow to grow subsequent to the end of the war. With no jobs and very few prospects, many opted to try their luck and illegally immigrate to America. Dockyard owners made the most of this situation, getting cheap work out of immigrants until they had 'paid their fare.' They could then make their own way in 'rich America.'

**Italian Americans in New York** – Many immigrants came to America with ideas of fulfilling their own American Dream, which declares that freedoms, prosperity, success, and social mobility, can all be achieved through hard work. Despite this, many Italians who made it to America faced difficult working conditions for low pay, and lived in slum communities (such as Red Hook) in their own, small communities.

**Tragedy –** Arthur Miller wrote modern tragedies which were about everyday people, not kings! He did retain some tragic conventions though:
**Tragic Hero -** A main character cursed by fate and in possession of a tragic flaw (Eddie).
**Hamartia** - The fatal character flaw of the tragic hero
**Catharsis** - The release of the audience's emotions through empathy with the characters.

**The Sicilian Mafia** – At the beginning of the play, Alfieri makes reference to Al Capone and Frankie Yale, who operated in the early part of the twentieth century as leaders of the Sicilian Mafia, a crime syndicate synonymous with the arrival of Italian immigrants. Largely involved in racketeering, the mafia embodied what Alfieri means by the dangers of 'acting wholly' and not 'taking half.' He suggests that communities have learnt now not to settle their feuds with violence.

## MAIN CHARCTERS

**Eddie** – Eddie is a longshoreman, and the head of the Carbone household. He lives with his wife, Beatrice, and his adopted niece, Catherine. Eddie is an inarticulate character, whose uncontrollable incestuous desire for his niece, accompanied by his unrestrained jealousy, lead to his tragic fate. Throughout the play, he remains constantly self-interested, acting to fulfil his own desires.
**Eddie Quote: "I want my name, Marco."**

**Beatrice** – Beatrice is the wife of Eddie and Catherine's aunt. Beatrice has raised Catherine from a very young age and so appears more like her mother. Beatrice is a warm and caring woman, and seems to be much more reasonable than Eddie. To an extent, Beatrice can be blamed for sweeping her knowledge of Eddie's feelings under the carpet until it is too late to save disaster.
**Beatrice Quote: "You want somethin' else, Eddie…you can never have her!"**

**Catherine** – Catherine is the niece of Eddie and Catherine. She is young, smart, and beautiful, and is extremely popular with the young men of the Red Hook community. She initially demonstrates a great deal of love and commitment towards Eddie, who along with Beatrice has raised her. However, her feelings begin to change when his irrational behaviour over her relationship transpires.
**Catherine Quote: "You don't know…he was always the sweetest guy to me."**

**Alfieri –** Alfieri is an Italian-American lawyer, who narrates the events of the story to the audience, often breaking 'the fourth wall' in order to speak to them directly. He makes clear the wider social and moral implications of the story, acting as a symbolic bridge between the life and values of the Italian-American communities and American law, struggling with his loyalties towards both.
**Alfieri Quote: ""the law is not interested in this"**

**Marco** – Marco is a cousin of Beatrice and Rodolpho's brother. He is quieter, more reserved, and more stereotypically masculine than Rodolpho. He is a family man, who desires to come to America to make money to send home to his wife and children. He is a hardworking man, who also possesses notable physical strength. He utilises this to both warn Eddie at the end of Act One, and then to kill him at the end of Act Two.
**Marco Quote: "Animal! You go on your knees to me!"**

**Rodolpho** – Rodolpho is Beatrice's young, blond cousin from Italy.He is the brother of Marco. Rodolpho prefers singing, cooking and dancing to working on the ships, which to Eddie and the other longshoremen is strange and effeminate. He desires to be an American and seeks wealth and fame. This leads Eddie to accuse him of beginning a relationship with Catherine to gain citizenship.He is reasonable, attempting to stop the events of the final scene.
**Rodolpho Quote: "I don't want to hit you, Eddie."**

## PLOT SUMMARY

| | | |
|---|---|---|
| **Exposition** | Alfieri (a lawyer) addresses the audience and explains a little about Italian communities in America and how they have now settled for 'half.' He states that every few years he experiences a case that has tragedy written all over it, and that he is powerless to stop. Eddie arrives home and is greeted by his loving niece, Catherine. He tells her she looks beautiful but lectures her about walking 'wavy' down the street and attracting attention of men. Beatrice enters, and it is announced that her cousins (illegal immigrants) have just arrived in America from Italy. Catherine announces that she has been offered a job as a stenographer, which Eddie is reluctant about but Beatrice convinces him to let her take it. | "But this is Red Hook, not Sicily. This is the slum that faces the bay on the seaward side of Brooklyn Bridge. This is the gullet of New York swallowing the tonnage of the world." |
| **Rising Action** | Rodolpho and Marco (Beatrice's cousins) arrive, and talk about their dreams for life in the US. Marco is a married family man who wants to send money home, whereas Rodolpho (a former singer) serenades the house and dreams of being an American. Catherine loves his blonde hair. Some time on, Eddie awaits Catherine and Rodolpho's return. He discloses his distrust of Rodolpho to Beatrice. When they return, Eddie is short with Rodolpho. Catherine questions this, and Eddie suggests that Rodolpho is with her to gain US citizenship. She is upset with this, exclaims that Rodolpho loves her, and runs in to speak with Beatrice, who explains that Catherine must now start acting like a woman. | "That's right. He marries you he's got the right to be an American citizen. That's what's goin' on here." |
| **Climax** | Eddie visits Alfieri to ask if he can prevent Catherine's marriage to Rodolpho. Alfieri explains that the law is not on his side and he must let her go (and that he cares too much). Alfieri explains to the audience that the moment Eddie left his office, he knew it would end in tragedy. Back in the house, Rodolpho remarks in conversation that things are stricter in Italy. This enrages Eddie, who voices his displeasure that Rodolpho did not ask his permission to date Catherine. The two begin shadow boxing, and Eddie catches him in the face. Marco rises from his chair. He asks Eddie if he can lift a chair with one hand, from one corner. Eddie cannot. Marco raises the chair above Eddie's head, threateningly. | "Marco is face to face with Eddie, a strained tension gripping his eyes and jaw, his neck stiff, the chair raised like a weapon over Eddie's head" |
| **Act II** | Rodolpho and Catherine are in the house alone. Catherine questions Rodolpho about his intentions for marrying her, and he insists that it is out of love for her. Catherine reveals that she is worried about Eddie's reaction. Rodolpho reassures her and takes her to the bedroom. Eddie comes back drunk, and (seeing the pair come out of the bedroom) orders Rodolpho to pack his bags and leave the house. Catherine suggests that she is in fact the one who needs to leave. However, as she passes Eddie he suddenly grabs her and kisses her on the mouth. Rodolpho tries to stand up for Catherine, but Eddie disrespects him. Rodolpho lunges towards Eddie, but Eddie pins him down. He kisses Rodolpho on the mouth. Catherine has to tear them apart. Eddie stands there, laughing, but with tears rolling down his face, as Catherine stares at him in horror. | I think I can't stay here no more. (She frees her arm, steps back toward the bedroom.) I'm sorry, Eddie. (She sees the tears in his eyes.) Well, don't cry. I'll be around the neighborhood; I'll see you. I just can't stay here no more. |
| **Falling Action** | Eddie visits Alfieri's office asking for advice again, but again Alfieri informs him that he cannot help him. After leaving Alfieri, Eddie phones the immigration office and reports Marco and Rodolpho as being illegal immigrants. Marco and Rodolpho are now living upstairs from Eddie's place, with Mrs Dondero. Beatrice tells Eddie that Catherine and Rodolpho will be married in the next week. Beatrice and Catherine try to make Eddie attend the wedding, but he strongly indicates that he has no intention of doing so. Eddie then warns Catherine that Marco and Rodolpho should move apartment, as she is already housing two illegal immigrants and so it will be dangerous for them. As Eddie is speaking, the Immigration police show up. Catherine tries to help Marco and Rodolpho escape, but she is unsuccessful. Marco spits in Eddie's face as he and Rodolpho are led out. | "Marco suddenly breaks from the group and dashes into the room and faces Eddie… Marco spits into Eddie's face." |
| **Denouement** | Alfieri pays bail for Marco and Rodolpho, but on the proviso that neither shall hurt Eddie in any way. Rodolpho will still marry Catherine and become an American, but Marco will be deported in a few weeks. On the wedding day, Eddie still refuses to attend and sits stubbornly in his chair.. Rodolpho appears and suggests that Eddie leaves, as Marco is approaching. Despite Rodolpho apologising and pleading with Eddie to leave, he refuses. Marco enters outside, and calls for Eddie. Eddie confronts Marco, and desperately attempts to justify himself in front of the community members who have gathered. The two begin to brawl… | "Eddie lunges with the knife. Marco grabs his arm, turning the blade Inward…' |

## DRAMATIC DEVICES

| | |
|---|---|
| **Dramatic Irony** | The audience is aware that Eddie has feelings for Catherine that are deeper than uncle/niece but she seems unaware. |
| **The 'Fourth Wall'** | Alfieri breaks the fourth wall when he speaks to the audience directly, at the beginning and end of scenes. |
| **Stage Directions** | The precise directions detailing Eddie 'laughing mockingly' with 'tears' adds to the power of the kissing scene. |
| **Dramatic Tension** | Eddie's mockery of Rodolpho in front of Marco builds dramatic tension leading up to the chair lifting moment. |

## THEMES

| | |
|---|---|
| **Naming Names** | Eddie (like Miller in real-life) is faced with the quandary of naming names of people who were committing unlawful acts. The repercussions for Eddie of naming names is drastic. |
| **Irrationality** | Throughout the play, Eddie's uncontrollable inner feelings (and subsequent jealousy) causes him to slowly lose control over his actions. Alfieri suggests that when humans act wholly on their inner emotions (like Eddie) they become irrational, and that instead they must settle for half, in other words restrain some of their inner emotions out of necessity. |
| **Community Law** | There is a frequent conflict between American law and Italian community law throughout the play. The community abides by Sicilian-Italian customs by protecting the illegal immigrants within their homes and seeking revenge where there has been injustice. |
| **Masculinity** | The idea of what makes a man, and rather what makes a man 'not right' is a persistent theme throughout the play. To Eddie, masculinity is the most important attribute a man can have. |

# ENGLISH KNOWLEDGE ORGANISER: JOURNEY'S END

YEAR: 9 UNIT: 3

## CONTEXT

| | | | |
|---|---|---|---|
| R. C. Sherriff (1920s-1960s) Playwright | Sherriff served as an officer in the 9th battalion of the East Surrey Regiment in the First World War, taking part in the fighting at Vimy Ridge and Loos. He was severely wounded at Passchendaele near Ypres in 1917. Journey's End is based on his experiences in the war. | Genre | Realism – some critics accused the play of having no structure, it was just a series of scenes depicting real life. This disorganised structure was thought by some to be a reflection of the chaos of war. |
| | | Socio-historical Contexts | 1928, 10 years after end of WW1, it was still fresh in people's minds. It is set in the dugout of a British trench, a claustrophobic and miserable environment which Sherriff himself experienced. Letters home were often censored to make sure vital information wasn't leaked. One of the main issues is Hibbert's neuralgia: men would often fake or create ailments to get sent home from the front. |

## ACT/SCENE SUMMARIES

In Act 1 we meet Osbourne, an older officer who defends the reputation and behaviour of Captain Stanhope. Naïve Lieutenant Raleigh arrives. He knew Stanhope at school and requested placement in his company. When they meet Stanhope is annoyed by Raleigh's presence but it is later revealed that he is scared that Raleigh will tell his sister Madge (with whom Stanhope is in a relationship) about Stanhope's drinking and she will be ashamed of him. He plans to censor the letter, but Osbourne disapproves and puts him to bed. In Act 2 we begin to see bonds forming between Osbourne and Raleigh as they discuss life before the war and how pointless the war itself seems. Stanhope announces that the Germans have planned an attack in two days time. He confiscates Raleigh's letter to censor it but finds it is full of praise. A 'day light raid' on a nearby German trench is planned and Osbourne and Raleigh selected to lead it. Hibbert complains to Stanhope about his neuralgia, which Stanhope thinks is faked and threatens to shoot him for cowardice. They admit to each other that they are both stressed and afraid. Act 3 begins with the raid; a German soldier is captured but Osbourne is killed. Raleigh is deeply distressed by this and argues with Stanhope. Later, Raleigh is caught by a shell and his spine is injured. Stanhope cares for him but Raleigh dies. As Stanhope leaves the dugout the trench is hit with a mortar and it collapses on Raleigh's body.

## MAIN CHARACTERS

| | | | |
|---|---|---|---|
| | **Captain Stanhope** – young captain of the company. Despite his age he is experienced and troubled by the war. He has become an alcoholic to deal with his issues; he is ashamed and afraid his girlfriend will find out. | | **Lieutenant Osbourne** – an older officer and ex-public school master. The other officers refer to him as 'Uncle'. He is trusted and respected by all, especially Stanhope who regards him as a close friend. |
| KQ: | "To forget, you little fool - to forget!... You think there's no limit to what a man can bear?" | KQ: | "You mustn't expect to find him quite the same." |
| | **Raleigh –** the youngest officer and newest to the trenches. He knows Stanhope from school and is thrilled to be in his company. Raleigh hero-worships Stanhope. | | **Hibbert** – by comparison, a more minor character but it is his 'neuralgia' which causes one of the main issues in the play. This angers Stanhope who feels Hibbert is just cowardly. |
| KQ: | "Good god, don't you understand? How can I sit down and eat that-when -when Osborne's lying out there." | KQ: | "I shall die of this pain if I don't go" |

## KEY SPELLINGS FOR THIS UNIT

| | | |
|---|---|---|
| dialogue | biographical context | climax |
| vernacular | socio-historical context | dramatic realism |
| gesture | literary context | stagecraft |
| intonation | moral context | playwright |
| delivery | political context | dramatic realism |
| intonation | exposition | stage direction |

## THEMES

Largely the play deals with the anticipation of 'Operation Michael', a German military offensive whereby they tried to break through the allied lines in northern France. It is this anticipation and claustrophobic setting which lead to some of the plays major conflicts. They often have discussions about the mundane which juxtaposes with the drama of the high stakes situation they are in.

**The main themes in the play link to the various elements of the plot: Fear, loss, death, and the impact of war on mental health**

# ENGLISH KNOWLEDGE ORGANISER: KINDERTRANSPORT BY DIANE SAMUELS

YEAR: 9 UNIT: 3

## CONTEXT

Diane Samuels (1960 > Playwright)

Diane Samuels was born into a Jewish family in Liverpool: "Three incidents led me to write *Kindertransport*. The first was a discussion with a close friend, in her late twenties and born into a comfortable, secure home, who described her struggle to deal with the guilt of survival. The second was the experience of another friend who, at her father's funeral, overheard her mother recalling her time at Auschwitz. Until that moment she had had no idea that her mother had been in a concentration camp. The third was the ashamed admission by a fifty five year old woman who felt rage towards her dead parents at their abandonment of her, even though it saved her life. "

| | |
|---|---|
| Genre | Historical drama that makes use of flashbacks to explore Eva's life in particular – as a daughter, foster child and then as a mother. Events are not real but influenced by takes of *Kinder*<br><br>Music is a recurring motif through the play – from the Ratcatcher's music to the mouth organ given to Eva, symbolising her Jewish tradition |
| Socio-historical Contexts | **WW2 and Kindertransport:** The play is set in 1939 and begins with Helga sending her daughter to England to escape the Nazi regime, fearing persecution. |

## ACT/SCENE SUMMARIES

*Kindertransport* is set in the mid-1980s of Evelyn's home in the suburbs of outer London or perhaps one of the Home Counties. All action takes place in the attic. **There are three acts in the play.**

**The play jumps back and forth between three time periods:**

1) Pre-war - in which Helga tries to prepare Eva to leave her home and parents;
2) War - in which Eva is living in England with Lil, adjusting to a new country, and desperately trying to get her parents out of Germany; and
3) Post-war, in which Eva (who has now changed her name to Evelyn) is an adult, has a daughter named Faith, and has intentionally wiped most of her past and her Jewishness out of existence.

## MAIN CHARACTERS

| | | | |
|---|---|---|---|
| Eva/ Evelyn | A nine-year-old German girl who is seventeen by the end of the play. She is sent by her parents to Manchester by the Kindertransport. She gradually comes to integrate into Mancunian society (becomes known as Evelyn) and deny her Jewish heritage. As a child she had nightmares of the Ratfänger (the Ratcatcher – a symbol of fear in the play) | Helga | Mother of Eva, a German Jew. At the start of the play she is in her thirties, by the end around forty. She is unable to escape war-torn Germany and in turn, Eva loses sight of hope and direction. After the war, she wants to take Eva with her to New York. |
| Lil Miller | Working-class English woman from Manchester; Eva's foster mother. Ages throughout the play from her early thirties to her eighties. | Faith | Faith – Evelyn's only child, twenty years old. She discovers papers of her mother's former life in their attic. |

## KEY SPELLINGS FOR THIS UNIT

| | | |
|---|---|---|
| dialogue | biographical context | climax |
| vernacular | socio-historical context | dramatic realism |
| gesture | literary context | stagecraft |
| intonation | moral context | playwright |
| delivery | political context | dramatic realism |
| intonation | exposition | stage direction |

*Kindertransport* primarily depicts the agony of separating a child from her parents and wrestles with the consequences of that choice, an act of sacrifice that also wreaks devastating results.

**The main themes are:**

Guilt Gratitude Loss New life Memory Identity Survival Family

# ENGLISH KNOWLEDGE ORGANISER: OF MICE AND MEN

**YEAR: 9 UNIT: 2**

## CONTEXT – 1937

**Racism**– Life was tough for black people living in America in the 1930s. Racism was still rampant, and there were not yet laws ruling against racial discrimination. White and black people were segregated at the time, and black people were considered 2nd class citizens. Black people often had to work harder for less money, often being given the 'dirty work' in their industry. The lynching of black people was common, sometimes for the most petty or unproven of crimes. The Jim Crow laws of post-1876 strongly reinforced racism.

**The Wall Street Crash and The Great Depression** –In the 1920s, the USA had been an enormously prosperous nation. However, in October 1929 millions of dollars were wiped out in an event that became known as the Wall Street Crash. This triggered the Great Depression across the country throughout most of the 1930s. In this time, between 12 and 15 million (one third of the population at the time) became unemployed, and many people lost their life savings as banks went bust. With no social support system, many families were left to face poverty.

**John Steinbeck** – John Steinbeck was an American author, who lived between 1902 and 1968. He was a Nobel Prize winner for Literature. Many of his 27 books (including 16 novels) have been considered as classics of Western literature. His works frequently explore the themes of fate and injustice, as experienced by everyman characters. Many take place in the Salinas Valley of California.

**The American Dream**– The American Dream is a national ethos of the United States, which declares that freedoms, prosperity, success, and social mobility, can all be achieved through hard work. It implies that society has few barriers preventing anyone from achieving their dreams, should they be willing to put in enough effort. and fuller for everyone."

**Gender Inequality**– Women had filled in for men when they had participated in the First World War. However, after the Great Depression, when many jobs were lost, women's jobs were often the first to go. Women were not trusted as they were seen to be 'taking jobs away from men.' With so few job prospects, many women consigned themselves to a life as a housewife. Curley's Wife provides an example of the difficulties for women at the time – she is forced into a marriage with a man she does not love to stave off poverty.

**Golden California** – To further compound the effects of the Great Depression, in the 1930s America received a number of severe dust storms, which greatly damaged the ecology and agriculture across much of the country. The only state that remained relatively unaffected was California on the west coast, which soon became known as 'Golden California.' Workers from all over the country descended upon the state in order to work for little pay as farm-hands. As men would often travel to do this alone.

## MAIN CHARCTERS

**George** – George is one of the two lead protagonists (with Lennie) in Of Mice and Men. Although he is occasionally short-tempered with Lennie, he is a loyal and caring friend. George could be described as an idealist, as he harbours dreams of one day owning his own farm and land. George is relatively smart, thinking and acting sharply in difficult situations.
**George Quote: "Guys like us…the loneliest guys in the world "**

**Lennie**– Lennie is a kind and simple character, who possesses enormous physical strength. At both the beginning and end of the novel he likes to pet soft things, is totally devoted to George, and is an unintentional threat to both himself and others. Lennie's huge size makes him a target of others – principally Curley. Lennie dreams of tending the rabbits on his and George's own farm.
**Lennie Quote: "I don' like this place, George."**

**Curley**– Curley is the boss's son, and is perhaps the chief antagonist throughout the novella. He is confrontational, mean-spirited and violent, and to back up his threats he is rumoured to be a former prizefighter. Curley tries to compensate for this small stature by picking fights with larger men – such as Lennie. As a recently married man, Curley is extremely paranoid, jealous and controlling.
**Curley Quote: "You the guys the old man was waitin' for?"**

**Curley's Wife –** Curley's Wife is initially introduced to the reader as a 'tramp', a 'rat-trap' and a 'tart', such are the views towards women on the farm. However, she emerges as one of the most complex characters in the text, revealing openly that she is disappointed with her life, that 'Curley ain't a nice fella' and that she is lonely. Eventually her longing for attention becomes her downfall.
**CW Quote: "I tell ya I could of went with shows"**

**Crooks** – Crooks is the lively and quick-witted stable-buck, who is named so because of his crooked back. As with many of the other characters in the novella, Crooks openly admits that he is lonely – however in his case this is caused by the racial discrimination and separation that he suffers. Crooks loneliness can manifest itself into cruelty towards those who are even weaker, such as when he taunts Lennie. More than anything else, Crooks seems to want to belong.
**Crooks Quote: "It's just bein' with another guy. That's all."**

**Candy** – Candy is an old odd-job worker who lives on the farm, who only has one hand after an accident. Candy worries that one day the boss will declare him unfit to work and he will be cast aside, left to die in poverty. His old, smelly dog (that is shot by the other ranch workers) is a harsh reinforcement of this belief. Candy is revitalised as he begins to share in George and Lennie's dream of owning their own place.
**Candy Quote: "Had him since he was a pup"**

## PLOT SUMMARY

| | | |
|---|---|---|
| Chapter 1 | The story opens with a vivid description of the wooded area around the Salinas River in California. Two men approach: George and Lennie. As they talk more, it becomes clear that Lennie has a mild mental disability, and that George looks out for him. George catches Lennie petting a dead mouse and takes it off him, angrily. Lennie swears that he didn't kill it, although it becomes clear that Lennie's enormous strength means that he kills things unintentionally. George reminds Lennie that they are going to work on a ranch and he needs to behave. The two eat beans for dinner, with George losing his temper with Lennie for persistently asking for ketchup. He states that he would get along much better without Lennie. He then feels guilty about losing his cool, and reminds Lennie of their dream: one day, they are going to own their own farm. They then settle for the night. | "With us it ain't like that. We got a future. We got somebody to talk to that gives a damn about us." |
| Chapter 2 | The two men arrive at the ranch, and after being scolded by their new boss, are assigned to a picking team led by Slim. They meet Candy, and also Curley, who immediately becomes aggressive towards Lennie. After he leaves, Lennie tells George to stay away from Curley. Curley's Wife then appears at the bunk, who Lennie finds 'purty' and who flirts with them. George has to tell Lennie to stay away from her. Slim then enters, who is clearly admired by all. He stokes up a friendship with George and Lennie. | "She smiled archly and twitched her body. "Nobody can't blame a person for lookin'," she said." |
| Chapter 3 | Slim gives one of his new pups to Lennie. George tells Slim of how they got chased out of the last town – Lennie grabbed hold of a girl's red dress, and wouldn't let go. Carlson begs Candy to let him shoot his old, stinking dog, to which Candy reluctantly agrees. After an awkward silence, the gunshot is heard. The others follow, hoping to see a fight. Thinking they are left alone, George discusses the dream again to Lennie. Candy overhears, and swears to devote his life savings to it if he can be in. The other men return, Curley apologising to Slim for false accusations. Being mocked by the others, Curley turns his attention on Lennie, beating him. Lennie only fights back when George tells him to, severely crushing Curley's hand. Curley is warned by Slim not to get them fired. | "Curley's fist was swinging when Lennie reached for it. The next minute Curley was flopping like a fish on a line." |
| Chapter 4 | Crooks sits in his room alone. Lennie soon wanders in, lonely as the other men have gone out to town. Crooks initially tells him to go away, saying that he (as a black man) is not allowed in the others' bunk, and so they should not be allowed in his. Lennie persists, and eventually Crooks lets him in. Soon enough, Lennie begins to babble about his and George's dream. Crooks speaks of his own loneliness, before then taunting Lennie by suggesting that George might never return. He only relents when Lennie grows aggressive. Candy enters and begins to speak again of the men's dream. Curley's Wife interrupts, and taunts the men about being 'the weak ones' left behind. She speaks of her own loneliness. Crooks asks her to leave, but she threatens that she could easily have him lynched if he says too much more. The other men then return and Curley's Wife leaves. | "I ain't wanted in the bunk house, and you ain't wanted in my room." "Why ain't you wanted?" Lennie asked. "'Cause I'm black…" |
| Chapter 5 | Lennie sits in the barn, stroking his dead puppy, questioning why it died. He decides to try and hide the puppy but then gets angry with it for dying and hurls it across the room. Curley's Wife enters, reassuring him that it is safe to talk to her. She speaks of her loneliness, and her past dreams. She explains that she doesn't like Curley. She asks Lennie to stroke her hair, but he quickly becomes too excited and holds on too tight… | "And when they were gone, Candy squatted down in the hay and watched the face of Curley's wife. "Poor bastard," he said softly." |
| Chapter 6 | Steinbeck starts the last chapter as he starts the first, by describing in some depth the riverside scene from the opening. Lennie appears, anxious, but also proud that he has remembered the place that he should come to if he finds himself in trouble. He has two visions: of his Aunt Clara scolding him for getting into trouble, and a giant rabbit telling him that George will leave him. George appears, seeming unusually quiet. George tells Lennie that he is not made at him, comforting Lennie. Lennie asks him to talk about the dream again, which George does. As Lennie sits, listening to the story, Geroge has a terrible decision to make…. | "Lennie said, "I thought you was mad at me, George." "No," said George. "No, Lennie, I ain't mad. I never been mad," |

## THE TITLE

**The title is derived from a poem by the 18th Century Scottish poet: Robert Burns.**
In the poem, a mouse carefully builds a nest in a wheatfield, yet it is destroyed when the field is ploughed. The mouse had looked forward to a comfortable and prosperous future, only to have its dreams crushed. It is written in a Scottish dialect:
*The best laid schemes o' mice an' me/Gang aft a-gley,/An' lea'e us nought but grief an' pain/For promised joy!*

## THEMES

| | |
|---|---|
| **Dreams** | Each character in the text has their own dreams that they live and work for: George, Lennie, and Candy share in the dream of owning their own place. Curley's dream is to be respected by others, whilst Curley's Wife's dream is to be a famous actress. Crooks simply longs to be accepted and treated equally. None of the characters make their dream, showing the impossibility of the American Dream. |
| **Loneliness** | All of the characters, in some sense, experience loneliness, except for Lennie (who has George). Curley's Wife (isolated because she is a woman) and Crooks (isolated due to his colour) bemoan their lonely existences at any given opportunity, whilst all of the other men on the ranches live solitary lives as farm-hands, without families. At the end of the text, George is lonely too. |
| **Inequality** | Of Mice and Men was set in a time in which the laws favoured white people, and men held far more rights than women. This is evident through the characters of Crooks and Curley's Wife. Similarly, life at the time could be deemed more selfish and predatory, as the strong do not care for (and many actively attack) the week. Other characters' behaviour towards Candy and Lennie is evidence of this. |

# ENGLISH KNOWLEDGE ORGANISER: OUR DAY OUT

YEAR: 9 UNIT: 3

## CONTEXT

| | | | |
|---|---|---|---|
| Playwright  | Willy Russell was born in 1947 into a working-class family near to Liverpool. He left school at 15 without academic qualifications and began work. Dissatisfied with his job, he went to university and then became a teacher at a school in Liverpool.<br><br>Russell wrote 'Our Day Out' in 1977 which was based on his experience while teaching at Shorefields School in Liverpool. | Genre | **COMEDY/ REALISM/ SATIRE**: Russell's plays and novels are about ordinary working class people His collection of work is funny and moving with a comic touch |
| | | Socio-historical Contexts | Escalating economic decline in the 1970s meant many had little or no income, which divided the rich and poor. This is social exclusion where people do not have access to adequate health care or education. |
| | | Political context | Margaret Thatcher became the Conservative Prime Minister in 1979. One of Thatcher's central political beliefs was that success came to those who chose to work hard.<br><br>Russell contradicts this view as he shows that the pupils in the class are already intended for menial, low paid jobs and have effectively been written off by society.<br><br>Willy Russell would have seen the poverty and lack of aspiration first hand in his home city. Liverpool's famous docks, a traditional source of local employment, were allowed to run down and thousands of households fell into poverty; crime levels increased; housing was allowed to deteriorate and drug use became more common. |

## ACT/SCENE SUMMARIES

The plot centres on a school trip to Conwy Castle in North Wales. Mrs. Kay teaches a class for illiterate children, called the "Progress Class". The whole class - along with Digga and Reilly, the slightly older pupils who used to be in the Progress Class - are taken on a coach trip. The headmaster asks deputy head, Mr Briggs, to go on the trip as an extra member of staff, emphasising his mistrust of the liberal values of Mrs Kay.

On the way, the coach stops at a roadside cafe with a snack shop, where the students take advantage of the storekeepers' confusion to shoplift sweets and snacks, while the teachers are unaware. It makes a second stop at the zoo, where the students enjoy the animals so much that they try to steal most of them. The zoo attendant discovers this just in time before the coach pulls out, and makes them return the animals.

When the coach finally reaches the castle, the students race around exploring the grounds, cliffs and beach. Soon it's time to leave, but one of the best-behaved students, Carol, is missing. A search ensues and Mr. Briggs finally finds Carol at the cliff edge. She is depressed because she doesn't want to return to the bad conditions at home. and becomes so upset that she threatens to jump off. Mr. Briggs shows a more understanding side as he convinces Carol to re-join the rest of the group.

At the suggestion of Mr Briggs, the coach makes one more stop at a fairground where the students have some more fun before returning home. Mr. Briggs joins the students on some of the rides, wears a funny hat, and joins in with the sing-song on the journey home, all of which is photographed by Mrs. Kay. Mr. Briggs offers to develop the photos but he secretly unravels the undeveloped film, exposing and ruining the photos.

## MAIN CHARACTERS

| | |
|---|---|
| Mrs Kay | A kind-hearted and generous teacher of the progress class |
| Mr Briggs | The deputy-head of the school who believes in very strict discipline |
| Colin/ Susan | Young teachers who are helping support those on the trip |
| Carol | A thoughtful student who seems unhappy with her life in Liverpool |
| Reilley/ Digga | Older students who used to be in the progress class; a bad influence on the others |
| Lindo | A girl with a bad attitude, she has a crush on Colin and clashes with Mr Briggs |
| Andrews | A young student with a difficult home life |

## THEMES

Social class Poverty Conflict Morality
Nature vs nurture Education Stereotyping
Prejudice Pride Relationships

## KEY SPELLINGS FOR THIS UNIT

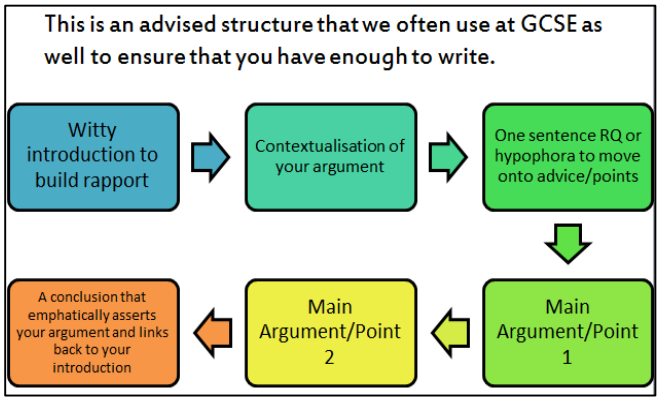
vernacular gesture intonation delivery pathos
biographical context socio-political context literary context
moral context political context exposition climax
dramatic realism stagecraft playwright stage direction

# ENGLISH KNOWLEDGE ORGANISER: SPEECH WRITING AND CONFLICT POETRY

YEAR: 9 UNIT: 1

## HOW TO STRUCTURE SPEECH WRITING

This is an advised structure that we often use at GCSE as well to ensure that you have enough to write.




## ADVANCED SENTENCE STRUCTURES AND PATTERNS

| | |
|---|---|
| *litotes | Begin with the negative: use 'Nothing…' or 'Never…' for example |
| *hypohora | A rhetorical question that is answered |
| *diacope | Repeated use of the same word within/across sentences |
| *isocolon | Series of phrases or sentences structured in the same way: *Keep fit, keep active, keep healthy!* |
| *epizeuxis | The repetition of a word or phrase in immediate succession: *Run, run, run!* |
| *anaphora | Using a phrase to begin more than one clause of sentence, such as 'I Have a dream…' in Martin Luther King's famous speech |
| *epistrophe | The repetition of a word at the end of successive clauses or sentences |

## ADVANCED PUNCTUATION

| | |
|---|---|
| *semi-colon | **Used to replace 'and' in a compound sentence:** *Like an angel, the sun shone; there wasn't a cloud to be seen.* |
| *colon | **Means 'Here's my evidence' and follows a simple statement:** *Majestically, the princess created a stir: she was beautiful!* |
| *dash | **Single: Used to emphasise a description at the end of a sentence:** *Happily, the sun shone – its rays reached across the whole land.* **Double: Used to emphasise a description with further emphasis:** *The sun's rays – its burning, radiant rays – shone across the kingdom.* |

## LANGUAGE TECHNIQUES IN CONFLICT POETRY

| | |
|---|---|
| simile | Phrase with 'as' or 'like' to suggest similarity |
| metaphor | Suggesting something is something else |
| *motif | A metaphor used across a piece of writing |
| personification | Given an inanimate object human qualities like movement or emotion |
| alliteration | Repetition of consonant sounds |
| assonance | Repetition of vowel sounds |
| juxtaposition<br>parallel | contrast<br>similarity |
| pathetic fallacy | Where the weather or setting reflects a mood |
| semantic field | A group of closely-related words |

## KEY SPELLINGS FOR THIS SCHEME OF WORK – POETRY

| | | | | |
|---|---|---|---|---|
| metre | refrain | extended metaphor | figurative | tone |
| rhythm | anaphora | symbolism | literal | cynicism |
| lineation | lyric | litotes | fragmented | criticism |
| mimicry | irregular | motif | irony | purpose |

# ENGLISH KNOWLEDGE ORGANISER: TO KILL A MOCKINGBIRD

YEAR: 9 UNIT: 2

## CONTEXT

| | | | |
|---|---|---|---|
| Harper Lee | Lee was born in 1926 in Alabama. She was friends with Truman Capote (a successful author) who she based the character of Dill. The novel was written in 1960 but set in the 1930s. | The Scottboro Trials | In 1931, when Lee was five, nine young black men were accused of raping two white women near Scottsboro, Alabama. After a series of lengthy, highly publicized, and often bitter trials, five of the nine men were sentenced to long prison terms. It was suspected that the women who had accused the men were lying. |
| The Southern Gothic | The Southern Gothic, is a genre that became prominent in the twentieth century and furthers the Gothic tradition of exploring the macabre violence lurking beneath the apparently tranquil surface of everyday reality. This creates tensions and vulnerability. | | |

## SYNOPSIS

Scout Finch lives with her brother, Jem, and their father, Atticus, in the sleepy Alabama town of Maycomb. One summer, Jem and Scout befriend a boy named Dill, who has come to live in their neighborhood for the summer, and the trio acts out stories together. Eventually, Dill becomes fascinated with the spooky house on their street called the Radley Place. The house is owned by Mr. Nathan Radley, whose brother, Arthur (nicknamed Boo), has lived there for years without venturing outside. Atticus puts a stop to their antics, urging the children to try to see life from another person's perspective before making judgments.

To the consternation of Maycomb's racist white community, Atticus agrees to defend a black man named Tom Robinson, who has been accused of raping a white woman. Because of Atticus's decision, Jem and Scout are subjected to abuse from other children. Tom Robinson's trial begins, and when the accused man is placed in the local jail, a mob gathers to lynch him. At the trial itself, Atticus provides clear evidence that the accusers, Mayella Ewell and her father, Bob, are lying; however, the all-white jury convicts him.

Despite the verdict, Bob Ewell feels that Atticus and the judge have made a fool out of him, and he vows revenge; he finally attacks Jem and Scout as they walk home from a Halloween party. Boo Radley intervenes, however, saving the children and stabbing Ewell fatally.

## MAIN CHARACTERS

| | | | |
|---|---|---|---|
| Scout | The narrator and protagonist of the story, Scout has a combative streak and a basic faith in the goodness of people. | Atticus | When Atticus agrees to defend Tom Robinson, he exposes himself and his family to the anger of the white community. With his strongly held convictions, wisdom, and empathy, Atticus functions as the novel's moral backbone. |
| Jem | Jem's ideals are shaken badly by the evil and injustice that he perceives during the trial of Tom Robinson. | Boo Radley | A recluse who never sets foot outside his house, Boo dominates the imaginations of Jem, Scout, and Dill. He is a powerful symbol of goodness swathed in an initial shroud of creepiness |

## KEY SPELLINGS FOR THIS UNIT

| | | |
|---|---|---|
| narrator | cyclical structure | political (context) |
| omniscient narration | foreshadowing | motifs |
| limited narration | biographical (context) | Themes/thematic |
| retrospective narration | socio-historical (context) | exposition |
| symbolism | literary (context) | climax |
| characterisation | moral (context) | denouement |

## IMPORTANT QUOTES

- "Shoot all the blue jays you want, if you can hit 'em, but remember it's a sin to kill a mockingbird."
- "You never really understand a person until you consider things from his point of view … until you climb into his skin and walk around in it."
- "The one thing that doesn't abide by majority rule is a person's conscience."
- "I wanted you to see what real courage is, instead of getting the idea that courage is a man with a gun in his hand."

| | | | |
|---|---|---|---|
| SYMBOLISM | **Mockingbirds:** innocent creatures (like Boo, Tom, the rabid dog and the children | **Miss Maudie's garden:** full of flowers to keep out the weeds (good and bad) | **Boo:** A figure of fear but who is ultimately innocent |
| NARRATION | The novel is narrated by an older Scout reflecting on her childhood through a retrospective narration; it is narrate in the first person. | | |
| THEMES | The coexistence of good and evil; the importance of moral education; social class; racism; justice; growing-up; compassion | | |

# ENGLISH KNOWLEDGE ORGANISER: TREASURE ISLAND

YEAR: 9 UNIT: 2

## CONTEXT

| | | | |
|---|---|---|---|
| Robert Louis Stevenson | Robert Louis Stevenson was born in 1850 in Edinburgh, Scotland. *Treasure Island* features a conflict between respectful gentlemen and carefree pirates. In his works, *like in Dr. Jekyll and Mr. Hyde*, the good and the bad are always bound to each other: the dastardly pirate Long John Silver remarks how similar he is to the novel's upstanding young hero, Jim Hawkins. Stevenson also travelled to California and eventually moved to Samoa, in the Pacific Ocean, to try to recover from illness. He died here in 1894. | Seafaring and Exploration | With a tradition of seafaring, Britain was well-regarded as a maritime nation. It was a time of exploration with ships exploring the east/America etc. |
| | | Piracy | The golden age of pirates was 1650-1680 and piracy often occurred in the Caribbean and Pacific Oceans. There were many real life pirates e.g. Blackbeard, a notorious pirate probably born in Bristol and who died in battle. Colonial powers (Britain, France, Spain) were trying to expand their colonies by sailing around the world and trading valuables, encountering pirates frequently. |

## CHAPTER SUMMARIES

**PART I—"THE OLD BUCCANEER"** An old sailor "Billy" Bones—lodges at the Admiral Benbow Inn, paying Jim Hawkins, a few pennies to keep a lookout for a one-legged "*seafaring man*". When Billy dies; Jim finds a sea chest, containing money, a journal, and a map. He and Dr.Livesey decide on an expedition to find buried treasure.
**PART II—"THE SEA COOK"** Jim and friends travel to Bristol to find a ship (Hispaniola) and crew for the journey. We are introduced to "Long John" Silver and Captain Smollett. During the voyage Jim—concealed in an apple barrel—overhears Silver planning a mutiny.
**PART III—"MY SHORE ADVENTURE"** They arrive at the island and Jim sneaks ashore. While exploring he overhears Silver plotting and murdering several crewmen. Jim meets Ben Gunn who was marooned on the island by Silver and he agrees to help Jim.
**PART IV—"THE STOCKADE"** Jim's friends have abandoned ship and come ashore to occupy an old stockade. There is a battle for the stockade with the pirates. Jim finds the stockade and joins them. The next morning, Silver appears under a flag of truce. Jim and friends refuse to hand over the map and Silver threatens attack, another battle begins.
**PART V—"MY SEA ADVENTURE"** After the battle several of Jim's friends are either killed or wounded. Jim escapes and finds the pirate ship abandoned, which he then takes control of. Once on board he realises a pirate still remains. They reach a truce but in the end the pirate betrays Jim. There is a battle which Jim wins. Jim returns to the stockade to find Silver has taken it over.
**PART VI—"CAPTAIN SILVER"** Silver and the others argue about whether to kill Jim, Silver finds out that Jim knows the whereabouts of the ship. Silver and the others set out with the map, taking Jim along as hostage. On their way, they are ambushed

## MAIN CHARACTERS

| | | | |
|---|---|---|---|
| Jim Hawkins | The first-person narrator of almost the entire novel. Jim is the son of an innkeeper near Bristol, England, and is probably in his early teens. He is eager and enthusiastic to go to sea and hunt for treasure. | Dr. Livesey | The local doctor. Dr. Livesey is wise and practical. Livesey exhibits common sense and rational thought while on the island, and his idea to send Ben to spook the pirates reveals a deep understanding of humanity. |
| Long John Silver | The cook on the voyage to Treasure Island. Silver is the secret ringleader of the pirate band. His physical and emotional strength is impressive. Silver is deceitful and disloyal. | Billy Bones | The old seaman who resides at Jim's parents' inn. Billy, who used to be a member of Silver's crew, is surly and rude. He hires Jim to be on the lookout for a one-legged man, thus involving the young Jim in the pirate life. |

## KEY SPELLINGS FOR THIS UNIT

| | | |
|---|---|---|
| narrator | cyclical structure | political (context) |
| omniscient narration | foreshadowing | motifs |
| limited narration | biographical (context) | Themes/thematic |
| retrospective narration | socio-historical (context) | exposition |
| symbolism | literary (context) | climax |
| characterisation | moral (context) | denouement |

## THEMES

The search for heroic role models; the futility of desire; the lack of adventure in the modern age; the hunger for adventure; the vanity of pursuing wealth; the process of growing up and proving oneself.

## SYMBOLISM

| | | |
|---|---|---|
| The coracle: the small boy and boat win | The treasure map: Desire and adventure | Rum: Violence and reckless behaviour |

# Year 9 Geography
# Unit 2: Contemporary Environmental Issues

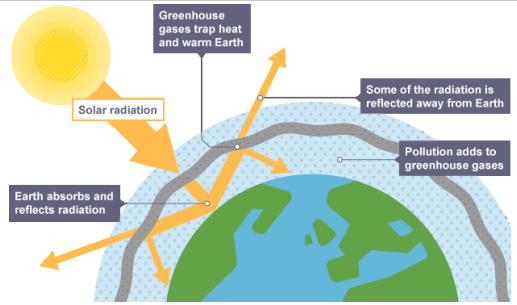
**Global warming causes**: Deforestation, burning fossil fuels, farming, landfills

**Negative impacts** of global warming around the world:

- sea level rise will affect 80 million people
- tropical storms will increase in magnitude (strength)
- diseases such as malaria increase,

There are also some **positive impacts** of a warmer climate:

- energy consumption may decrease due to a warmer climate
- longer growing season for agriculture
- frozen regions such as Canada may be able to grow crops




As our plastic consumption is set to skyrocket, it's clear that urgent action is needed. We dump eight million tonnes of plastic into the sea every year. It's killing and harming marine life.

- Turtles eat plastic bags mistaking them for jellyfish
- Seabirds are found with their stomachs full of plastic items
- Plastic debris can get lodged in coral and affect the health of reefs
- Microplastics are consumed by animals like plankton, passing the problem back up the food chain – to us.

Solutions: reuse, reduce, recycle. Stop the use of plastic straws, choose to use reusable cups, use a bag for life.

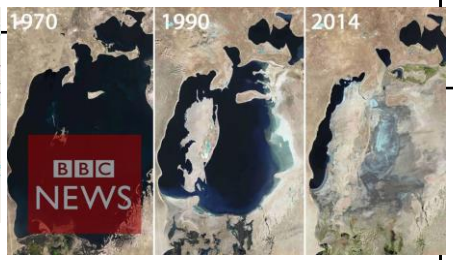
**Clothing Industry**

Impact:

- Toxic chemicals (e.g. lead and arsenic) are released into rivers
- Water from rivers is diverted into cotton-producing farms
- Loss of tourists to the Aral Sea
- Loss of biodiversity in and around the Aral Sea

Solution:

Eco-fashion industry: swap clothes with friends, reduce the number of new clothes we buy, consider where the clothes you buy were made.


**How to achieve environmental sustainability:**

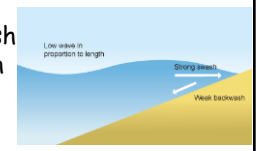
1. Choose to reuse, reduce and recycle your waste.
2. Reduce the amount of electricity you use.
3. Choose to walk/cycle/use public transport instead of travelling by car.
4. Eat less meat.
5. Buy new clothes less often. Try to find out where and how the clothes you do buy were produced.
6. Plant a tree or donate to plant a tree.
7. Pass the message on!



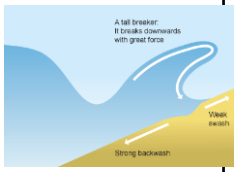
| | Definition |
|---|---|
| Global warming | The gradual increase in the overall temperature of the earth's atmosphere |
| Climate Change | A long-term change in the earth's climate, especially a change due to an increase in the average atmospheric temperature. |
| Sustainable Development | Development that meets the needs of the present without limiting the ability of future generations to meet their own needs. |
| Greenhouse gases | A gas that contributes to the greenhouse effect by absorbing infrared radiation. |
| Fossil Fuels | A natural fuel such as coal or gas, formed in the geological past from the remains of living organisms. |

# Year 9 Geography
# Unit 3: Coastal Landscapes

**Constructive wave**
Powerful swash
Weaker backwash
Long wave length
Low wave height
Gentle beach




**Destructive wave**
Weak swash
Strong backwash
Short wave length
High wave height
Steep beach

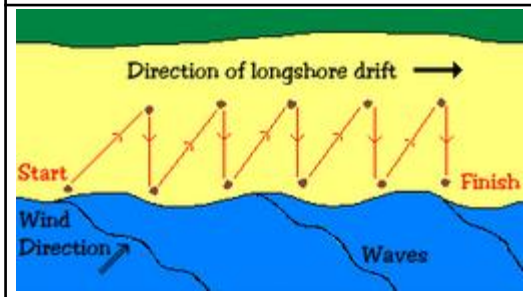



**Types of Erosion:**
- Attrition – when rocks/pebbles collide and chip away
- Abrasion – the sandpapering effect of the material rubbing against a cliff face
- Solution – when rock dissolves due to a reaction between the rock and sea
- Hydraulic Action – when water is forced into cracks into the cliff face, compressing air inside which in turn makes the crack wider.

**Mass Movement** – the downward movement of the land due to the pull of gravity. This usually occurs when the ground is saturated by water, is unstable or during a storm surge.

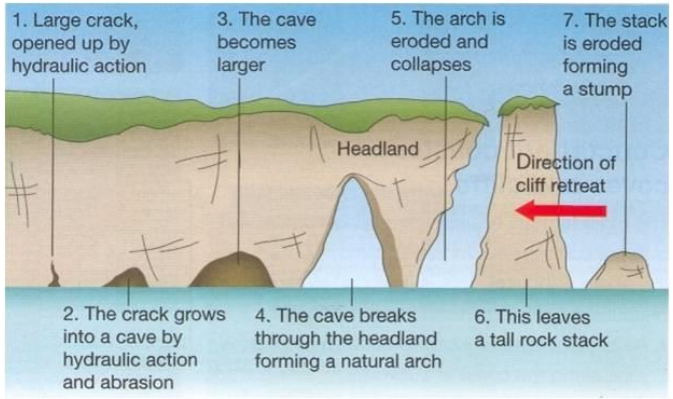
**Transportation:**
Saltation – the bouncing motion of pebbles
Traction – the rolling motion of rocks
Solution – the dissolved load within the body of water
Suspension – fine sediment is suspended within the flow of the water

**Deposition**
When the flow of the water falls and so material is dropped off along the coastline.

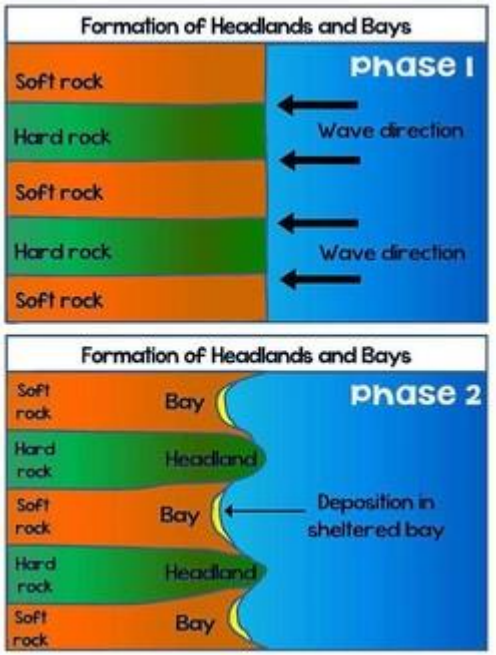



**Longshore Drift**
This is the zigzag motion of sediment. Sediment is pushed onto the beach at an angle and returns to sea perpendicular to the coastline due to gravity. When the coastline changes direction a spit will form.

**Erosion of a headland**



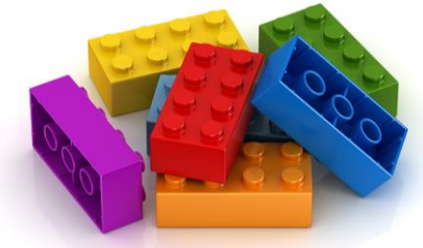

**Formation of a Bay**




KEYWORDS


| | Definition |
|---|---|
| **Erosion** | The wearing away and removal of material by a moving force, such as a breaking wave. |
| **Transportation** | The movement of eroded material. The size and weight of the material affects how it moves. |
| **Deposition** | Occurs when material being transported by the sea is dropped due to the sea losing energy. |
| **Soft Engineering** | Managing erosion by working with natural processes to help restore beaches and coastal ecosystems. |
| **Hard Engineering** | A coastal management technique used to protect coasts by absorbing the energy of waves, preventing erosion and flooding. They are highly visible man-made structures used to stop or disrupt natural processes. |

# Wellington History
# Year 9 HT 3 Knowledge Organiser
## Why did people vote for Adolf Hitler?
### How did life change for Germans under Nazi rule?



- ✓ What and why? You will learn why the German people voted Hitler into power and how he was able to establish dictatorial powers.
- ○ Stop, think and link: Power and Democracy and WW1
- ○ Cause and Consequence assessment – Hitler's rise to power
- ❖ **Want to explore further?**

**Series:** Hitler's Circle of Evil
**Film:** Hitler The Rise of Evil
**Film:** Sophie Scholl: The Final Days

https://www.britannica.com/biography/Adolf-Hitler/Rise-to-power

https://www.bbc.co.uk/bitesize/guides/z3bp82p/revision/1

https://www.bbc.co.uk/bitesize/topics/zsfbng8

**Key Questions**

- How did the peace process work after WW1?
- What was the Treaty of Versailles and how did it affect Germany?
- How did the Wall St Crash and the Great Depression impact Germany and help Hitler gain power?
- How did Hitler consolidate his power and turn Germany into a dictatorship?
- What was life like for Germans living under Hitler's rule?
- Why was Hitler not stopped by the allies before World War Two?

**Key events and Key People**

Nov 11th 1919: WW1 ends
June 28th 1919: Treaty of Versailles signed
Nov 8th 1923: The Munich Beer Hall Putsch
Sept – Nov 1929: The Wall St Crash
January 30th 1933: Hitler becomes Chancellor
June 30th 1934: The Night of the Long Knives
August 2nd 1934: Death of President Hindenburg
March 12th 1938: Hitler's troops march into Austria
March 15th 1939: Hitler invades Czechoslovakia
Sept 1st 1939: Hitler invades Poland and begins World War Two

Keywords

**Armistice:** an agreement made by opposing sides in a war to stop fighting for a certain time; a truce

**Tyrant:** a cruel and oppressive ruler

**Dictatorship:** form of government in which one person or a small group possesses absolute power

**Democracy:** government by the people; especially : rule of the majority

**Nationalism:** identification with one's own nation and support for its interests

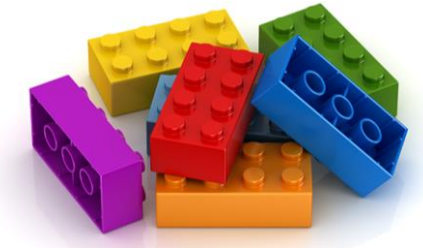
**Purge:** to remove (a group of people considered undesirable) from an organization or place in an abrupt or violent way

**Police state:** a country in which the government uses the police to severely limit people's freedom

**Great Depression:** the financial and industrial slump of 1929 and subsequent years.

**Hyperinflation:** monetary inflation occurring at a very high rate.

# Wellington History
# Year 9 HT 4 Knowledge Organiser
## Why was the Second World War so significant?
## Who was to blame for the Holocaust?



- ✓ What and why? You will learn about the damage war can create to millions of lives.
- ○ Stop, think and link: How would the end of WWI have helped to cause WWII?
- ❖ Significance Assessment – Why was the dropping of the Atomic Bombs significant?

❖ **Want to explore further?**

Book: Woeful Second World War by Terry Deary
Book: My Story Wartime Princess by Valerie Wilding
Book: My Secret War Diary by Marcia Williams
Website: https://www.bbc.co.uk/teach/class-clips-video/history-ks2-world-war-two/zjnyscw
Website:

**Key Questions**

- How did Hitler's foreign policy cause World War 2?
- What was it like living in Britain during World War 2?
- What was it like living in Germany during World War 2?
- Was the Second World War a global war?
- What was Hitler's Final Solution?
- Who was to blame for the Holocaust?
- Why did the war end?

**Key events and Key People**

**1939** Hitler invades Poland on 1 September. Britain and France declare war on Germany two days later.
**1940** German 'Blitzkrieg' overwhelms Belgium, Holland and France.
**1941** Hitler begins Operation Barbarossa - the invasion of Russia. Japan attacks Pearl Harbour, and the US enters the war.
**1942** Mass murder of Jewish people at Auschwitz and the Extermination camps begins.
**1943** Surrender at Stalingrad marks Germany's first major defeat in Russia.
**1944** Soviet offensive gathers pace in Eastern Europe. German troops begin retreats. D Day: The Allied invasion of France. Paris is liberated in August.
**1945** Russians reach Berlin: Hitler commits suicide and Germany surrenders on 7 May. After atomic bombs are dropped on Hiroshima and Nagasaki, Japan surrenders on 14 August.

**Keywords**

**Air Raid**
An attack in which bombs are dropped from aircraft
**Axis Powers**
Name given to Germany, Italy, Japan
**Allied Powers**
Name given to Britain, France, USA and USSR
**Blitz**
Bombing Raid
**Blitzkreig**
Lightning War
**Civilians**
Non-Combatants in war
**Concentration Camps**
Large prison camps for confinement and persecution of prisoners
**D-Day**
Allied attack on Western Europe
**Evacuation**
Leaving your home
**Holocaust**
Mass murder of Jews in occupied Europe
**Liberate**
To set free
**Rationing**
Fixed amounts of food and goods

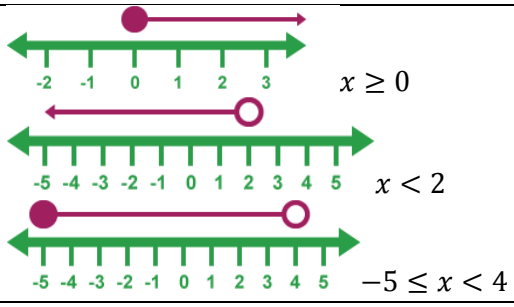
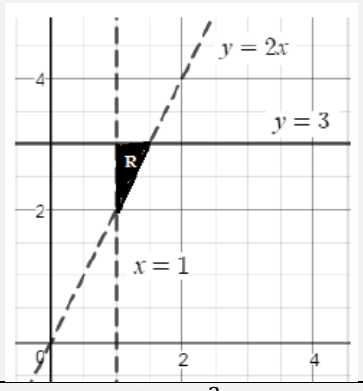
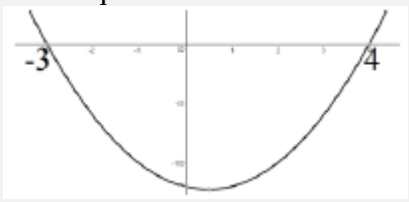
Wellington School

# Mathematics

## Year 9: Equations

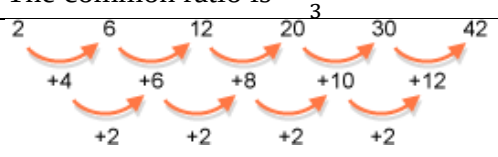
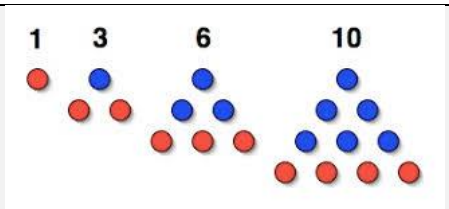
| Topic/Skill | Definition/Tips | Example |
|---|---|---|
| 1. Solve | To find the **answer**/value of something<br><br>**Use inverse operations** on both sides of the equation (balancing method) until you find the value for the letter. | Solve $2x - 3 = 7$<br><br>Add 3 on both sides<br>$2x = 10$<br>Divide by 2 on both sides<br>$x = 5$<br><br>Solve 3x + 1 = 5x – 3<br><br>Subtract 3x (the smallest amount of x) from both sides<br><br>1 = 2x – 3<br>Add 3 on both sides<br>4 = 2x<br>Divide by 2 on both sides<br>2 = x |
| 2. Inverse | **Opposite** | The inverse of addition is subtraction. The inverse of multiplication is division. |
| 3. Rearranging Formulae | **Use inverse operations** on both sides of the formula (balancing method) until you find the expression for the letter. | Make x the subject of $y = \frac{2x-1}{z}$<br><br>Multiply both sides by z<br>$yz = 2x - 1$<br>Add 1 to both sides<br>$yz + 1 = 2x$<br>Divide by 2 on both sides<br>$\frac{yz+1}{2} = x$<br>We now have x as the subject. |
| 4. Writing Formulae | **Substitute letters for words** in the question. | Bob charges £3 per window and a £5 call out charge.<br><br>$C = 3N + 5$<br><br>Where N=number of windows and C=cost |
| 5. Substitution | **Replace letters with numbers**.<br><br>Be careful of $5x^2$. You need to square first, then multiply by 5. | $a = 3, b = 2\ and\ c = 5$. Find:<br>1. $2a = 2 \times 3 = 6$<br>2. $3a - 2b = 3 \times 3 - 2 \times 2 = 5$<br>3. $7b^2 - 5 = 7 \times 2^2 - 5 = 23$ |

# Year 9: Inequalities

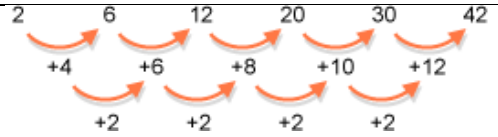
| Topic/Skill | Definition/Tips | Example |
|---|---|---|
| 1. Inequality | An inequality says that two values are **not equal**.<br><br>$a \neq b$ means that a is not equal to b. | $7 \neq 3$<br><br>$x \neq 0$ |
| 2. Inequality symbols | $x > 2$ means **x is greater than 2**<br>$x < 3$ means **x is less than 3**<br>$x \geq 1$ means **x is greater than or equal to 1**<br>$x \leq 6$ means **x is less than or equal to 6** | State the integers that satisfy<br>$-2 < x \leq 4$.<br><br>-1, 0, 1, 2, 3, 4 |
| 3. Inequalities on a Number Line | Inequalities can be shown on a number line.<br><br>**Open circles** are used for numbers that are **less than or greater than** ($< or >$)<br><br>**Closed circles** are used for numbers that are **less than or equal or greater than or equal** ($\leq or \geq$) |  |
| 4. Solving Inequalities | To find the range of answers/values<br><br>Solve like an equation**. Use inverse operations** on both sides of the equation (balancing method) until the unknown is on its own. | Solve $2x - 3 \leq 7$<br><br>Add 3 on both sides<br>$2x \leq 10$<br>Divide by 2 on both sides<br>$x \leq 5$ |
| 4. Graphical Inequalities | Inequalities can be represented on a coordinate grid.<br><br>If the inequality is **strict** ($x > 2$) then use a **dotted line**.<br>If the inequality is **not strict** ($x \leq 6$) then use a **solid line**.<br><br>**Shade** the **region** which satisfies all the inequalities. | Shade the region that satisfies:<br>$y > 2x, x > 1 \; and \; y \leq 3$<br><br>  |
| 5. Quadratic Inequalities | **Sketch the quadratic graph** of the inequality.<br><br>If the expression is $> \; or \; \geq$ then the answer will be **above the x-axis**.<br>If the expression is $< \; or \; \leq$ then the answer will be **below the x-axis**.<br><br>Look carefully at the inequality symbol in the question. | Solve the inequality $x^2 - x - 12 < 0$<br><br>Sketch the quadratic:<br>  <br><br>The required region is below the x-axis, so the final answer is: |

| | | |
|---|---|---|
| | Look carefully if the quadratic is a **positive or negative parabola**. | $-3 < x < 4$<br><br>If the question had been $> 0$, the answer would have been:<br>$x < -3 \; or \; x > 4$ |

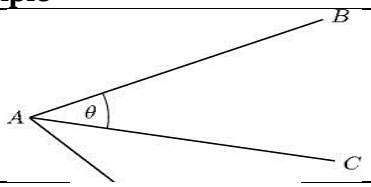
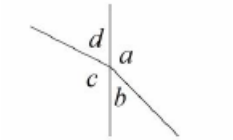
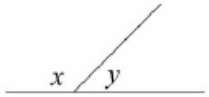
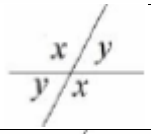
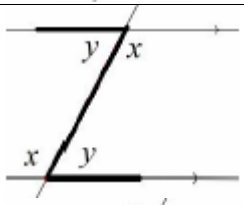
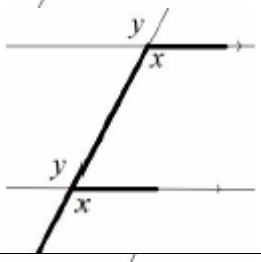
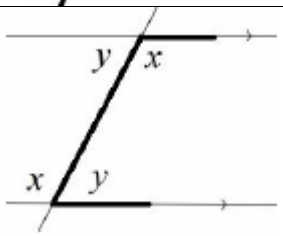
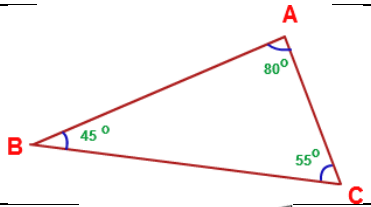
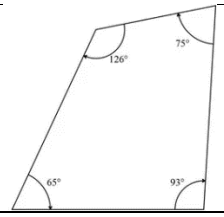
## Year 9F: Sequences

| Topic/Skill | Definition/Tips | Example |
|---|---|---|
| 1. Linear Sequence | A number pattern with a **common difference**. | 2, 5, 8, 11… is a linear sequence |
| 2. Term | **Each value** in a sequence is called a term. | In the sequence 2, 5, 8, 11…, 8 is the third term of the sequence. |
| 3. Term-to-term rule | A rule which allows you to **find the next term** in a sequence if you **know the previous term**. | First term is 2. Term-to-term rule is 'add 3'<br><br>Sequence is: 2, 5, 8, 11… |
| 4. nth term | A rule which allows you to **calculate the term** that is in the **nth position** of the sequence.<br><br>Also known as the 'position-to-term' rule.<br><br>**n** refers to the **position** of a term in a sequence. | nth term is $3n - 1$<br><br>The $100^{th}$ term is $3 \times 100 - 1 = 299$ |
| 5. Finding the nth term of a linear sequence | 1. Find the **difference**.<br>2. **Multiply that by $n$**.<br>3. Substitute $n = 1$ to **find out what number you need to add or subtract to get the first number in the sequence**. | Find the nth term of: 3, 7, 11, 15…<br><br>1. Difference is +4<br>2. Start with $4n$<br>3. $4 \times 1 = 4$, so we need to subtract 1 to get 3.<br>nth term = $4n - 1$ |
| 6. Fibonacci type sequences | A sequence where the next number is found by **adding up the previous two terms** | The Fibonacci sequence is:<br>1,1,2,3,5,8,13,21,34 ...<br><br>An example of a Fibonacci-type sequence is:<br>$4, 7, 11, 18, 29$ ... |
| 7. Geometric Sequence | A sequence of numbers where each term is found by **multiplying the previous one** by a number called the **common ratio, r**. | An example of a geometric sequence is:<br>$2, 10, 50, 250$ ...<br>The common ratio is 5<br><br>Another example of a geometric sequence is:<br>$81, -27, 9, -3, 1$ ...<br>The common ratio is $-\frac{1}{3}$ |
| 8. Quadratic Sequence | A sequence of numbers where the **second difference is constant**.<br><br>A quadratic sequence will have a $n^2$ term. |  |
| 9. Triangular numbers | The sequence which comes from a pattern of dots that form a triangle.<br><br>$1, 3, 6, 10, 15, 21$ ... |  |

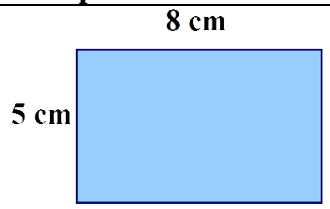
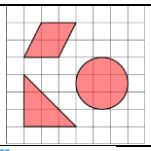
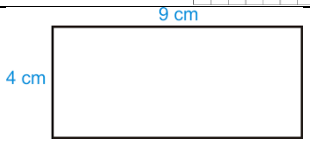
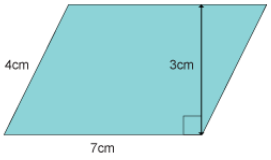
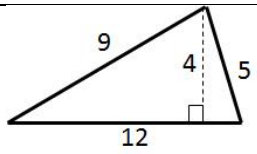
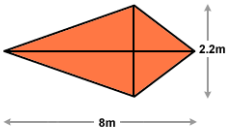
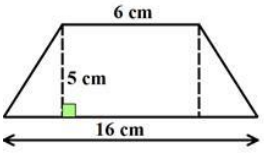
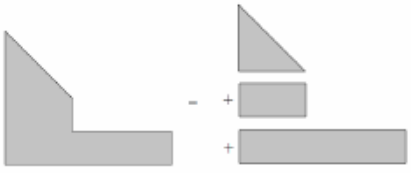
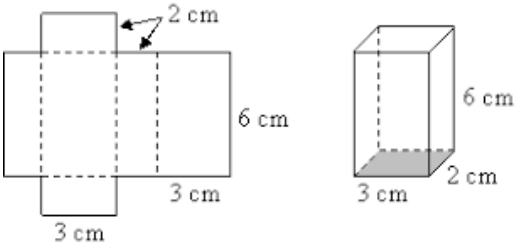
# Year 9H: Sequences

| Topic/Skill | Definition/Tips | Example |
|---|---|---|
| 1. Linear Sequence | A number pattern with a **common difference**. | 2, 5, 8, 11… is a linear sequence |
| 2. Term | **Each value** in a sequence is called a term. | In the sequence 2, 5, 8, 11…, 8 is the third term of the sequence. |
| 3. Term-to-term rule | A rule which allows you to **find the next term** in a sequence if you **know the previous term**. | First term is 2. Term-to-term rule is 'add 3'<br><br>Sequence is: 2, 5, 8, 11… |
| 4. nth term | A rule which allows you to **calculate the term** that is in the **nth position** of the sequence.<br>Also known as the 'position-to-term' rule.<br>**n** refers to the **position** of a term in a sequence. | nth term is $3n - 1$<br><br>The $100^{th}$ term is $3 \times 100 - 1 = 299$ |
| 5. Finding the nth term of a linear sequence | 1. Find the **difference**.<br>2. **Multiply that by $n$**.<br>3. Substitute $n = 1$ to **find out what number you need to add or subtract to get the first number in the sequence**. | Find the nth term of: 3, 7, 11, 15…<br>1. Difference is +4<br>2. Start with $4n$<br>3. $4 \times 1 = 4$, so we need to subtract 1 to get 3.<br>nth term = $4n - 1$ |
| 6. Fibonacci type sequences | A sequence where the next number is found by **adding up the previous two terms** | The Fibonacci sequence is:<br>1,1,2,3,5,8,13,21,34 ...<br>An example of a Fibonacci-type sequence is:<br>$4, 7, 11, 18, 29$ ... |
| 7. Geometric Sequence | A sequence of numbers where each term is found by **multiplying the previous one** by a number called the **common ratio, r**. | An example of a geometric sequence is:<br>$2, 10, 50, 250$ ...<br>The common ratio is 5 |
| 8. Quadratic Sequence | A sequence of numbers where the **second difference is constant**.<br><br>A quadratic sequence will have a $n^2$ term. |  |
| 10. nth term of a quadratic sequence | 1. Find the first and second differences.<br>2. Halve the second difference and multiply this by $n^2$.<br>3. Substitute $n = 1,2,3,4$ ... into your expression so far.<br>4. Subtract this set of numbers from the corresponding terms in the sequence from the question.<br>5. Find the nth term of this set of numbers.<br>6. Combine the nth terms to find the overall nth term of the quadratic sequence.<br><br>Substitute values in to check your nth term works for the sequence. | Find the nth term of: 4, 7, 14, 25, 40..<br><br>Answer:<br>Second difference = +4 → nth term = $2n^2$<br><br>Sequence: 4, 7, 14, 25, 40<br>$2n^2$ 2, 8, 18, 32, 50<br>Difference: 2, -1, -4, -7, -10<br><br>Nth term of this set of numbers is $-3n + 5$<br><br>Overall nth term: $2n^2 - 3n + 5$ |

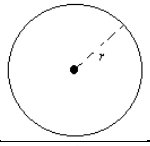
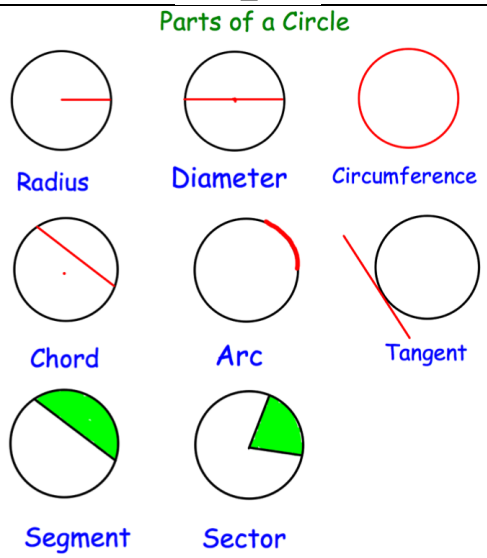
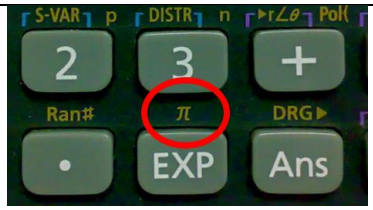
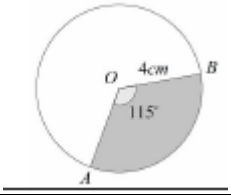
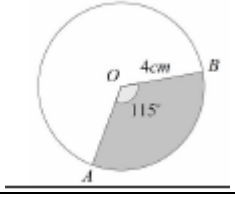
# Year 9: Angles

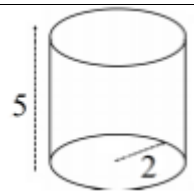
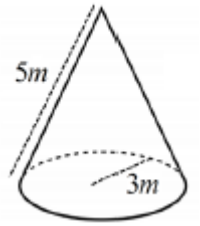
| Topic/Skill | Definition/Tips | Example |
|---|---|---|
| 1. Angle Notation | Can use **one lower-case** letters, eg. $\theta$ or $x$<br><br>Can use **three upper-case** letters, eg. $BAC$ |  |
| 2. Angles at a Point | **Angles around a point add up to 360°**. |  <br>$a+b+c+d=360^o$ |
| 3. Angles on a Straight Line | **Angles around a point on a straight line add up to 180°**. |  <br>$x+y=180^o$ |
| 4. Opposite Angles | **Vertically opposite angles are equal**. |  |
| 5. Alternate Angles | **Alternate angles are equal**.<br>They look like Z angles. |  |
| 6. Corresponding Angles | **Corresponding angles are equal**.<br>(Angles in the same place around the point) |  |
| 7. Co-Interior Angles | **Co-Interior angles add up to 180°**.<br>They look like C angles. |  |
| 8. Angles in a Triangle | **Angles in a triangle add up to 180°.** |  |
| 9. Angles in a Quadrilateral | **Angles in a quadrilateral add up to 360°.** |  |

# Year 9: Perimeter and Area

| Topic/Skill | Definition/Tips | Example |
|---|---|---|
| 1. Perimeter | The **total distance** around the **outside** of a shape.<br><br>Units include: $mm, cm, m$ etc. |  <br>$P = 8 + 5 + 8 + 5 = 26cm$ |
| 2. Area | The amount of **space inside** a shape.<br><br>Units include: $mm^2, cm^2, m^2$ |  |
| 3. Area of a Rectangle | **Length x Width** |  <br>$A = 36cm^2$ |
| 4. Area of a Parallelogram | **Base x Perpendicular Height**<br>Not the slant height. |  <br>$A = 21cm^2$ |
| 5. Area of a Triangle | **Base x Height ÷ 2** |  <br>$A = 24cm^2$ |
| 6. Area of a Kite | Split in to **two triangles** and use the method above. |  <br>$A = 8.8m^2$ |
| 7. Area of a Trapezium | $\frac{(a+b)}{2} \times h$<br>"Half the sum of the parallel side, times the height between them. That is how you calculate the area of a trapezium" |  <br>$A = 55cm^2$ |
| 8. Compound Shape | A shape made up of a **combination of other known shapes** put together. |  |
| 9. Surface Area | The surface area of a **3D shape** is the total area of the outside faces. |  <br>2 x 3 x 2 = 12<br>2 x 6 x 2 = 24<br>3 x 6 x 2 = 36 Total Surface Area is 72cm² |

# Year 9: Circumference and Area

| Topic/Skill | Definition/Tips | Example |
|---|---|---|
| 1. Circle | A circle is the locus of all points equidistant from a central point. |  |
| 2. Parts of a Circle | **Radius** – the **distance** from the **centre** of a circle to the **edge**<br>**Diameter** – the total **distance** across the **width** of a circle **through the centre**.<br>**Circumference** – the **total distance** around the **outside** of a circle<br>**Chord** – a **straight line** whose **end points lie on a circle**<br>**Tangent** – a **straight line** which **touches** a circle at exactly **one point**<br>**Arc** – a **part of the circumference** of a circle<br>**Sector** – the **region** of a circle enclosed by **two radii** and their intercepted **arc**<br>**Segment** – the **region** bounded by a **chord** and the **arc** created by the chord |  |
| 3. Area of a Circle | $\boldsymbol{A = \pi r^2}$ which means 'pi x radius squared'. | If the radius was 5cm, then:<br>$A = \pi \times 5^2 = 78.5cm^2$ |
| 4. Circumference of a Circle | $\boldsymbol{C = \pi d}$ which means 'pi x diameter' | If the radius was 5cm, then:<br>$C = \pi \times 10 = 31.4cm$ |
| 5. $\pi$ ('pi') | Pi is the circumference of a circle divided by the diameter.<br>$\boldsymbol{\pi \approx 3.14}$ |  |
| 6. Arc Length of a Sector | The arc length is part of the circumference.<br>Take the **angle** given **as a fraction over 360°** and **multiply** by the **circumference**. | Arc Length = $\frac{115}{360} \times \pi \times 8 = 8.03cm$<br>  |
| 7. Area of a Sector | The area of a sector is part of the total area.<br>Take the **angle** given **as a fraction over 360°** and **multiply** by the **area**. | Area = $\frac{115}{360} \times \pi \times 4^2 = 16.1cm^2$<br>  |

| | | |
|---|---|---|
| 8. Surface Area of a Cylinder | **Curved Surface Area = $\boldsymbol{\pi dh}$** or **$\boldsymbol{2\pi rh}$**<br><br>**Total SA = $\boldsymbol{2\pi r^2 + \pi dh}$** or **$\boldsymbol{2\pi r^2 + 2\pi rh}$** |  <br>$Total\ SA = 2\pi(2)^2 + \pi(4)(5) = 28\pi$ |
| 9. Surface Area of a Cone | **Curved Surface Area = $\boldsymbol{\pi rl}$**<br>where $l = slant\ height$<br><br>**Total SA = $\boldsymbol{\pi rl + \pi r^2}$**<br><br>You may need to use Pythagoras' Theorem to find the slant height |  <br>$Total\ SA = \pi(3)(5) + \pi(3)^2 = 24\pi$ |
| 10. Surface Area of a Sphere | $\boldsymbol{SA = 4\pi r^2}$<br><br>Look out for hemispheres – halve the SA of a sphere and add on a circle ($\pi r^2$) | Find the surface area of a sphere with radius 3cm.<br><br>$SA = 4\pi(3)^2 = 36\pi cm^2$ |

# Modern Foreign Languages

# Year 9 French Knowledge Organiser HT3

| Les détails personnels | Personal details |
|---|---|
| le prénom | first name |
| le nom de famille | surname |
| le surnom | nickname |
| la profession | profession |
| la nationalité | nationality |
| la date de naissance | date of birth |
| la résidence | place of residence |
| les passe-temps | pastimes/hobbies |
| marié(e) | married |
| célibataire | single |
| divorcé(e) | divorced |

| | |
|---|---|
| Quand j'étais petit(e)… | When I was little… |
| Quand j'étais jeune… | When I was young… |

| Imperfect tense | |
|---|---|
| J'adorais… | I used to love… |
| J'avais… | I used to have… |
| J'étais… | I used to be… |
| Je faisais… | I used to do/make… |
| Je jouais… | I used to play… |
| Je portais… | I used to wear… |
| C'était… | It was… |

| Les adjectifs | Adjectives |
|---|---|
| bavard(e) | talkative |
| égoïste | selfish |
| généreux/généreuse | generous |
| intelligent(e) | intelligent |
| jaloux/jalouse | jealous |
| fidèle | loyal, faithful |
| marrant(e) | funny |
| mignon/mignonne | cute |
| paresseux/paresseuse | lazy |
| riche | rich |
| sérieux//sérieuse | serious |
| stupide | stupid |
| sympa | nice |
| têtu(e) | stubborn |
| timide | shy |

| Les vêtements | Clothes |
|---|---|
| des bottes | Boots |
| un collant | a pair of tights |
| un collier | a necklace |
| une écharpe | a scarf |
| une mini-jupe | a mini-skirt |
| un pantalon | trousers |
| en laine | woollen |
| en or | (made of) gold |
| en plastique | (made of) plastic |
| en satin | (made of) satin |

| Intensifiers | |
|---|---|
| Vraiment | Really |
| Très | Very |
| Assez | Quite |
| Un peu | A little bit |

| Les copains/copines | Friends |
|---|---|
| mon meilleur copain | my best friend (m) |
| ma meilleure copine | my best friend (f |
| mon petit copain | my boyfriend |
| ma petite copine | my girlfriend |
| mes potes | my mates |

# Me, my family and friends (Expo 3 Module 4)

| Les yeux et les cheveux | |
|---|---|
| J'ai | I have |
| Les yeux bleus | Blue eyes |
| Les yeux marron | Brown eyes |
| Les yeux gris | Grey eyes |
| Les yeux verts | Green eyes |
| Les cheveux courts | Short hair |
| Les cheveux longs | Long hair |
| Les cheveux mi- longs | Mid-length hair |
| Les cheveux frisés | Curly hair |
| Les cheveux blonds | Blonde hair |
| Les cheveux bruns | Brown hair |
| Les cheveux noirs | Black hair |
| Les cheveux roux | Red/ginger |

| Passé composé | Perfect tense |
|---|---|
| J'ai | I have |
| Il a | He has |
| Elle a | She has |
| apporté | brought |
| bu | drank/drunk |
| crié | shouted |
| fait une promenade | been/went for a walk |
| lu | read |
| parlé | talked/spoke(n) |
| préparé | prepared |
| pris | taken |
| volé | stole(n) |
| vu | saw/seen |
| regardé | watched, looked |
| Je suis/Il est/Elle est | I/He/She |
| allé(e) | went |
| resté(e) | stayed |

| Les métiers | Jobs |
|---|---|
| l'acteur | actor |
| l'actrice | actress |
| l'artiste | artist |
| l'avocat | lawyer |
| le danseur | dancer(m) |
| la danseuse | dancer (f) |
| le/la domestique | servant (m/f) |
| le jockey | jockey |
| le jouer de tennis/rugby | tennis/rugby player (m) |
| la joueuse de tennis/rugby | tennis/rugby player (f) |
| le vendeur | salesman |
| la vendeuse | saleswoman |

| Possessive Adjectives | |
|---|---|
| Mon | My (masc) |
| Ma | My (fem) |
| Mes | My (plr) |
| Ton | Your (Masc) |
| Ta | Your (fem) |
| Tes | Your (plr) |
| Son | His/her (masc) |
| Sa | His/her (fem) |
| Ses | His/Her (plr) |

# Year 9 French Knowledge Organiser Unit 4

| Les maladies | Illnesses |
|---|---|
| J'ai mal… | I've got |
| au dos. | backache. |
| au ventre. | stomach ache. |
| au pied. | a bad foot. |
| au bras. | a bad arm. |
| a la tête. | a headache. |
| à la gorge. | a sore throat. |
| à la main. | a bad hand. |
| à la jambe. | a bad leg. |
| à l'oreille. | earache. |
| aux dents. | toothache. |
| J'ai mal au cœur | I feel sick. |

| Les symptômes | Symptoms |
|---|---|
| J'ai chaud. | I'm hot |
| J'ai froid. | I'm cold. |
| J'ai soif. | I'm thirsty. |
| J'ai faim. | I'm hungry. |
| J'ai la grippe. | I've got flu. |
| Je suis fatigué(e) | I'm tired. |
| Je suis enrhumé | I've got a cold |
| Je suis malade. | I'm ill |
| J'ai de la fièvre | I've got a temperature |

| La forme | Fitness |
|---|---|
| Je mange beaucoup de fruits/des légumes. | I eat a lot of fruit/vegetables |
| Je ne fais pas assez d'exercice. | I don't do enough exercise. |
| Je bois beaucoup d'eau. | I drink lots of water. |
| Je vais à la gym. | I go to the gym. |
| Je fume. | I smoke. |
| bon pour la santé | good for your health |
| mauvais pour la santé | bad for your health |

| Les conseils | Advice |
|---|---|
| Mangez moins gras ! | Eat less fatty food ! |
| Mangez moins de sucreries ! | Eat less sweet food! |
| Buvez beaucoup d'eau ! | Drink a lot of water ! |
| Dormez huit heures par nuit ! | Sleep eight hours a night! |
| Évitez le stress ! | Avoid stress ! |
| Faites de l'exercice ! | Do some exercuse ! |
| Ne fumez pas ! | Don't smoke ! |

| Key verbs | |
|---|---|
| fumer | to smoke |
| manger | to eat |
| boire | to drink |
| promener | to walk |
| marcher | to walk |
| pratiquer (un sport) | to practise ( a sport) |

| meal times | |
|---|---|
| le petit déjeuner | breakfast |
| le déjeuner | lunch |
| le diner | dinner |
| en-cas,/casse-croûte | a snack |
| un repas | a meal |

# Food and eating out (Expo 3 Vert Module 3)

| **Frequency words/How often?** | |
|---|---|
| Souvent | Often |
| Quelquefois | Sometimes |
| Parfois | Sometimes |
| Normalement | Normally |
| De temps en temps | From time to time |
| Tous les weekends | Every weekend |
| Une/ deux fois par semaine | Once/twice a week |
| Ne…jamais | never |
| Ne…plus | no more/no longer |

| | |
|---|---|
| Il faut… | you should… |
| Il ne faut pas .. | you shouldn't |
| Je dois… | I need to/must… |
| Je voudrais | I would like to |
| Je veux… | I want to… |

| | |
|---|---|
| plus | more |
| moins | less |

| **Les activités** | **Activities** |
|---|---|
| le canoë-kayak | canoeing |
| le canyoning | canyoning |
| le judo | judo |
| le kickboxing | kickboxing |
| le ski | skiing |
| le musculation | weightlifting |
| la natation | swimming |
| la salsa | salsa dancing |
| la voile | sailing |
| l'aérobic | aerobics |
| l'équitation | horse-riding |
| l'escalade | rock climbing |
| le VTT | mountain biking |
| le basket | basketball |
| le foot | football |
| les sports aquatiques | water sports |
| les sports d'hiver | winter sports |

| **La nourriture** | **Food** |
|---|---|
| le pain | bread |
| le beurre | butter |
| le poulet | chicken |
| une banane | a banana |
| les bonbons | sweets |
| les champignons | mushrooms |
| un paquet de chips | a packet of crisps |
| les chips | crisps |
| la dinde | turkey |
| les frites | chips |
| le fromage | cheese |
| les fruits | fruit |
| les fruits de mer | seafood |
| les légumes | vegetavbles |
| les petits pois | peas |
| une pomme | an apple |
| les sucreries | sweet things |
| un gâteau | a cake |
| une glace | an ice cream |
| le poisson | fish |
| la viande | meat |
| l'eau | water |
| un jus d'orange | an orange juice |
| le jus de fruit | fruit juice |
| le lait | milk |
| le vin | wine |
| la bière | beer |

# MUST HAVE VOCABULARY –YEAR 9 SPANISH – THIRD HALF-TERM

**Activities / things you might need on holidays**

El baile
El baloncesto
La crema solar
El deporte
Los deportes acuáticos
La máquina de fotos
El parque de atracciones
El parque temático
El esquí
La bicicleta
La natación
La pesca
La playa
La tienda
La vela

**Weather expressions**

Hace buen tiempo/ calor/ frío/

Hay tormenta/ niebla

Llueve

Nieva

El tiempo fue + adjective such as caluroso, fresco…

**Past tense**

Hizo buen tiempo/ calor/ frío/

Hubo tormenta/ niebla

Llovió/ llovía

Nevó/ nevaba

**Adjectives**

Agradable

barato

Bonito

Encantador

Emocionante

Espléndido

Feo

Guay

Caro

Impresionante

Decepcionante

Desagradable

Horroroso

**Verbs**

Pasarlo bien/mal
Apreciar
Alegrar(se)
Disfrutar
Valer la pena

Bañarse
Coger + transport
Comprar recuerdos
Esquiar
Estar de vacaciones
Llegar
Nadar
Sacar fotos
Tomar el sol
Ver
Viajar
Volver

**Opinions**

Pienso que
Me chifla
Me apetece
Odio

**Countries & places**

Alemania
Las Islas Canarias
España
Francia
Gales
Gran Bretaña
Grecia
Inglaterra
Irlanda
Londres

El alojamiento
El camping
El extranjero
El mar
La montaña

Transport

El avión
El barco
El coche
El autobús
El autocar
El tren
El aeropuerto

**Adverbs/ Time frames**

El año pasado/ próximo

Entonces

Quince días

**Seasons**

El verano

La primavera

El otoño

El invierno

**En mi pueblo (no) hay…**
**In my town there is(n't)…**

**Mi pueblo (no) tiene…**
**My town has(n't) got…**

| | |
|---|---|
| el cine | the cinema |
| el museo | the museum |
| el polideportivo | the sports centre |
| el parque | the park |
| el Correos | the post office |
| el teatro | the theatre |
| el supermercado | the supermarket |
| el centro comercial | the shopping centre |
| el centro de ocio | the leisure centre |
| el ayuntamiento | the town hall |
| el aparcamiento | the car park |
| el estadio | the stadium |
| el edificio | the building |
| la fábrica | th factory |
| la granja | the farm |
| la bolera | the bowling alley |
| la piscina | the swimming pool |
| la tienda | the shop |
| la biblioteca | the library |
| la plaza de toros | the bull ring |
| la carnecería | the butchers |
| la joyería | the jewellery shop |
| la juguetería | the toy shop |
| la papelería | the stationary shop |
| la pastelería | the cake shop |
| la peluquería | the hairdresser |
| la pescadería | the fishmonger |
| la zapatería | the shoe shop |
| la oficina de turismo | the tourist office |
| la playa | the beach |
| la catedral | the cathedral |
| la iglesia | the church |

el = the
los = the (masculine) plural
un = a
unos = some (m)

la = the
las = the (feminine) plural
una = a
unas some (f)

**Where you would like to live when you are older**

en el futuro… in the future…
cuando sea mayor…when I am older …
un día… one day…

me gustaría vivir… I would like to live
me gustaría tener…I would like to have

me encantaría vivir…I would love to live
me encantaría tener…I would love to have

**What you would do to improve your town**

si pudiera cambiar algo… If I could change anything…
me gustaría… I would like
me encantaría… I would love
cambiaría… I would change

**Semana Santa en España**
la Semana Santa = Easter week

| | |
|---|---|
| me gusta | me chifla |
| me mola | me vuelve loca |
| me molesta | |

Se puede ir … you can go…
…**al** cine
…**al** teatro
…**al** pueblo
…**a la** playa
…**a la** piscina

'**to the**' place

⚠ check if the place is **m** or **f**

Se puede (+**infinitivo**) …you can (+**verb**)…
…**ver** una película en el cine see a film in the cinema
…**nadar** en la piscina swim in the swimming pool
…**ver** un partido de fútbol en el estadio watch a football match at the stadium
…**ir** de compras en el centro commercial to go shopping
…**jugar** al fútbol en el parque to play football in the park
…**hacer** el footing en el parque

**Negatives about where you live**
una desventaja es que es… a disadvantage is that it's…

| | |
|---|---|
| lo malo es que es… | = the bad thing is that it's… |
| ruidoso/a | = noisy |
| sucio/a | = dirty |
| no hay espacios verdes | = there are no Green spaces |
| hay contaminación | = there is pollution |
| hay tráfico | = there is traffic |

**Positives about where you live**
una ventaja es que es
an advantage is that it is…
lo bueno es que es…
the good thing is that it is…

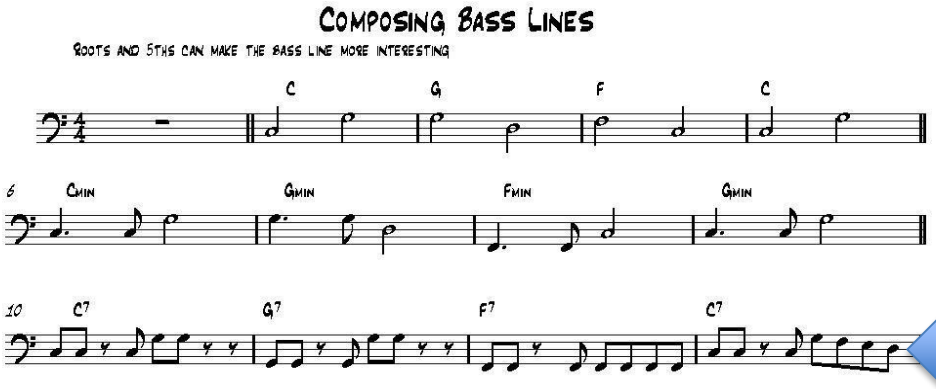
| | |
|---|---|
| tranquilo/a | = quiet/calm |
| limpio/a | = clean |

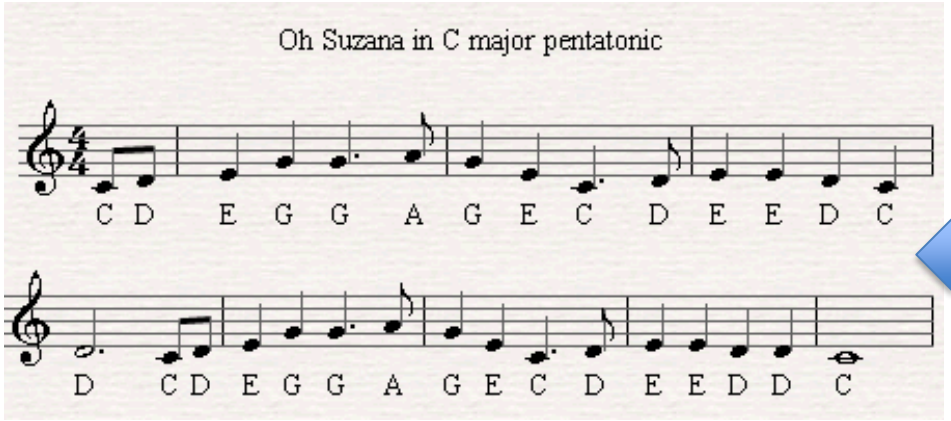
hay muchos espacios verdes
there are lots of green spaces

**Prepositions**
está = it is
al lado de = next to
enfrente de = opposite, in front of
detrás de = behind
en la esquina = on the corner
entre = between
encima de = on top of
debajo de = underneath
a la derecha de = to the right of
a la izquierda de = to the left of
cerca de = near (to)

# Year 9: Songwriting

| KEYWORDS |
|---|
| **1- Chord**: 2 or more notes played simultaneously**.** |
| **2- Chord Progression**: Movement from chord to chord. |
| **3- Cadence:** the two chords at the end of a musical phrase. |
| **4- Riff**: short repeated phrase in popular music. |
| **5- Melody:** the main tune of a song. |
| **6- Phrase**: a short musical passage; a musical sentence. |
| **7- Bass:** the lowest part of a piece, often providing harmonic support. |
| **8- Key:** group of pitches, or scale, that form the basis of a piece. |
| **9- Modulation:** Change from one key to another. |
| **10- Sequence:** the repetition of a musical phrase at a higher or lower pitch than the original. |
| **11- Harmony:** parts that play together simultaneously create harmony. Often accompanying or secondary parts to a melody. |




| MAJOR CHORD PROGRESSIONS | | | | | | |
|---|---|---|---|---|---|---|
| I | ii | iii | IV | V | vi | vii° |
| Major | Minor | Minor | Major | Major | Minor | Diminished |
| A | B | C# | D | E | F# | G# |
| B | C# | D# | E | F# | G# | A# |
| C | D | E | F | G | A | B |
| D | E | F# | G | A | B | C# |
| E | F# | G# | A | B | C# | D# |
| F | G | A | Bb | C | D | E |
| G | A | B | C | D | E | F# |

## 4 Rules for Chord Progressions

1. Start and end on chord I
2. The primary/major chords are strong (I, IV & V)
3. The minor chords add some interest and variety (but avoid using iii
4. NEVER use chord vii (diminished)

## 3 hints for Basslines

1. Bass them around the root (bottom) note of the chord
2. Use other notes of the chords for interest
3. Add some rhythm for character

## 5 characteristics of a good melody

A Good Melody…

1. Starts and ends on the same note (C)
2. Moves mainly by step
3. Has a smooth contour/shape
4. Has 2 or 4 bar phrases
5. Uses similar short motifs to give it a clear character

# Unit 2: Sex Education
# Year 9

## Skills

- Engage with and reflect on different ideas, opinions and beliefs to help develop personal opinion.
- Can express and explain opinions through discussion and written assessments.
- Develop empathy with the situations others may find themselves in
- develop confidence by discussing/action planning how to resolve CSE scenario's.

## Knowledge

Be aware of current teenage pregnancy statistics

Develop awareness of the different methods of contraceptives

Gain knowledge and understanding about STIs and the dangers of them

Eliminate myths about STIs

Gain knowledge and understanding about HIV & AIDS

Explain what is meant by the term 'consent' (regarding the law) and what it means within healthy relationships.

Understand what child sexual exploitation is and our vulnerability to it.

pshe

Personal Social Health Education

# Y9: Unit 1 Buddhism

Buddhism is a religion that doesn't have a "traditional" religious view as there is no God that Buddhists regard as being intrinsically important. Instead, there are key figures such as the Buddha and his teachings (dharma) that were left behind. In this unit of work you will consider these teachings and how they have an impact on the views of Buddhists today in terms of ethics and their behaviour in this life.

**Knowledge Organiser**

## Religions

Lesson 1

**Buddhism – what is it all about?**

*Can you give 10 factual statements about important teachings within Buddhism?*

*Can you give 2 examples of important individuals in Buddhism?*

Lesson 4

**Who was Siddhartha Gautama?**

*What kind of life did SG lead originally?*

*What happened to him when he left the palace?*

*Do you think SG is a positive role model today? Give 2 examples to agree and 2 to disagree.*

Lesson 7

**What is the Eightfold Path?**

*What are the 8 different parts of the path?*

*Should we all follow the path? Give 3 examples as to why it would make the world better.*

## Ethics

Lesson 2

**Suffering P4C – why do we suffer?**

*Dukkha is the idea that life is full of suffering.*

*What are the 3 poisons of the mind & why do they cause suffering?*

*How do Buddhists think we can end suffering?*

Lesson 5

**The Five Moral Precepts – should we all follow them?**

*What are the 5 moral precepts?*

*How do you think following these rules has an impact on the lives of Buddhists today? Give 3 examples.*

*Do you think the world would be a better place is we ALL followed these rules? Why?*

Lesson 8

**Should we experiment on animals?**

*Ahimsa means no harm/ no violence.*

*Can you give 2 reasons why we should and 2 reasons why we should not experiment on animals?*

*Can you give 3 reasons why a Buddhist WOULD NOT want us to experiment on animals?*

## Philosophy

Lesson 3

**What are Buddhist views of God?**

*Can you describe the parable of the arrow – what is this trying to teach us about God for Buddhists?*

*What are the 14 unanswered questions of the Buddha?*

*Was the Buddha a God?*

Lesson 6

**Anicca & anatta: What makes you, you?**

*Anicca means change and Anatta means no self.*

*Can you explain the example of the Theseus?*

*Do you agree with the two ideas – why?*

Lesson 9

**The Dalai Lama: Can science & religion work together?**

*Who is the Dalai Lama?*

*Would a Buddhist be for/against science – can you give 2 examples?*

*Which parts of the 5 moral precepts/ Eightfold path challenge scientific advances – why?*

**Following these 9 lessons pupils will be assessed and feedback will be given in exercise books.*

# Y9: Unit 2 Christianity

Christianity remains the main religious tradition in Great Britain. During the completion of this unit you will consider a variety of different aspects of Christianity including; its origins, important teachings, figures, its views on modern ethical problems that people with faith must face and key philosophical aspects that must be accepted if you are to be deemed a "Christian" today.

**Knowledge Organiser**

## Religions

Lesson 1

**What are the basics of Christianity?**

What are the different qualities of God?
Give three different facts about Christianity
Why do you think Christianity has become the biggest religion in the world? Is there a reason?

Lesson 4

**Who was Jesus?**

What are two reasons why Jesus is important to Christians today?

Create a flowchart of the important events in the life of Jesus

Which events do you think are not believable from the life of Jesus? Why?

Lesson 7

**The Ten commandments – are they important now?**

Which of the 10 commandments do you think people should still follow today?

Why do you think the others shouldn't be used by people anymore?

"we don't need the ten commandments anymore because the best ones are already laws" Two arguments for and two against.

## Ethics

Lesson 2

**Why would God allow evil?**

Give two examples of moral evil

Give two examples of natural evil

"God doesn't exist because if he did, he wouldn't let evil happen" Give two reasons that agree and two that don't.

Lesson 5

**Euthanasia – should it be accepted in GB?**

Why is Euthanasia such a controversial topic?

Why might someone want to access Euthanasia?

"Euthanasia is never acceptable" 2 arguments for and 2 arguments against

Lesson 8

**Abortion – is it ever the right thing to do?**

Which of the 10 commandments would apply to abortion?

What are two reasons why someone might get an abortion?

Why do some people disagree with the concept of abortion?

## Philosophy

Lesson 3

**The God debate – is it all possible?**

Does God exist? Give three arguments that say he does

Give three arguments that agree with an atheists opinion.

Lesson 6

**Heaven & Hell – realistic?**

In two sentences each, describe what heaven and hell are.

Do you think the Christian belief in an afterlife is realistic? Why? Why not?

Should everyone who does bad things be punished in an afterlife? What is your opinion?

Lesson 9

**Did God build the world in 7 days?**

What is the fundamental Christian view on the Creation story?

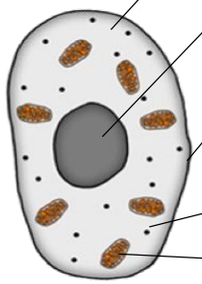
Why do some Christians not believe this story word for word?

Can Christians believe in the big bang theory? Does it work when you add God?

**Following these 9 lessons pupils will be assessed and feedback will be given in exercise books.*

# Science

# SCIENCE BIOLOGY: B1 - Cells (Part 1)



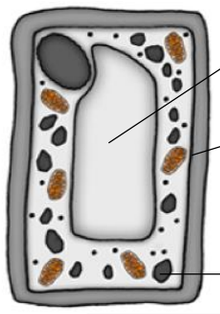
| | | |
|---|---|---|
| **cytoplasm** | *site of chemical reactions in the cell* | gel like substance containing enzymes to catalyse the reactions |
| **nucleus** | *contains **genetic material*** | controls the activities of the cell and codes fro proteins |
| **cell membrane** | *semi permeable* | controls the movement of substances in and out of the cell |
| **ribosome** | *site of protein synthesis* | mRNA is translated to an amino acid chain |
| **mitochondrion** | *site of respiration* | where energy is released for the cell to function |

**animal cell**

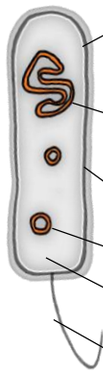
**plant cell**

## Eukaryotes complex organisms

**contains all the parts of animal cells plus extras**



| | | |
|---|---|---|
| **permanent vacuole** | *contains cell sap* | keeps cell turgid, contains sugars and salts in solution |
| **cell wall** | *made of cellulose* | supports and strengthens the cell |
| **chloroplast** | *site of photosynthesis* | contains chlorophyll, absorbs light energy |



| | | |
|---|---|---|
| **cell membrane** | *site of chemical reactions in the cell* | gel like substance containing enzymes to catalyse the reactions |
| **bacterial DNA** | *not in nucleus floats in the cytoplasm* | controls the function of the cell. Can be found as chromosomal DNA and plasmid DNA (small rings). |
| **cell wall** | ***NOT** made of cellulose* | supports and strengthens the cell |
| **cytoplasm** | *semi permeable* | controls the movement of substances in and out of the cell |
| **flagella** | *whip like tail* | allows the bacterial cell to move |
| **ribosome** | *site of protein synthesis* | mRNA is translated to an amino acid chain |

Bacterial cells are much smaller than plant and animal cells

## Prokaryotes simpler organisms

## Specialised cells

| | | | |
|---|---|---|---|
| **egg** |  | *fertilised by a sperm* | nutrients in the cytoplasm, haploid nucleus and changes in the cell membrane after fertilisation |
| **sperm** |  | *fertilise an egg* | streamlined with a long tail<br>acrosome containing enzymes<br>large number of mitochondria, haploid nucleus |
| **Ciliated epithelial cell** |  | *push and move mucus* | Thin layer of moving hairs on the surface of the cells called cilia. |

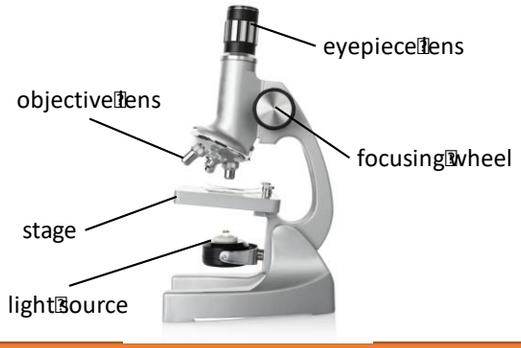
## Microscopy

**magnification M = size of image / real size of the object A**

**PREFIXES**

| Prefix | Multiple | Standard form |
|---|---|---|
| **centi (cm)** | 1 cm = 0.01 m | x $10^{-2}$ |
| **milli (mm)** | 1 mm = 0.001 m | x $10^{-3}$ |
| **micro (µm)** | 1 µm = 0.000 001 m | x $10^{-6}$ |
| **nano (nm)** | 1nm = 0.000 000 001 m | x $10^{-9}$ |
| **pico (pm)** | 1pm = 0.000 000 000 001m | x $10^{-12}$ |

decreasing size and scale




**Estimates can be useful when you only have a sample of what you are counting e.g. the number of red blood cells in a blood sample**

**Many of the structures found in cells were not able to be seen before the development of electron microscopes e.g. ribosomes**

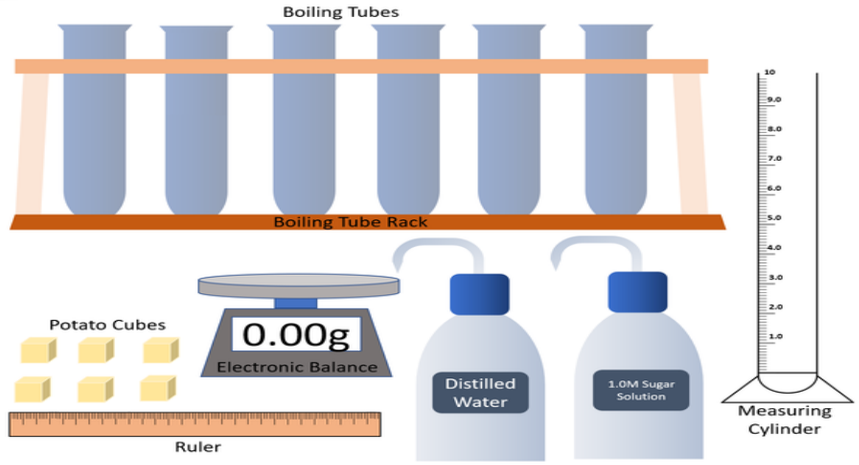
| Feature | Light (optical) microscope | Electron microscope |
|---|---|---|
| **Radiation used** | Light rays | Electron beams |
| **Max magnification** | ~ 1500 times | ~ 2 000 000 times |
| **Resolution** | 200nm | 0.2nm |
| **Size of microscope** | Small and portable | Very large and not portable |
| **Cost** | ~£100 for a school one | Several £100,000 to £1 million plus |

# Enzymes

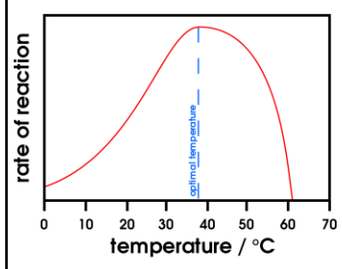
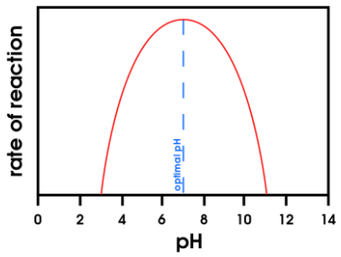
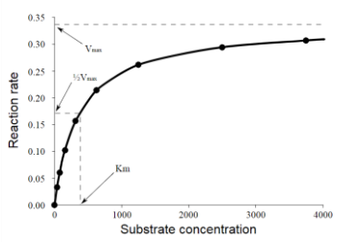
# SCIENCE BIOLOGY: B1 - Cells (Part 2)

**Enzymes catalyse (increase the rate of) specific reactions in living organisms.**

The rate of a reaction can be measured by how fast reactants are used up or by how fast products are formed.




**The activity of enzymes is affected by changes in temperature, pH and substrate concentration**

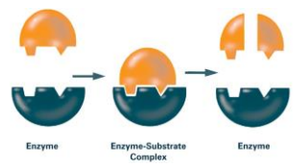
| *Enzymes activity has an optimum temperature* | *Enzyme activity has an optimum pH* | *Increasing substrate concentration increases rate (limited by number of active sites)* |
|---|---|---|
|  |  |  |







**The 'lock and key theory' is a simplified model to explain enzyme action**

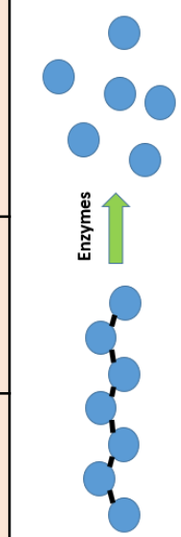



Enzymes catalyse specific reactions in living organisms due to the shape of their active site.

**Digestive enzymes speed up the conversion of large insoluble molecules (food) into small soluble molecules that can be absorbed into the bloodstream.**

**Large changes in temperature or pH can stop the enzyme from working (denature).**

| *Temperature too high* | *pH too high or too low* |
|---|---|
| Enzyme changes shape (denatures) the substrate no longer fits the active site. | |

| | | | |
|---|---|---|---|
| **Carbohydrases (e.g. amylase)** |  | *Made in salivary glands, pancreas, small intestine* | Break down carbohydrates to simple sugar (e.g. amylase breaks down starch to glucose). |
| **Proteases** | | *Made in stomach, pancreas* | Break down protein to amino acids. |
| **Lipases** | | *Made in pancreas (works in small intestine)* | Break down lipids (fats) to glycerol and fatty acids). |



The products of digestion are used to build new carbohydrates, lipids and proteins. Some glucose is used for respiration.

**Osmosis**

**Calculate percentage gain/loss of mass in osmosis.**

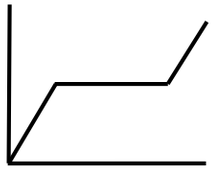
$$\% \ change \ in \ mass = \frac{(final \ mass \ - initial \ mass)}{initial \ mass} \times 100$$

The greater the difference in concentrations the faster the rate of diffusion.

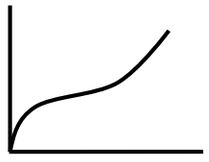
## Transport in cells

| | | |
|---|---|---|
| **Diffusion** ***No*** energy required | *Movement of particles in a solution or gas from a higher to a lower concentration* | E.g. $O_2$ and $CO_2$ in gas exchange, urea in kidneys. Factors that affect the rate are concentration, temperature and surface area. |
| **Osmosis** ***No*** energy required | *Movement of water from a dilute solution to a more concentrated solution* | E.g. Plants absorb water from the soil by osmosis through their root hair cells. Plants use water for several vital processes including photosynthesis and transporting minerals. |
| **Active transport** ***ENERGY*** required | *Movement of particles from a dilute solution to a more concentrated solution* | E.g. movement of mineral ions into roots of plants and the movement of glucose into the small intestines. |

# SCIENCE: CHEMISTRY – C2 Separating mixtures (Part 1)

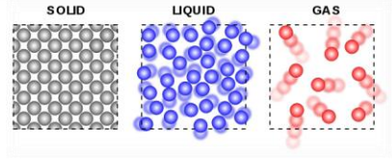


*Melting point of a pure substance*

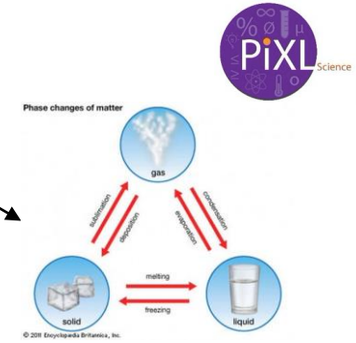


*Melting point of an impure substance*

| | | |
|---|---|---|
| **Pure substances** | ***A pure substances is a single element or compound, not mixed with any other substance.*** | Pure substances melt and boil at specific temperatures. Heating graphs can be used to distinguish pure substances from impure. |

| | | |
|---|---|---|
| **Solid, liquid, gas** | ***Melting and freezing happen at melting point, boiling and condensing happen at boiling point.*** |   The amount of energy needed for a state change depends on the strength of forces between particles in the substance. |

| | |
|---|---|
| *s* | **solid** |
| *l* | **liquid** |
| *g* | **gas** |

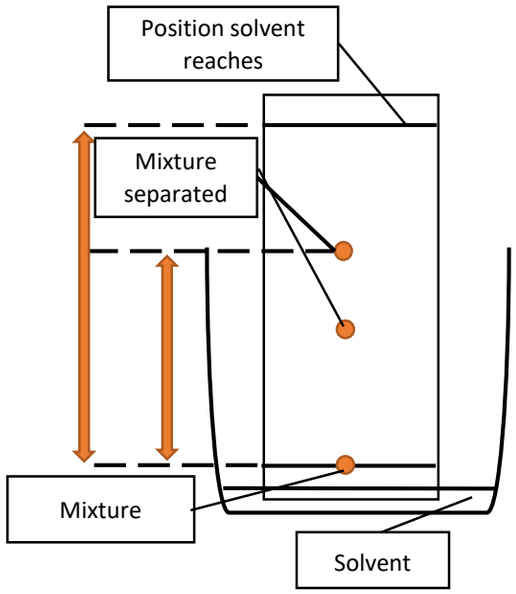



**States of matter**

| | | |
|---|---|---|
| **Energy and movement** | ***Gas particles have higher levels of energy than liquids and solids*** | **Gas particles move more than the other states of matter, with solids moving the least due to their tightly packed arrangement. Solid particles can only vibrate around their fixed positions.** |

**Pure substances**

**Method of separating substances**

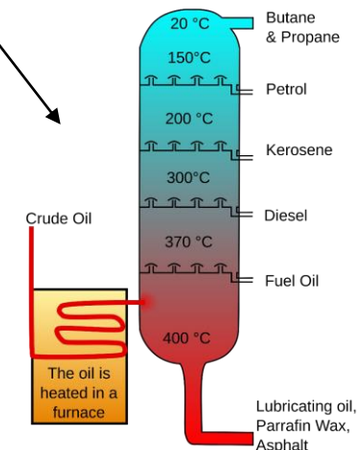



**Chromatography**

| | | |
|---|---|---|
| **Chromatography** | ***Can be used to separate mixtures and help identify substances.*** | Involves a mobile phase (e.g. water or ethanol) and a stationary phase (e.g. chromatography paper). |
| **$R_f$ Values** | ***The ratio of the distance moved by a compound to the distance moved by solvent.*** | $R_f$ = distance moved by substance / distance moved by solvent |
| **Pure substances** | ***The compounds in a mixture separate into different spots.*** | This depends on the solvent used. A pure substance will produce a single spot in all solvents whereas an impure substance will produce multiple spots. |

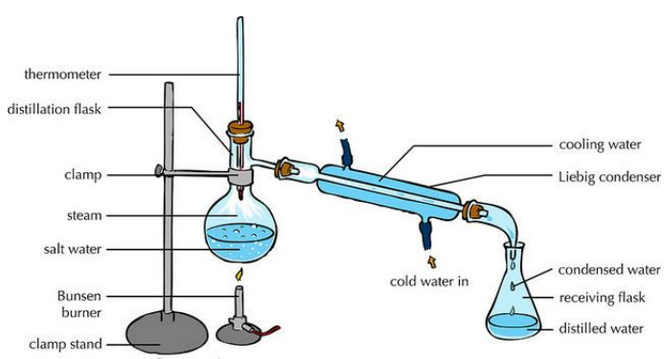
**Fractional distillation**

| | | |
|---|---|---|
| **Fractions** | ***The hydrocarbons in crude oil can be split into fractions*** | Each fraction contains molecules with a similar number of carbon atoms in them. The process used to do this is called fractional distillation. |
| **Fractional distillation** | ***Crude oil is heated and hydrocarbons boil and condense at certain temperatures*** | This is due to the different lengths of hydrocarbon chains. |




**Simple distillation**

| | | |
|---|---|---|
| **Distillation** | ***Used to separate a mixture of liquids*** | **During distillation, the mixture gets heated causing one liquid at a time to evaporate and then condense in the Liebig condenser.** |
| **Boiling points** | ***Each of the liquids in the mixture will have a different boiling point*** | **This enables the liquids to be separated. Distillation can also be used to analyse purity of a substance as pure substances have a sharp boiling point.** |




| | | |
|---|---|---|
| **Using fractions** | ***Fractions can be processed to produce fuels and feedstock for petrochemical industry*** | We depend on many of these fuels; petrol, diesel and kerosene.<br><br>Many useful materials are made by the petrochemical industry; solvents, lubricants and polymers. |

# SCIENCE: CHEMISTRY – C2 Separating mixtures (Part 2)

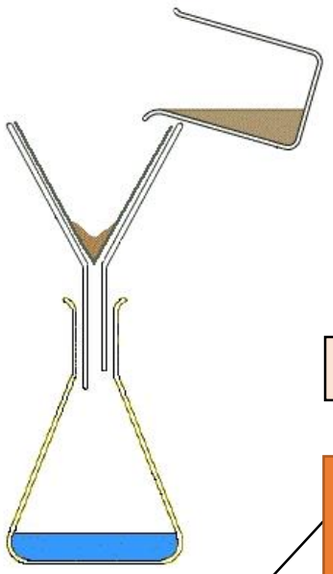
## Methods of separating substances

### Filtration

| | | |
|---|---|---|
| **Filtration** | ***This technique separates substances that are insoluble in a solvent from those that are soluble*** | An example is sand in water; the sand will collect in the filter paper and the water will move through the it. |

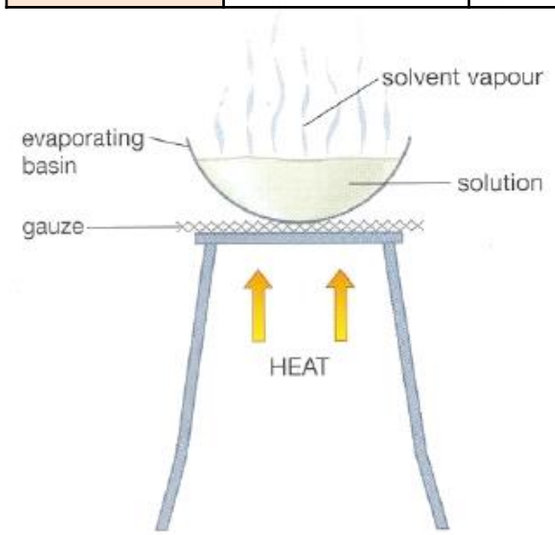
***The filtrate is the liquid that moves through the filter paper and collects underneath***

The residue is the insoluble solid that collects in the filter paper.



### Crystallisation

| | | |
|---|---|---|
| **Crystallisation** | ***This technique separates a soluble substance from a solvent by evaporation*** | An example is the crystallisation of sodium chloride from a salt solution. |




## Purifying substances

### Potable water

| | | |
|---|---|---|
| **Potable water** | ***Water of an appropriate quality is essential for life*** | Human drinking water should have low levels of dissolved salts and microbes. This is called potable water. |
| **UK water** | ***Rain provides water with low levels of dissolved substances*** | This water collects in the ground/lakes/rivers. To make potable water an appropriate source is chosen, which is then passed through filter beds and then sterilised. |
| **Desalination** | ***Needs to occur is fresh water is limited and salty/sea water is needed for drinking*** | This can be achieved by distillation or by using large membranes e.g. reverse osmosis. These processes require large amounts of energy. |

Sterilising agents include chlorine, ozone and UV light.

| | | |
|---|---|---|
| **Using water** | ***Water used for chemical analysis must not contain any dissolved salts*** | Water used for this purpose must be treated in order to be suitable. |
| **Producing potable water** | ***There are 4 main steps to producing potable water*** | 1. Choosing appropriate source of fresh water<br>2. Sedimentation<br>3. Passing the water through filter beds<br>4. Chlorination |

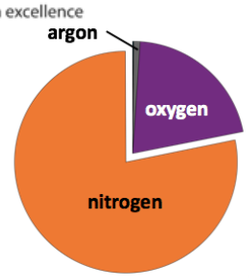
### Waste water treatment

| | | |
|---|---|---|
| **Waste water** | ***Produced from urban lifestyles and industrial processes*** | These require treatment before used in the environment. Sewage needs the organic matter and harmful microbes removed. |
| **Sewage treatment** | ***Includes many stages*** | - Screening and grit removal<br>- Sedimentation to produce sludge and effluent (liquid waste or sewage).<br>- Anaerobic digestion of sludge<br>- Aerobic biological treatment of effluent. |

# SCIENCE: CHEMISTRY – C8 Earth Science (Part 1)

## Earth and atmospheric science

### Proportions of gases in the atmosphere




| Gas | Percentage |
|---|---|
| Nitrogen | ~80% |
| Oxygen | ~20% |
| Argon | 0.93% |
| Carbon dioxide | 0.04% |

### How oxygen increased

| | | |
|---|---|---|
| Algae and plants | These produced the oxygen that is now in the atmosphere, through photosynthesis. | carbon dioxide + water → glucose + oxygen<br>$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$ |
| Oxygen in the atmosphere | First produced by algae 2.7 billion years ago. | Over the next billion years plants evolved to gradually produce more oxygen. This gradually increased to a level that enabled animals to evolve. |

### The Earth's early atmosphere

| | | |
|---|---|---|
| Volcano activity 1st Billion years | Billions of years ago there was intense volcanic activity | This released gases (mainly $CO_2$) that formed to early atmosphere and water vapour that condensed to form the oceans. |
| Other gases | Released from volcanic eruptions | Nitrogen was also released, gradually building up in the atmosphere. Small proportions of ammonia and methane also produced. |
| Reducing carbon dioxide in the atmosphere | When the water vapour condensed, the oceans formed and the carbon dioxide dissolved into it | This formed carbonate precipitates, forming sediments. This reduced the levels of carbon dioxide in the atmosphere. |

### How carbon dioxide decreased

| | | |
|---|---|---|
| Reducing carbon dioxide in the atmosphere | Algae and plants | These gradually reduced the carbon dioxide levels in the atmosphere by absorbing it for photosynthesis. |
| Formation of sedimentary rocks and fossil fuels | These are made out of the remains of biological matter, formed over millions of years | Remains of biological matter falls to the bottom of oceans. Over millions of years layers of sediment settled on top of them and the huge pressures turned them into coal, oil, natural gas and sedimentary rocks. The sedimentary rocks contain carbon dioxide from the biological matter. |

### Greenhouse gases

| | |
|---|---|
| Carbon dioxide, water vapour and methane | Examples of greenhouse gases that maintain temperatures on Earth in order to support life |
| The greenhouse effect | Radiation from the Sun enters the Earth's atmosphere and reflects off of the Earth. Some of this radiation is re-radiated back by the atmosphere (including carbon dioxide, methane and water vapour) to the Earth, warming up the global temperature. |

### Human activities and greenhouse gases

| | |
|---|---|
| Carbon dioxide | Human activities that increase carbon dioxide levels include burning fossil fuels and deforestation. |
| Methane | Human activities that increase methane levels include raising livestock (for food) and using landfills (the decay of organic matter released methane). |
| Climate change | There is evidence to suggest that human activities will cause the Earth's atmospheric temperature to increase and cause climate change. |

### Testing for oxygen

| | | |
|---|---|---|
| Testing for oxygen | Glowing splint | Re-lights the splint in the presence of oxygen. |

### Carbon dioxide concentration

| | | |
|---|---|---|
| Carbon dioxide concentration | There is a correlation between atmospheric carbon dioxide levels, fossil fuel usage and global temperature change | There are errors with these measurements due to the location they were taken and the historical accuracy before scientific methods became more robust. |

The total amount of greenhouse gases emitted over the full life cycle of a product/event. This can be reduced by reducing emissions of carbon dioxide and methane.

### Effects of climate change

- Rising sea levels
- Extreme weather events such as severe storms
- Change in amount and distribution of rainfall
- Changes to distribution of wildlife species with some becoming extinct

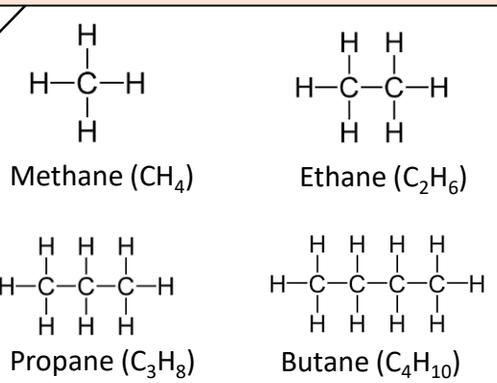
# Carbon compounds as fuels and feedstock

## SCIENCE: CHEMISTRY – C8 Fuels (Part 2)

## Crude oil, hydrocarbons and alkanes

| | | |
|---|---|---|
| **Crude oil** | ***A finite resource*** | Consisting mainly of plankton that was buried in the mud, crude oil is the remains of ancient biomass. |
| **Hydrocarbons** | ***These make up the majority of the compounds in crude oil*** | These compounds are made up of hydrogen and carbon only. |
| **General formula for alkanes** | $C_nH_{2n+2}$ | For example:<br>$C_2H_6$<br>$C_6H_{14}$ |

**Displayed formula for first four alkanes**

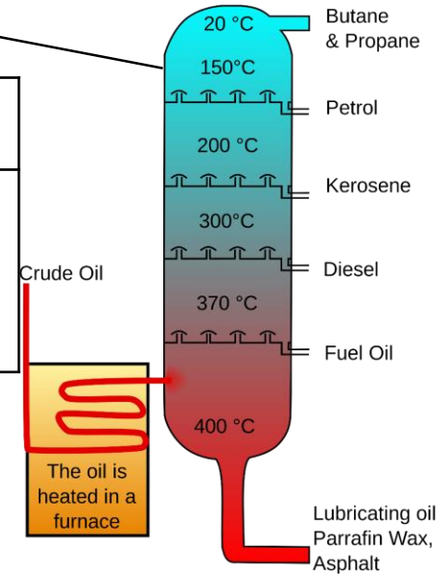



## Fractional distillation and petrochemicals

| | | |
|---|---|---|
| **Fractions** | ***The hydrocarbons in crude oil can be split into fractions*** | Each fraction contains molecules with a similar number of carbon atoms in them. The process used to do this is called fractional distillation. |
| **Using fractions** | ***Fractions can be processed to produce fuels and feedstock for petrochemical industry*** | We depend on many of these fuels; petrol, diesel and kerosene.<br><br>Many useful materials are made by the petrochemical industry; solvents, lubricants and polymers. |

**Hydrocarbon chains**

| | |
|---|---|
| ***In oil*** | Hydrocarbon chains in crude oil come in lots of different lengths. |
| ***Boiling points*** | The boiling point of the chain depends on its length. During fractional distillation, they boil and separate at different temperatures due to this. |




## Cracking

| | | |
|---|---|---|
| ***The breaking down of long chain hydrocarbons into smaller, more useful chains*** | The smaller chains are more useful. Cracking can be done by various methods including catalytic cracking and steam cracking. |

## Fuels

| | | |
|---|---|---|
| **Sulfur dioxide** | ***Released from burning hydrocarbons with sulfur impurities in*** | Sulfur dioxide dissolves in rain water to form acid rain. This damages plant life and can make water habitats acidic. Acid rain can also weather limestone and sandstone structures. It can make soil acidic and affect crop growth |
| **Oxides of nitrogen** | ***Oxygen and nitrogen react from the air under high temperatures inside engines*** | As pollutants, oxides of nitrogen cause acid rain and are also classified as greenhouse gases. Can cause respiratory problems. |
| **Hydrogen fuel** | ***Hydrogen reacts with oxygen in the engine as a fuel for the vehicle*** | **Advantages:**<br>- Water is the product<br>- No greenhouse gases released<br>- Renewable<br>**Disadvantages:**<br>- Expensive to buy<br>- Difficult to re-fuel |
| **Fossil fuels** | ***Crude oil, natural gas and coal*** | Petrol, kerosene and diesel oil are non-renewable. Methane is found in natural gas and is also non-renewable. |
| **Incomplete combustion issues** | ***Carbon monoxide is an odourless, toxic gas that can kill*** | Soot (carbon) is also produced that builds up in the atmosphere and can cause global dimming. This reduces the amount of sunlight that reaches the Earth and can alter rainfall patterns. |

| | |
|---|---|
| **Combustion** | During the complete combustion of hydrocarbons, the carbon and hydrogen in the fuels are oxidised, releasing carbon dioxide, water and energy. |
| **Incomplete combustion** | During the incomplete combustion of hydrocarbons, there is not enough oxygen available for complete combustion. The products of the reaction is carbon monoxide, carbon and water. |

Complete combustion of methane:

Methane + oxygen → carbon dioxide + water + energy

$CH_4$ (g) + $2O_2$ (g) → $CO_2$ (g) + 2 $H_2O$ (l)

| | |
|---|---|
| **Boiling point (temperature at which liquid boils)** | ***As the hydrocarbon chain length increases, boiling point increases.*** |
| **Viscosity (how easily it flows)** | ***As the hydrocarbon chain length increases, viscosity increases.*** |
| **Flammability (how easily it burns)** | ***As the hydrocarbon chain length increases, flammability decreases.*** |

# Science – Physics: P2 Motion

A **quantity** tells us how much of something there is.

A **scalar** quantity is a quantity with just a **magnitude** (size).

A **vector** quantity is a quantity with both a **magnitude** and a **direction**.

| Examples of scalar quantities | Examples of vector quantities |
|---|---|
| **Speed** | **Displacement (distance in a straight line)** |
| **Mass** | **Force** |
| **Distance** | **Weight** |
| **Energy** | **Velocity** |
| **Time** | **Acceleration** |
| | **Momentum** |

The **speed** of an object tells us how quickly an object travels a certain distance.

The **average speed** tells us the how quickly an object has completed a whole journey.

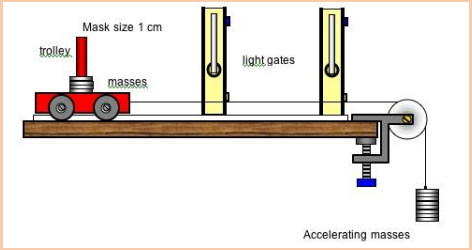
The **instantaneous speed** tells us the how quickly an object has travelled **at a specific point** in the journey.

Speed is calculated using the following formula:

$$\textbf{speed (m/s)} = \frac{\textbf{distance travelled (m)}}{\textbf{time taken (s)}}$$

Some typical speeds include:

**Airliners – 250m/s**
**Speed limit in town centres – 10.5m/s**
**Commuter trains – 55m/s**
**Motorway speed limit – 31m/s**
**Ferry – 18m/s**
**High speed trains – 90m/s**
**Cycling – 6m/s**
**Stong wind – 15m/s `**
**Sound – 330m/s**
**Walking – 1.4m/s**



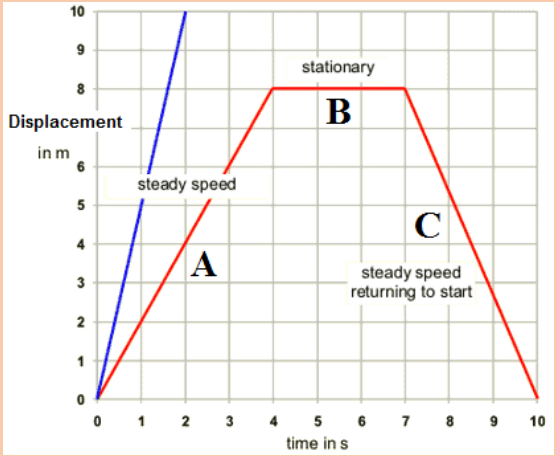

**Light gates** can be used in a lab to measure the time taken for an object to travel.

Light gates are **more accurate** than using a stopwatch as a computer records the time and isn't affected by **reaction times.**

**Light gates** are used in the following way:

- the object passes through the first light gate and starts the timer
- when it passes through the second light gate, the timer stops
- the computer works out the difference between the two times from the light gates

**Distance/time graphs** show us how objects move throughout a journey.




**Horizontal lines** mean the object is **stationary (not moving).**

**Straight, sloping lines** mean the object is travelling at **a constant speed.**

The steeper the sloping line, **the faster the object is travelling.**

We can calculate the speed of the object by working out the **gradient** of the line.

*Worked example:*
In the graph what is the speed of the red object at point A?
*Step 1: Find the change in distance on the graph = 8m*
*Step 2: Find the change in time on the graph = 4s*
*Step 3: Carry out the speed calculation = 8 ÷ 4 =* ***2m/s***

# Science Physics – P1 Maths in Science

In Science, all scientists use **SI units** to measure certain quantities.

| Quantity | SI unit | Abbreviation |
|---|---|---|
| Distance | metre | m |
| Mass | gram | g |
| Time | second | s |
| Current | ampere | A |
| Temperature | kelvin | K |
| Concentration | mole | mol |
| Frequency | hertz | Hz |
| Force | newton | N |
| Energy | joule | J |
| Power | watt | W |
| Pressure | pascal | Pa |
| Electric charge | coulomb | C |
| Potential difference | volt | V |
| Electric resistance | ohm | Ω |
| Magnetic flux density | tesla | T |

We use multiples and sub-multiples of SI units if quantities are very large or very small.

**GIGA (e.g. gigawatt, GW)**

↑ **÷1000**

**MEGA- (e.g. megawatt, MW)**

↑ **÷1000**

**KILO- (e.g. kilowatt, kW)**

↑ **÷1000**

**BASE UNIT (e.g. watt, W)**

↓ **x10**

**CENTI - (e.g. centiwatt, cW)**

↓ **x100**

**MILLI - (e.g. milliwatt, mW)**

↓ **x1000**

**MICRO - (e.g. microwatt, μW)**

↓ **x1000**

**NANO- (e.g. nanowatt, nW)**