SPRING KNOWLEDGE ORGANISER

YEAR 8

English

Literacy / key words

Secrecy - the action of keeping something secret or the state of being kept secret

Surveillance -close observation, especially of a suspected spy or criminal

Investigator - a person who carries out a formal inquiry or investigation

Evidence - available body of facts or information

Protection - the action of protecting, or the state of being protected

Control - the power to influence or direct people's behaviour or the course of events

Literacy / key words

Weapons - thing designed or used for inflicting bodily harm or physical damage

Equipment - the necessary items for a particular purpose

Suspicious - having or showing a cautious distrust of someone or something

Authority - the power or right to give orders, make decisions, and enforce obedience

Spy fiction conventions include:

Characters

1. **The Spy/Agent**: Often a protagonist with specialized skills in espionage, combat, and deception.
2. **The Villain/Antagonist**: A powerful figure, frequently representing a rival agency, criminal organization, or rogue element.
3. **The Femme Fatale/Double Agent**: A mysterious character who may assist or betray the protagonist.
4. **Allies/Sidekicks**: Supporting characters who provide resources, technical expertise, or emotional support.

Plot Elements

1. **Espionage and Intrigue**: Central to the story, involving secrets, covert operations, and intelligence-gathering.
2. **Betrayal and Double-Crossing**: Characters often conceal their true allegiances, leading to twists.
3. **Mission Impossible**: A critical assignment with high stakes, such as retrieving stolen plans etc.
4. **Cliffhangers and Suspense**: High-tension moments, often involving escapes or near-death experiences.

Settings

1. **Exotic Locations**: Settings that range from glamorous cities to remote, dangerous locales.
2. **Safe Houses and Secret Bases**: Locations for planning or hiding.
3. **Shadowy Organizations**: Often secret agencies, government bodies, or criminal networks.

Mood and Style

1. **Atmosphere of Suspicion**: A pervasive sense of distrust and paranoia.
2. **Stylized Language**: Often includes code phrases, jargon, or witty repartee.
3. **Dark and Gritty Tone**: A reflection of the dangerous and morally ambiguous world of spies.
4. **High-Tech and Futuristic Elements**: Advanced surveillance tools, weapons, and communication devices.

Further reading:

- 'Alex Rider' series by Anthony Horowitz.
- 'James Bond' series by Ian Fleming
- 'Hurricane Gold' by Charlie Higson
- 'The Alice Network' by Kate Quinn

You will be assessed on:

Writing skills, creative ideas, use of figurative language to create imagery and your SPAG. **You will be writing a section of a spy fiction story.**

Links to curriculum

- History – famous examples of spies and espionage
- Technology – spy gadgets

English

English

Literacy / key words

Tenacious - Persistent and determined in holding onto or seeking something.

Methodical - Systematic and organized in approach, working through tasks in a planned manner.

Intuitive - Able to understand or know something without needing to think about it.

Diligent - Showing careful and persistent work or effort.

Conceal (verb) - To hide or keep something secret.

Incriminating (adjective) - Tending to show guilt or wrongdoing; suggesting that someone is involved in a crime.

Scrutinize (verb) - To examine or inspect closely and thoroughly, especially to detect any flaws or details.

Cunning (adjective) - Having or showing skill in achieving one's ends by deceit or evasion; clever and deceitful.

High tier punctuation:

- **!** = shows strong emotion
- **?** = to question
- **;** = connects two related main clauses/ sometimes replaces 'and' or 'because'
- **:** = introduces list, or used to introduce an idea/statement
- **( )** = embeds extra information, often a subordinate clause
- **– –** = functions in the same way as brackets
- **–** = one dash shows a pause or interruption
- **…** = to create pause or suspense

Dialogue punctuation:

1. "Speech marks"
2. New line for each new speaker
3. Punctuation inside speech marks e.g. *"Get down!" shouted Scarlett.*
4. If the speech verb comes in the middle of dialogue, it also needs punctuation e.g. *"Get down," shouted Scarlett. "I'll cover you!"*

Paragraph

INTERESTING SENTENCE OPENINGS

1. ***Start with an adverb:*** Quickly, suddenly, angrily etc.
   Carefully, she looked round.
2. ***Start with a preposition:*** Above, around, below etc.
   Above her head, the stars twinkled.
3. ***Start with a verb:*** Running, laughing, watching etc.
   Roaring, she sprang into action!
4. ***Start with a subordinate clause:***
   Although her heart was racing, she crept forwards.
5. ***Start with a simile:*** like/as
   Like a crashing wave, she charged forwards
6. ***Create a mystery:*** grab your reader's attention!
   It was only meant to be a game. But it went wrong...

Sentence Forms

Minor: 1-2 words – *'Stop!', 'Go now!'*

Simple: One main clause (Subject + verb)

'You need to leave'

Compound: Sentence with two main clause linked with **;** or a connective

'*The lord was evil; he was plotting against the king.*'

'*It was a beautiful day and the sun was shining'.*

Complex: Main clause with 1 or more subordinate clause

'*Slowly, he rose to his feet*'

'Although it was night, the streets were crowded'

Different sentence types have different effects:

1. *Minor/simple sentences* = slower pace and more tension
2. *Compound/complex sentences* = faster pace, quick action, detailed description

English

English

Literacy / key words:

Audience – the people you are addressing (verbally or through writing)
Target Market – a particular group of consumers a product is aimed at
Purpose
Engagement – how well you captivate your audience
Persuasion – the action or process of influencing or coaxing someone
Direct Address – speaking directly to your audience with words like 'you' or 'us'
Alliteration – successive words beginning with the same letter in order to create something memorable
Facts – true, proven statements
Opinions – personal view/judgement
Rhetorical Question – a question asked to prompt thought rather than answer
Emotive Language – words used to trigger an emotional response
Statistics – numerical, factual information
Tricolon – a series of 3 words of phrases
Body Language – the use of movement to convey attitude/feeling

Gestures – a movement of the hand or head to express an idea/meaning
Eye contact – looking directly at members of your audience in order to engage them
Intonation – the rise and fall of a voice in speaking
Pace – the speed at which you speak when delivering your speech
Anecdote – a personal story.
Expert opinion – a quote from a doctor, professor etc.
Figurative language – Use of metaphors, similes etc. for effect.
Repetition – repeating a word or phrase for effect.

What will I be doing for my assessment?

You will be completing a short group presentation in which you will present the design of a product you have created together. You will each be assessed individually on your contribution to the presentation, and your own speaking and listening skills.

Opinion
It would seem
It appears
Obviously
Possibly
It seems likely
Presumably

Contrast
However
Nevertheless
Alternatively
Despite this
On the Contrary
Yet
Whereas
Except
Apart from

Sequencing
Firstly
Secondly
Initially
Then
Next
Afterwards
Finally
Subsequently
Eventually
Previously

Addition
And
Also
In addition
Further
Furthermore
As well as

Emphasis
Above all
In particular
Notably
Specifically
More importantly
Indeed
Especially
Significantly

Comparison
Equally
Similarly
In comparison
Likewise
By the way
Of contrast
Alternatively
Despite this
As with
Unless

Persuasion
Of course
Clearly
Evidently
Surely
Certainly
Decidedly
Indeed
Undoubtedly

Talk for learning

Cause and Effect
Because
So
Therefore
Thus

Conclusion
To conclude
In conclusion
Finally
On the whole
Summarising
Overall
To sum up
Evidently

Discussion prompts
I have a question…
I notice that…
I wonder….
I agree with _____because….
I disagree with_____because….
I can relate to that because….
I'd like to go back to what_____said….
What made you think that?
Another example is…
I'd like to add….
Building upon what_____said….

Illustration
For example
For instance
In other words
To show that
Such as
An instance
As revealed by
To show that

Extra - Read/watch/do:
YouTube: To research successful, engaging speeches at home, search up 'TEDx Talks' and enjoy some really impressive speeches, delivered by kids! Recommend 'The effects of lying' by Georgia Haukom. *Some content requires parental/guardian's permission to view.*
BBC: Dragon's Den episodes will also help with presenting skills and creating a memorable sales pitch!

What skills will be assessed?

- Your speaking and listening skills (oracy)
- Organisation and engagement of your speech and its delivery (assessment feedback sheet on the next page!)

Links to curriculum:

-Computer Science/IT skills, creating PowerPoint presentations.

-Drama and performance skills

English

English

How to craft our presentation:

HOOK – <u>How are you going to grab the attention of your audience right away?</u>
Rhetorical questions are often used to do this: Have you ever thought about…? ***or*** Did you know that…?

ORGANISATION – Consider the fact that your product is *entirely* new to the audience. What is going to be the best way to persuade us to become invested? You might wish to:

- Identify the problem/gap in the market and how this impacts everyday life (this would be a great opportunity for some emotive language or statistics!);
- Introduce your solution/new idea (include facts, figurative language and repetition to emphasise how great it is!);
- Detail the key benefits of your product and how it is different to other items on the market (include anecdote, direct address or tricolon to persuade us!);

ENDING - Consider how you are going to have a lasting impact and remain memorable for the audience!

<u>Pitch Fill-In the Blank</u>

I am _____ (student name) and this is _____ (student name).

Together, we are _____ (company name).

Our product is _____ (product name).

Have you _____(problem that product solves for customer)?

Well our product is just what you need! _____ (Product name)

_____ (what product does).

Buy now and get a special price of _____ (price). Ready to

_____ (what the customer gets from product)?

Or you could use this more simplified writing frame!

The Assessment Mark Scheme:

FOUNDATION	
Your ideas are communicated **simply**	
You **try** to link your ideas together	
You **try** to use strategies to engage the audience such as: Hand gestures Humour Eye contact Movement Persuasive Techniques	

INTERMEDIATE	
Your ideas are communicated **in more detail with some interest**	
You link your ideas together **well**	
You **use** strategies to engage the audience such as: Hand gestures Humour Eye contact Movement Persuasive Techniques	

HIGHER	
Your ideas are communicated **confidently** with **interesting vocabulary** to help	
You **organise** your ideas well making sure it is **coherent** and well planned	
You use strategies to engage the audience really **convincingly**, such as: Hand gestures Humour Eye contact Movement Persuasive Techniques	

<u>Links to Careers:</u>
We will look into concepts such as entrepreneurship and investment, exploring how to use our skills of persuasive writing from the Autumn term, to craft effective and engaging speeches. Many innovators and entrepreneurs have to develop a skillset and a new way of thinking; it is about finding a solution to a problem then taking the steps necessary to make it reality.

English

Art Knowledge Organiser

Sarah Graham

Key features:

Hyper realistic- bold colour- accurate proportions- appropriate fonts- reflections- highlight- shadow

Working in the style of an artist:

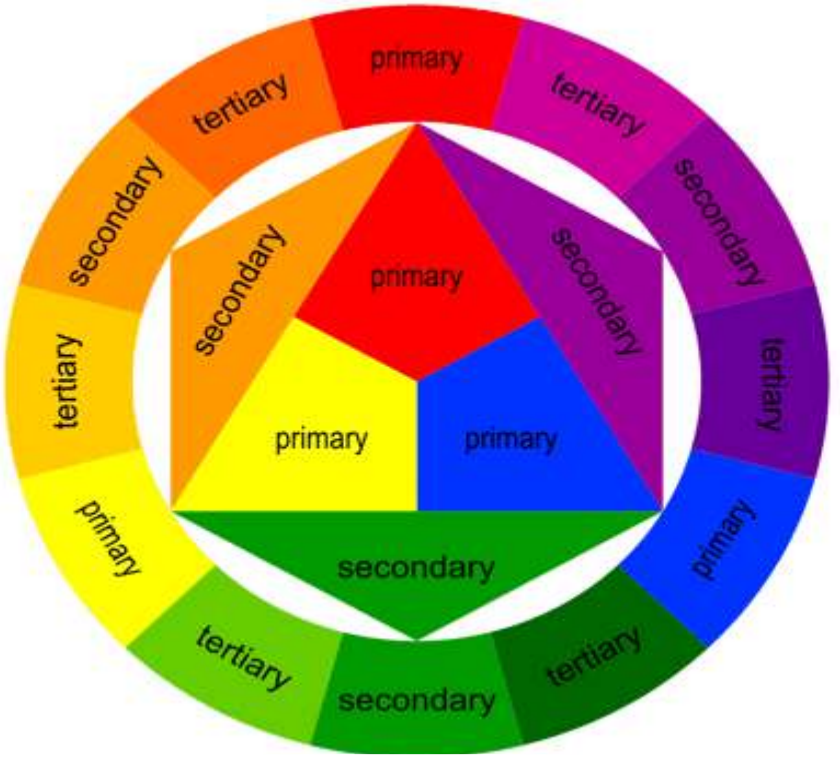
You need to use these techniques and features in your own study.

KEY WORDS – test yourself! (definitions on the next page)

Hyperrealism- Tone- Tint- Shade- Tertiary- Primary- Secondary- Bold- Opaque- Transparent- Form- Shape- Line.

Artist Research

Year 8 Spring term



Primary- Colours that can't be made from mixing any other colours

Secondary- Two primary colours mixed together

Tertiary- A primary and a secondary colour mixed together

In the style of:

When creating a piece of art in the style of an artist it is very important you thoroughly understand their techniques in order to copy them effectively.

Besides using their techniques, you also need to take pride in your work and be as neat as possible. Here are some things to consider:

- Have you created an accurate sketch?
- Have you paid attention to detail?
- Have you shown highlights and shadows?
- Are the proportions correct?
- Have you created bold colour?
- Have you accurately copied the fonts?

KEY WORDS AND MEANINGS:	
Hyper realism	Hyperrealism is a genre of painting and sculpture resembling a high-resolution photograph.
Tertiary	When a primary and secondary colour are mixed, you get a tertiary colour. E.g. turquoise.
Transparent	The quality of being able to see through (or partially see through) one or more layers in an artwork.
Tone (painting)	When you add grey to a colour to cool or darken it down.
Opaque	A paint that is opaque will give a solid colour.
Shade (painting)	When you add black to a colour, making it darker.
Tint (painting)	When white is added to a colour to lighten or brighten.
Form	Form refers to objects that are 3-Dimensional, or have length, width, and height.
Highlight	The lightest part or one of the lightest parts of a painting, drawing, etc.
Shadow	A dark area where light from a light source is blocked by an opaque object.

Colour code: BLUE= Tier 3 words ORANGE= Tier 2 words Look out for colour coding during lessons!

Drama Knowledge Organiser

Keywords explored in this topic

Devising - Creating a piece of theatre using our own ideas

Stimulus – Something that can be used to generate ideas when devising e.g. a poem, music, an image

Thought tracking - Sharing your inner thoughts and feeling with the audiences

Mime - Acting using only movement and imagination (no props)

Synchronised - Moving at the same time in the same way

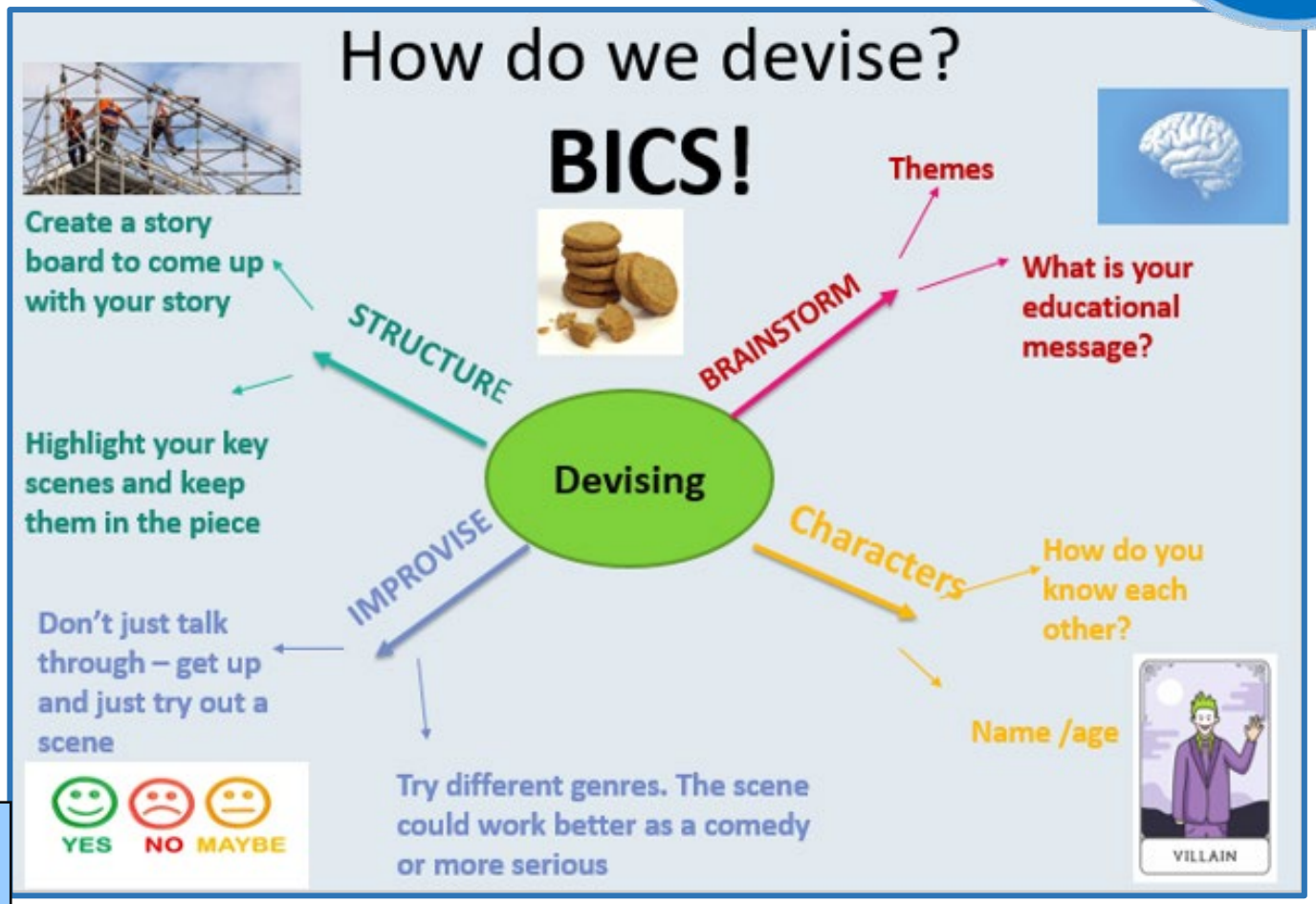
Monologue – a long speech said by only one actor

Proxemics - The distance between two or more characters to show their relationship

Writing an effective peer evaluation:

WAGOLL: Tom's group used tableau effectively. I could see that Tom was using facial expressions such as wide eyes to portray how scared his character was. He projected his voice so that the audience could hear him. In order to improve, Tom should exaggerate his movements when miming.

Devising from a Stimulus



Keywords to recap and use

Pitch Pace Pause Tone Volume Accent Gesture Posture Facial Expressions Projection Diction Thought Track Multi-role Split Focus Audience

Evaluative words: successful improve effective captivating interesting focus

Drama Knowledge Organiser

William Shakespeare (1564-1616) was a **British playwright and poet**. He is often considered to be the most talented writer of all time. His plays and poems are still studied and performed 400 years later! Shakespeare wrote **38 plays and 154 sonnets**. Shakespeare's plays generally fall into three categories: **comedies**, **tragedies** and **histories**.

Shakespeare lived in the 16th and 17th centuries, throughout the reigns of Queen Elizabeth I and King James I. Both watched his plays.

Some of his most famous plays include Romeo and Juliet, Macbeth, Hamlet and Much Ado about Nothing.

Some of the phrases that Shakespeare wrote have become a part of our everyday language.

Fun Fact:
Shakespeare coined many new words and created "knock, knock" jokes

Iambic Pentameter	This is a poetic rhythm that Shakespeare wrote in. Each line has 10 syllables, of particular stresses. Plays at this time were basically extended poems, and so Shakespeare wrote poetically, thinking about rhythm and a lot of the time also rhyme. The main point is the lines weren't supposed to sound like everyday speech, they were supposed to sound fancy!
Histories	The plays of Shakespeare are generally divided into three categories: Histories, Tragedies and Comedies. The plays that we normally mean when we refer to the 'history' plays cover English history from the twelfth to the sixteenth centuries. Each play is named after, and focuses on, the reigning monarch of the period. We should never forget that they are works of imagination, based very loosely on historical figures. Shakespeare was a keen reader of history and was always looking for the dramatic impact of historical characters and events as he read.
Tragedies	The basic structure of a tragedy is: The main character is someone important; a prince or a king. He is someone we admire and respect, but he also has a 'tragic flaw' in his character which makes him contribute to his own destruction. The flaw is often part of his greatness but it also causes his downfall. The flaw causes the protagonist to make mistakes and mis-judgments. He begins to fall from his high level. He struggles to regain his position but fails and he comes crashing down. He eventually recognises his mistakes, but too late.
Comedies	Shakespearean comedies are full of fun, irony and dazzling wordplay. They are also full of disguises and mistaken identities with very complicated plots that are difficult to follow. Much of the comedy comes from characters making mistakes, and the ridiculous situations that arise from this.
Globe Theatre	The Globe Theatre was a theatre in London built in 1599 by Shakespeare's playing company . It was destroyed by fire in 1613, rebuilt in 1614 and closed in 1642 . It was a three-storey, open-air amphitheatre that could house up to 3,000 spectators. At the base of the stage, there was an area called the *pit*, where, for a penny, people would stand to watch the performance. Vertically around the yard were three levels of stadium-style seats , which were more expensive than standing room. Performers and audience members would have been very close, and be able to see each other clear as performances took place during the daytime.

Plot of Romeo and Juliet

Act 1

The Montagues and the Capulets are families involved in a bitter feud. Under penalty of death, the Prince of Verona orders the families to stop fighting.
Romeo, a Montague, is lovestruck. His cousin, Benvolio, and best friend, Mercutio plan to cheer him up by gatecrashing a party at the Capulet house.
Meanwhile, Lady Capulet plans for her daughter, Juliet, to marry Paris, a wealthy gentleman.
At the party, Romeo and Juliet meet and fall in love at first sight.

Act 2

After the party, Romeo sneaks back into the Capulet house and asks for her hand in marriage.
Friar Laurence agrees to marry the lovers in secret, hoping that it will end the feud.

Act 3

Tybalt, Juliet's cousin, is enraged that Romeo snuck into his family party. He tries to fight Romeo, who will not fight back. Mercutio dies defending his friend Romeo.
Having heard of the violence, the Prince banishes Romeo from Verona.
Capulet, in order to cheer his daughter up, arranges for her to marry Paris in two days' time.

Act 4

Friar Laurence hatches a plan for Juliet to take a sleeping potion and appear dead, so she can meet Romeo in the family crypt and run away together. Juliet takes the potion, and funeral plans are made.

Act 5

Romeo learns of Juliet's death, but not the secret plan. He fights his way back to Verona, buying poison on the way.
Romeo kills Paris in order to be the one lying next to Juliet's grave. He kills himself just as Juliet wakes up. She then uses Romeo's dagger to take her own life.
After the death of their children, the Montagues and Capulets end their feud.

THE MONTAGUES

Romeo
A lovesick teenager.
Benvolio
Romeo's cousin and all-round nice guy.
Mercutio
Romeo's fight-loving best friend
Lord and Lady Montague
Romeo's parents.

THE CAPULETS

Juliet
A teenager who won't be forced into love.
Tybalt
Juliet's fiery cousin
Nurse
Basically raised Juliet.
Lord and Lady Capulet
Juliet's pushy parents.

OTHERS

Friar Laurence
Tries to end the feud. Succeeds – at a price.
Prince Escalus
The lawmaker in Verona
Paris
A nice guy, but not Juliet's true love.

Themes

ROLES
What makes a good lover? Parent? Priest?
AGE
Especially the old vs. young battle
AUTHORITY
How to use it and abuse it.
LOVE
Romantic, family, and friendships.

KEY WORDS:

Composer Gustav Holst Planet Suite Movement Orchestra Dynamics Tempo Atmosphere Tempo Strings Brass Percussion Woodwind Contrast Symphonic Suite Synthesizer Themes Instrumentation Texture Structure Crescendo

THE PLANET SUITE

- Composed by Gustav Holst
- English composer
- Time 1914 – 1916 (WW1)
- Symphony orchestra
- A suite of 7 movements (pieces)
- All based on Roman Gods/ Goddesses – planet names

Music and Space

Year 8 Spring Term

Other works we have studied:

Claire De Lune – Debussy
Piano solo, slow, romantic, moderately quiet. Represents the sad but lonely moonlight.

Ron's Theme – Jean Michelle Jarre
Contains electronically generated sounds to represent computers, a slow heartbeat, sad/ flat saxophone solo. Represents the crew of the Challenger shuttle who lost their lives when the rocket exploded on take-off.

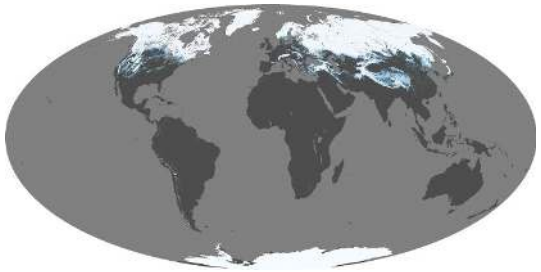
Apollo 13 Theme – James Horner
Military sounds, solo trumpet, powerful brass and percussion, soaring strings. Represents the determination of the crew in a doomed space mission.

The Seven Movements:

MARS the Bringer of War – bold, lots of crescendos and loud dynamics, repeated rhythms (ostinato) using the whole orchestra. Frightening.
VENUS the Bringer of Peace – soft and gentle with quiet dynamics and mainly use of woodwind.
MERCURY the Winged Messenger – Fast tempo with short note values to signify flitting around.
JUPITER the Bringer of Jollity – four main themes used, quite varied as it's jolly BUT strong as Jupiter is also the KING of Roman Gods.
SATURN the Bringer of Old Age – Slow tempo, serious, long note values, mainly quiet with a contrasting middle section.
URANUS the Magician – Loud brass fanfare to start then short skip fell like a naughty cartoon character up to no good. Lots of contrasts of volume and instruments to represent the drama of a fantastic magic show!
NEPTUNE the Mystic – Long notes, slow tempo lots of woodwind and magical choir sounds. It feels like a soundtrack to walking though a misty, enchanted woodland.

KEY WORDS AND MEANINGS (Tier 2 words in ORANGE, Tier 3 words in BLUE)	
Percussion	A collection of instruments that you hit, scrape and shake in order to get a sound out of them e.g. tambourine, drum, glockenspiel
Orchestra	A group of instrumentalists, especially one combining string, woodwind, brass, and percussion sections
Instrumentation	The particular instruments used in a piece of music
Composer	A person who writes/ makes the music
Symphonic Suite	A collection of music, usually created for an orchestra
Crescendo	Gradually getting louder
Movement	One section (one piece of music) of a Symphonic Suite
Texture	The layering of sounds to make thin or thick texture
Themes	A short and simple tune repeated throughout a piece of music
Structure	The way that a piece of music is organised from start to finish e.g. intro/verse/chorus/outro

Geography Knowledge Organiser: Topic 3 – Ice Worlds



Location of Ice

Latitude (Arctic Circle) – areas with high latitudes are colder due to the sun's energy being spread across the curvature of the Earth, making these places colder. 24hours of darkness in the wintertime decreases the temperature further.
Altitude (Himalayas) – Different factors affect the temperature, including air pressure causing air to be thinner so less able to retain heat
Temperature decline by 0.65-1˚C for every 100m climbed.

Key Terms:

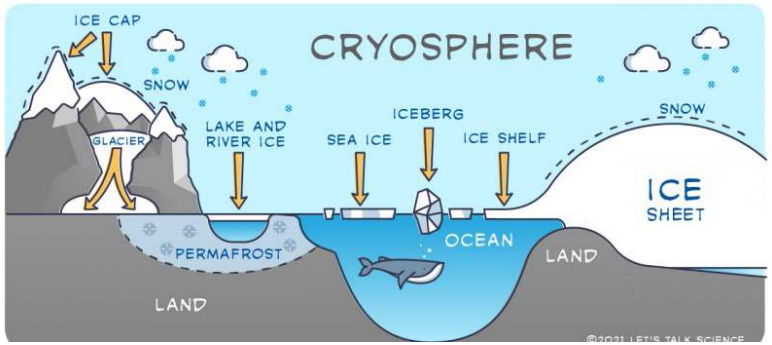
Glacier – a slow moving mass, or 'river' of ice formed by the build up and compaction of snow.
Cryosphere – the system of ice in all its forms on Earth
Latitude – The angular distance of a place in relation to the equator.
Altitude – the height up from sea level.
Abrasion – a type of erosion caused when rock is scraped away by other stones and rocks
Plucking – a form of erosion caused when rocks stick to the underside of a glacier and get picked up and taken away by it.
Corrie – an armchair-shaped hollow found at the top of a mountain where a glacier has previously eroded its sides and back wall.

Key assessment skill: writing to explain.

- Give reasons why Ice Worlds have certain characteristics.
- Give full processes in the correct order, with reasons why change happens at each stage.
- Consider natural and human reasons why change happens in places over time.

What is the cryosphere?

The Cryosphere refers to any place on Earth where water is in its solid form, where low temperatures freeze water and turn it into ice. The frozen water can be in the form of solid ice or snow and occurs in many places around the Earth.
Inputs are precipitation. Stores are ice sheets, ice shelves, icebergs and ice caps. Flows are glaciers. Outputs are evaporation at 0˚C and melting
The cryosphere is important because it reflects solar radiation back into space, reducing global temperatures. Climate change is causing ice to melt, this will speed up the process of climate change as reflection is reduced.



How do glaciers erode the land?

Glaciers erode through two key processes:

1. Plucking – when meltwater on the underside of the glacier melts and bonds to rocks on the ground. As the glacier advances it picks up the rocks and moves them away with it.
2. Abrasion – rocks and stones being carried on the underside of the glacier are scraped along the ground, causing it to be removed (sandpaper effect)

Glaciers transport (move) material in, on and below the ice, as well as being pushed ahead of it.
Deposition is the dumping, or leaving behind of material due to ice melt at the snout and the sides.

Why are Ice Worlds under threat and what impacts is it having?

Ice is melting due to climate change. Increased global temperatures is leading to melting ice as well as loss of solar reflection (ice is bright white, which reflects heat from the sun back into space, when ice melts the land and sea are darker and absorb heat rather than reflect it) leading to increased melting.

Retreat of the Khumbu Glacier, Nepal is leading to loss of freshwater supply for mountain communities.
Ice melt in the Arctic Circle leading to habitat loss, starving polar bears and the collapse of the food web.

How do glaciers affect our landscape?

A corrie (left) is formed when a glacier moves downhill and abrasion and plucking caused by the movement of the ice hollows out the top of the mountain.

An arete (right) is formed when two corries are formed either side of a mountain, scraping both sides of the mountain away.

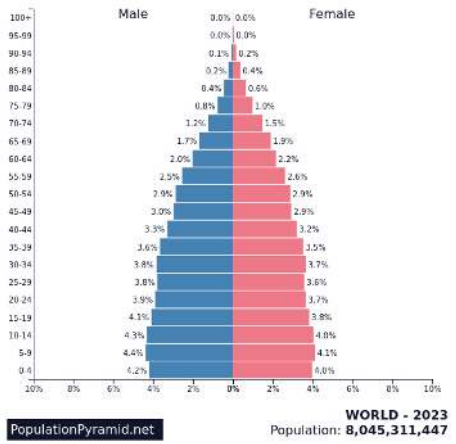
Did you know..? Glaciers are huge masses of ice that "flow" like very slow rivers. They form over hundreds of years where fallen snow compresses and turns into ice. Glaciers form the largest reservoir of fresh water on the planet. They store 75% of the world's fresh water!

Geography Knowledge Organiser: Topic 4 – Population and Migration

Population **distribution** is the spread of people around a region, a country or the world. Places with high population **densities** have lots of people per square kilometre. There are few people per square kilometre in **sparsely** populated regions.

Population Structure

- This means the proportions of age groups and sex within a population. Population structure can be shown on a type of graph called a population pyramid. These show the proportions, or numbers of males and females in each age bracket.



- Less developed regions have a wide base and narrow sides as death rates in each age group are high. As health of people is often better in richer countries, it leads to straighter sides as fewer people die in each age group and more people live to an old age.

Assessment Skill: Writing to Explain

- Point – summarise the main part of your argument.
- Evidence / example – give a specific fact about a place to prove the point you have made.
- Explain – emphasise the significance of your point, by giving reasons why it is important. Try to extend your explanations or give more than one reason why the point you have made is significant.

What was China's One Child Policy?

- The policy was put in place in 1979 after fears that rapid population growth would lead to a famine – millions of people had in previous famines in the country. From 2016 families were allowed two children. In 2021 married couples were allowed to have up to three children.
- Couples were allowed one successful pregnancy (twins were allowed). It mainly applied to the Han Chinese ethnic groups, other smaller ethnic groups did not need to follow the rules. China is a communist country and the government have control over every aspect of people's lives. Propaganda posters advertised the benefits of small families. They used strategies such as forced sterilisation, abortions, imprisonment and fines to prevent people from having more than one pregnancy. People had to apply for a licence to have a child within a fixed amount of time. In remote villages, elderly women known as 'the granny police' would keep an eye on young women and report any behaviour to the police that they thought may result in an unlawful pregnancy.

Migration

- Economic migration is the voluntary movement of people to seek a better life through gaining a better-paid job. This may happen internationally or within their own country.
- Example – the free movement of economic migrants between EU countries.
- Impacts on the host country – they fill jobs that would otherwise be left empty, may be less desirable jobs that people from the host country do not want, or highly skilled roles that we need well-qualified people to do. They work and, therefore, pay taxes contributing to the public purse, so the government has more to spend on improving services e.g. education.
- Impacts on the country of origin – Their hardest working and best qualified workers leave to find better opportunities elsewhere, leading to 'brain drain' – they are left with the least productive members of society e.g. the elderly.
- Forced migration is when a person's life is not safe in their home country and they have to move in order to survive.
- Example - Middle East Refugee Crisis 2021.
- Civil war broke out in 2011 causing economic and social turmoil for many years. By March 2021 an estimated 594,000 people had died and an estimated 6.6mill people had fled the country (making up 25% of the world's refugee movements). People's homes, schools and hospitals were being attacked and innocent people, including children were dying.

What have been the implications of China's Once Child Policy?

- Literacy rates in China have increased from 66 per cent to over 96 per cent since 1980. Poverty has decreased, and as of 2021, only 0.6 per cent of the population now live on less than $1.90 (around £1 to £1.50) a day. China has not suffered from a famine since the policy was introduced, despite rapid population growth caused by an aging population.
- However, people have been forced to reduce family size, at times against their will, people argue that this is unfair treatment of the population
- Imbalance in population age structure and fear that there will be too many dependents, leading to recent changes in the policy. Other imbalances in sex ratios a sex-selective abortions have taken place in the past. There have been 114 males for every 100 females born. This has led to men not being able to find a wife. Human trafficking into China is a serious concern.

Japan's Aging Population

In 2022 Japan reported its larges yearly population decline since 1968. It had declined by 800,000 in the space of a year. The birth rate is falling for a number of reasons: work-life balance (some Japanese companies require employees to do an extra 80 work a month), rising living costs (Japan is one of the world's most expensive places to raise a child), the economy is not advancing rapidly enough to increase salaries in line with this.
Impacts – 1.2million family-run businesses have no successor, so will disappear. Businesses have to innovate and develop technologies that will do the work instead of a person. The government is offering financial incentives ($7,500 per child for families who move from cities such as Tokyo to areas suffering from population decline) and subsidising childcare costs.

History Knowledge Organiser

Topic 3: The Industrial Revolution

Literacy / Key words

Industrial Revolution The name given to the time period between 1750 and 1900 where the way people lived, worked and produced goods changed dramatically

Textiles Cloth or goods produced by weaving or knitting

Death rate The number of deaths per 1000 people per year

Manufacturing Making something on a large scale using machinery

Child labour the employment of children in an industry or business

Migration movement of people from one region to another.

Factory a building or group of buildings where goods are manufactured or assembled chiefly by machine

What was Manchester like during the Industrial Revolution?

- Manchester's population grew from 60,000 in 1800 to 142,000 in 1842 as migrants came to work in the cotton mills.
- Capital of the industrial revolution.
- Richest town in England.
- Smoking mass of chimneys, factories, warehouses and canals.
- Cotton, cloth and other goods made Manchester very wealthy.
- High wages in factories and lots of jobs attracted many workers.
- Life was hard with conditions poor and risk of losing your employment.

What were conditions like in Industrial Towns?

- Living conditions were extremely poor and people were crammed in houses together.
- This meant conditions were dirty and unhealthy.
- Diseases like typhoid and dysentery spreading rapidly. The average age of death for the laboring population was 17.
- Factory workers faced long hours, with factories opening early in the morning and running until late in the evenings six days a week. Machinery accidents could lead to burns, injuries, amputation, and death.

How did Britain Change from 1750 – 1900?

	1750	1900
Population	11 million.	42 million.
Travel	10 – 12 days to travel from Edinburgh to London.	45 hours to travel from Edinburgh to London.
Education	Most children did not go to school. Only 6 universities in Britain.	Compulsory for all 5 – 12 year old girls and boys.
Health and Medicine	Only simple operations were possible and little was known about disease.	Germs had been discovered and vaccines for diseases produced. Antiseptics and anaesthetics had made more complex operations possible.
The Vote	Only 5% of the population could vote.	Most men could vote but women could not.
Work	The most important work was farming and manufacturing was done in peoples homes.	The most important industries were coal, iron, steel and textiles. Most industry based in factories.

What were working conditions like for children?

- Wages were very low.
- It was extremely dangerous operating and maintaining heavy machinery and many children died working in factories.
- Punishments for mistakes were harsh and violent.
- Child workers were often hungry and thirsty.

Extra - Read/watch/do

Chartism: https://www.bbc.co.uk/bitesize/articles/z4bh3qt
Suffragettes: https://www.bbc.co.uk/bitesize/topics/zxwg3j6
The Industrial Revolution: https://www.johndclare.net/KS3/3-1-3.htm

You will be assessed on:

Life during the Industrial Revolution, conditions during the Industrial Revolution, the impact of the Industrial Revolution on Manchester,

Links to curriculum:

English Maths

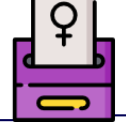
Geography RE

History Knowledge Organiser

Topic 4: Electoral Reforms

Literacy / Key words

Bribery offering or receiving an item of value to influence an action
Borough a village, town or city.
Corruption dishonest conduct by people in power
Electoral system the way in which people vote for the government.
Reform to make changes in order to improve
Representation acting or speaking on someone's behalf.
Enfranchised to give someone the right to vote
Chartism a UK political reform movement active between 1837–48
Suffragist someone who campaigns for women's right to vote
Suffragette a woman seeking the right to vote through organized protest
Rebellion resisting authority, control, or convention



What was Chartism?

- Chartism was a working class movement which emerged in 1836 in London. It expanded rapidly across the country and was most active between 1838 and 1848.
- A charter is a list of demands or rights.
- The movement got its name from the People's Charter which listed its six main aims:

  - a vote for all men (over 21)
  - secret ballot
  - no property qualification to become an MP

  - payment for MPs
  - electoral districts of equal size
  - annual elections for Parliament
- The chartists of Britain wanted to created an enormous charter to make the government change.
- The chartists needed signatures for the government to listen.
- They got nearly 6 million in Britain.

Arguments Surrounding Electoral Reform

For Reform	Against Reform
➢ The government only looked after the rich. ➢ Women are equal to men. ➢ The Middle should vote as they could help make the country successful. ➢ There is too much bribery and corruption in government. ➢ Unfair representation.	➢ The economy will suffer. ➢ Only the wealthy should vote as they own the most land. ➢ There is no need to change as the British system has worked well for years.

The Peterloo Massacre (Manchester 1819)

- Life in Manchester was hard.
- The working class wanted change.
- There was no member of parliament to represent the people of Manchester.
- A group of radical reformists organised a meeting in St. Peters Field, where one of the most famous radicals called Henry Hunt was going speak.
- Local Magistrates tried to use cavalry to arrest Henry Hunt and during the chaos 11 people died and many were injured.
- This went on to be called **Peterloo**, named after the recent victory against Napoleon at Waterloo.

Votes for Women

- ➢ By 1903 women had still not received the right to vote in Britain.
- ➢ A group of brave women formed the **Suffragette** movement.
- ➢ Emmeline Pankhurst led the suffragettes and her monument can still be seen today in Manchester.
- ➢ The suffragettes used various tactics to help gain support.
- ➢ These tactics included: heckling politicians, storming parliament, smashing windows, hunger strikes and bombing and arson campaigns.

We want change!

Religion and Ethics Knowledge Organiser

YEAR 8 SIKHI BELIEFS & PRACTICES

Sikhi Belief in God

Sikhi often refer to God as **Waheguru**, which means 'wondrous enlightener'. Sikhs believe that there is **only one God**, who created everything and that Waheguru must remain in the mind at all times. Sikhs' beliefs reflect their actions on a daily basis and bring them closer to Waheguru.

5 K's of Sikhism

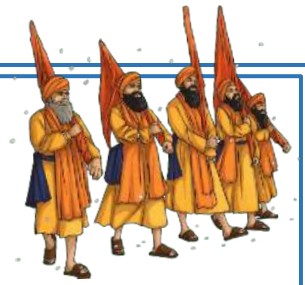
10 Sikh Gurus and the Guru Granth Sahib

Sikhism was established by **ten human Gurus**. These Gurus created and defined Sikhism from one to the next through their words, hymns, writings and actions. By living a spiritually pure life, they taught people in India the importance of equality and the belief that all religions.

Guru Nanak is the founder of Sikhism. He was succeeded by nine other human gurus until in 1708 **Guru Gobind Singh** passed the Guruship to the holy Sikh scripture, **Guru Granth Sahib**, which is now considered the living Guru by the followers of the Sikh faith.

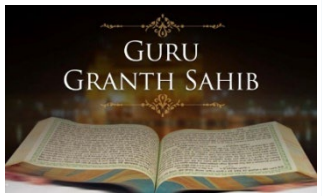
Khalsa and Amrit Sanskar

Amrit Sanskar is the **initiation ceremony** that Sikhi take part in when they make the decision to become fully committed Sikhi. Once they have gone through this initiation ceremony, they commit themselves to the **Khalsa.** This means that they wear the five Ks and are expected to follow the strict rules.



Key Terms:

Guru – A spiritual teacher
Guru Granth Sahib- The 'Eternal Guru' The holy book for Sikhi.
Gurdwara- Sikhi place of worship.
Sewa- translates to acts of 'selfless service'
Langar- Communal kitchen
Sangat- the community of Sikhi
Khalsa – Community of initiated Sikhi



What is the importance of the Langar?

Sewa: serving God and other people. Essential to Sikh faith as they believe everyone should be equal.
The Langar – is the kitchen and dining hall where a community meal is served. It is always **vegetarian** so everyone can eat it, including non-Sikhs who may need a meal.

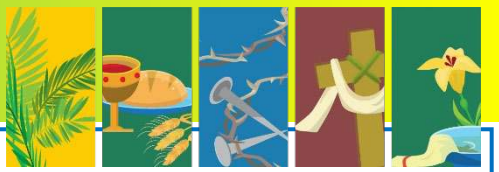
How is Sewa practiced in the UK?

Gurdwaras in the UK are often houses/buildings which are converted into a place of worship. The Gurdwara is the ***centre of the community*** and will host initiatives like **community kitchens (Langar)** and support **humanitarian aid**.

By doing this Sikhi's actively contribute to the well-being of society, fostering unity and compassion in the multicultural landscape of the United Kingdom.

The holiest place of worship for Sikhs is The **Golden Temple in Amritsar, India**.

Religion and Ethics Knowledge Organiser



Key words:

Radical: someone who supports & leads on political or social change

Blasphemy: claiming to be God or insulting God

Messiah (Christ in Greek): King or saviour.

Last week of Jesus' life

The last week of Jesus' life, often referred to as **Holy Week**, holds immense significance in Christianity. It begins with Jesus' entry into Jerusalem on **Palm Sunday** and includes events such as the **Last Supper**, and the **betrayal by Judas** leading to his arrest. The week ends with Jesus' crucifixion on **Good Friday** and concludes with the celebration of his resurrection on **Easter Sunday**.

Social and Religious Background 2000 years ago:

The Roman Empire ruled Judea, which was the area where Jesus lived. Jesus was a Jew, living amongst Jewish people who hated the Romans for their violent rule over them and for taxing the people. **The Pharisees** were strict Jewish religious leaders. They interpreted the Jewish laws very extremely and people feared them because they might accuse you **of blasphemy**. The Jewish people were desperate for a **Messiah** to rescue them from the Romans and Pharisees. Christians are people who believe that Jesus was that Messiah or Christ.

Who did Jesus befriend and help?

Jesus helped and befriended a wide range of people, including the poor, sick, sinners, tax collectors, and those considered **outcasts in society**. His teachings emphasized **love, forgiveness, and inclusivity,** encouraging everyone to treat others with kindness. Jesus' message focused on compassion and friendship, breaking **down social barriers** and reaching out to those who were marginalized or overlooked by society.

Significance of the crucifixion

The crucifixion refers to the **execution of Jesus Christ** on a cross. This event is central to the Christian belief in redemption, symbolizing **Jesus' sacrifice for the forgiveness of sins**. The act of crucifixion involves a person being nailed or bound to a cross, and Jesus willingly endured this suffering to demonstrate love and provide a **path to salvation** for believers.

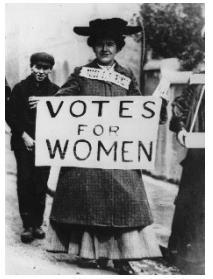
Significance of the resurrection

The resurrection is a crucial event in Christianity, symbolizing **Jesus overcoming death**. In the words ***"I am the resurrection and the life, those who follow me shall never die"*** Christians find a message of hope, emphasizing that through faith in Jesus, believers can triumph over challenges and look forward to **eternal life in Heaven** with God.

YEAR 8 RADICAL TEACHINGS OF JESUS

What teachings and ideas from Jesus were radical?

- Jesus said seeking money and working to be wealthy was not the pathway to Heaven. He said you cannot serve 2 masters. **You had to choose: money or God.**
- Jesus was anti-racist. In the Parable of the Good Samaritan he taught people to '***love your neighbour***', in which he was referring to every human who must be treated with respect and equality.
- Jesus taught that we should forgive everyone and '***love our enemies and pray for those who hate you***'.
- Jesus befriended outcasts in society who were ignored by others such as tax collectors and lepers.



Who is radical and can be compared to Jesus in modern times?

Martin Luther King - led the civil rights movement to end segregation laws in USA states

Emelline Pankhurst - led the suffragette movement for women's right to vote in UK

Greta Thumberg - led school strikes for action on global climate change

ALGEBRAIC EXPRESSIONS

Key Words

Operation: In maths these are the functions × ÷ + -.
A **formula** involves two or more letters, where one letter equals an **expression** of other letters.
An **expression** is a sentence in algebra that does NOT have an equals sign.
When **substituting** a number into an expression, replace the letter with the given value.

Tip

Use different colours when collecting like terms

Links to curriculum

Key Concepts

Algebra Meanings

a means 1a or 1 x a
3a = 3 x a
a^2 = a x a
m/n = m ÷ n
n/m = n ÷ m
ab = a x b

a + b = b + a
a x b = b x a

a – b and b – a don't mean the same thing
a ÷ b and b ÷ a don't mean the same thing

Extra - Read/watch/do

Examples

1. Simplify the following expressions:

a) $4p + 6t + p - 2t = 5p + 4t$

b) $3 + 2t + p - t + 2 = 5 + t + p$

c) $f + 3g - 4f = 3g - 3g$

d) $f^2 + 4f^2 - 2f^2 = 3f^2$

2) Find the value of $3x + 2$ when $x = 5$

$(3 \times 5) + 2 = 17$

3) $5 \times 4 - 8 \div 2$

$20 - 4 = \mathbf{16}$

Questions

1) **Simplify:**
a) 7p + 3q + p – 3q
b) 5 + 4t + 3p – 2t + 7
c) m – 8g – 5m
d) $b^2 - 7b^2 + 2b^2$
2) Find the value of 5m – 6 when m = 7

ANSWERS: 1)a) 8p b) 12 + 2t + 3p c) -4m – 8gd) $-4b^2$ 4) 29

Powers and Roots

Key Concept

B Brackets

I Indices

D Division

M Multiplication

A Addition

S Subtraction

If a calculation contains division and multiplication or addition and subtraction calculations work from left to right.

Key Words

Square: A square number is the result of multiplying a number by itself.
Cube: A cube number is the result of multiplying a number by itself twice
Power: squared means power of 2, cubed is power of 3 and so on
Root: A root is the reverse of a power.
Integer: whole number
Product: Multiply

Tip

4^2 means 4 x 4 and not 4 x 2

5^3 means 5 x 5 x 5 and not 5 x 3

Examples

What is 2^4 ? $2 \times 2 \times 2 \times 2 = 16$

What is $\sqrt{64}$? $8^2 = 64$, so $\sqrt{64} = \pm 8$

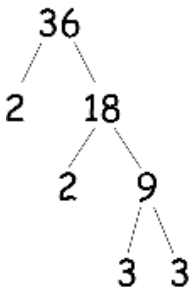
Multiplying/Dividing by powers of 10

3.4 x 100

100	10	1	$\frac{1}{10}$
		3	4
3	4	0	

Write 36 as a product of prime factors

$36 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$



Questions

1) a) 2^5 b) 3^3 c) 1^{17} d) $\sqrt{81}$ e) $\sqrt{16}$ f) $\sqrt[3]{64}$
2) (a) 4.6 x 100 (b) 4.6 ÷ 100 (c) 3.2×10^3

ANSWERS: 1) a) 32 b) 27 c) 1 d) ± 9 e) ± 4 f) 4
2) a)460 b) 0.046 (c) 3200

Links to curriculum

Extra - Read/watch/do

ROUNDING

Key Concepts

Digits are the individual components of a number.

Integers are whole numbers.

Rounding rules:
A value of 5 to 9 rounds the number up.
A value of 0 to 4 keeps the number the same.

Examples

Standard form is a way of writing very large or small numbers

A number is in standard form if it is written as:

$$a \times 10^n \text{ where } 1 \leq a < 10$$

Write the following in **standard form**:

1) $3000 = 3 \times 10^3$

2) $4580000 = 4.58 \times 10^6$

Round 3.527 to:

a) 1 decimal place

3 . 5 2 7 → 3.5

b) 2 decimal places

3 . 5 2 7 → 3.53

c) 1 significant figure

3 . 5 2 7 → 4

Key Words

Integer Even
Digit Odd Decimal place
Significant figures .

A) Round the following numbers to the given degree of accuracy
1) 14. 1732 (1 d.p.) 2) 0.0568 (2 d.p.) 3)3418 (1 S.F)

B) Write in standard form
1) 4300 2) 67880 3) 987657

Links to curriculum

Extra - Read/watch/do

ANSWERS: A) 1) 14.2 2) 0.06 3) 3000
B) 1) 4.3×10^3 2) 6.788×10^4 3) 9.87657×10^5

SCATTER GRAPHS

Key Terms:

Origin – Where two axes meet on a graph.

Outlier – A point that lies outside the trend of the graph.

Relationship – The link between two variables e.g. between sunny days and ice cream sales.

Correlation – The mathematical definition for the type of relationship.

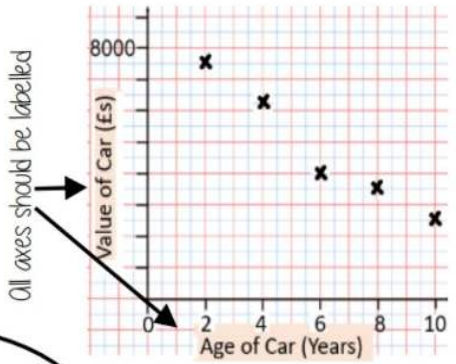
Line of Best Fit – A straight line on a graph that represents the data on a scatter graph.

Examples

Draw and interpret a scatter graph.

Age of Car (Years)	2	4	6	8	10
Value of Car (£s)	7500	6250	4000	3500	2500

- This data may not be given in size order
- The data forms information pairs for the scatter graph
- Not all data has a relationship

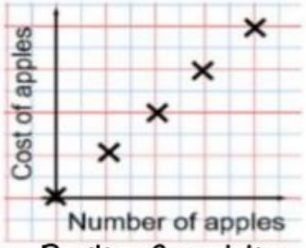


"This scatter graph show as the age of a car increases the value decreases"

The link between the data can be explained verbally

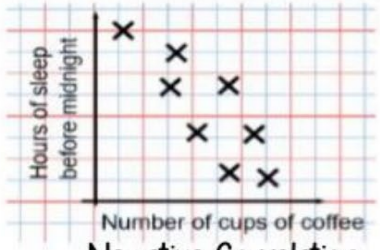
The axis should fit all the values on and be equally spread out

Linear Correlation



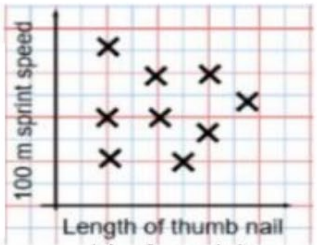
Positive Correlation

As one variable increases so does the other variable



Negative Correlation

As one variable increases the other variable decreases



No Correlation

There is no relationship between the two variables

Key Concept

ANGLE FACTS INCLUDING PARALLEL LINES

Key Concepts

Angles in a **triangle equal 180°**.

Angles in a **quadrilateral equal 360°**.

Vertically opposite angles are equal in size.

Angles on a **straight line equal 180°**.

Base angles in an isosceles triangle are equal.

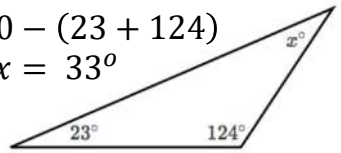
Alternate angles are equal in size.

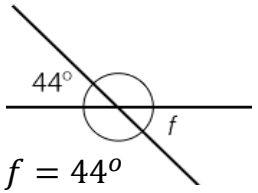
Corresponding angles are equal in size.

Allied/co-interior angles are equal 180°.

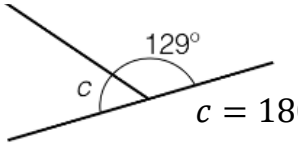
Examples

$x = 180 - (23 + 124)$
$x = 33^o$

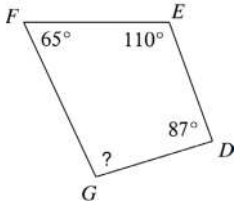




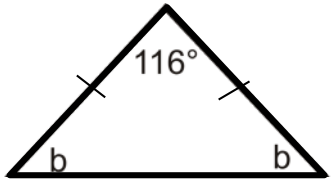
$f = 44^o$



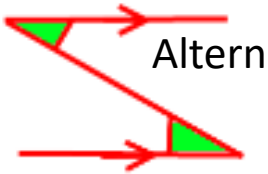
$c = 180 - 129$
$x = 51^o$



$? = 360 - (65 + 110 + 87)$
$? = 98^o$

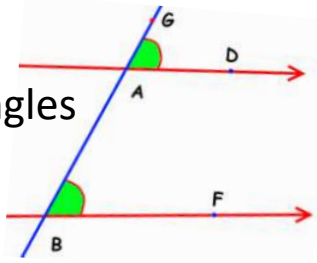


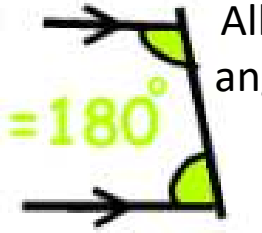
$b = (180 - 116) \div 2$
$b = 32^o$



Alternate angles are equal

Corresponding angles are equal





Allied/co-interior angles equal 180°

Key Words

Angle
Allied
Vertically opposite
Straight line
Alternate
Corresponding
Co-interior

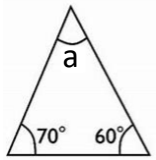
Extra - Read/watch/do

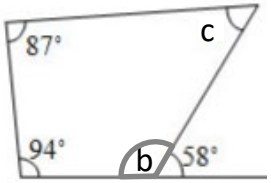
Links to curriculum

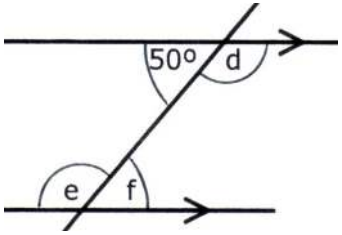
Questions

Calculate the missing angle:

a)







ANSWERS: 1) a=50° 2) b=122° c=57° 3) d=130° e=130° f=50°

PERCENTAGE CHANGES

Key Concept

Multipliers

Find 15%	$\times 0.15$
Increase by 15%	$\times 1.15$
Decrease by 15%	$\times 0.85$

For **reverse percentage** problems you can divide by the multiplier to find the original amount.

Key Words

Percentage: Is a proportion that shows a number as parts per hundred.
Fraction: A fraction is made up of a numerator (top) and a denominator (bottom).
Multiplier: A quantity by which a given number is to be multiplied.

Examples

Find **32%** of 54.60 = **0.32** × 54.60 = 17.472

Percentage Change:

Increase 45 by **12%**

$Value \times (1 + percentage\ as\ a\ decimal)$

$= 45 \times (1 + 0.12)$

= 45 × **1.12** = 50.4

A dress is reduced in price by 35% from £80. What is it's **new price**?

$Value \times (1 - percentage\ as\ a\ decimal)$

$= 80 \times (1 - 0.35)$

= £52

Tip

There is a % function on your calculator.
To find 25% of 14 on a calculator:
2, 5, SHIFT, (, ×, 1, 4, =

Extra - Read/watch/do

Links to curriculum

Questions

1) a) 35% of 140 b) 21% of 360 c) Increase 60 by 15%
2) Write the following as a decimal multiplier: a) 45% b) 3% c) 2.7%
3a) Decrease £500 by 6% b) Increase 65g by 24% c) Increase 70m by 8.5%

ANSWERS: 1) a) 49 b) 75.6 c) 69 2a) 0.45 b) 0.03 c) 0.027 4a) £470 b) 80.6g c) 75.95m

GRAPHS

Key Concept

Substitution – This is where you replace a number with a letter

If a = 5 and b = 2

a + b =	5 + 2 = 7
a – b =	5 – 2 = 3
3a =	3 × 5 = 15
ab =	5 × 2 = 10

Tip

Parallel lines have the same gradient

Links to curriculum

Key Words

Co-ordinate: A pair of numbers which describe the position on a grid

Intercept: Where two graphs cross

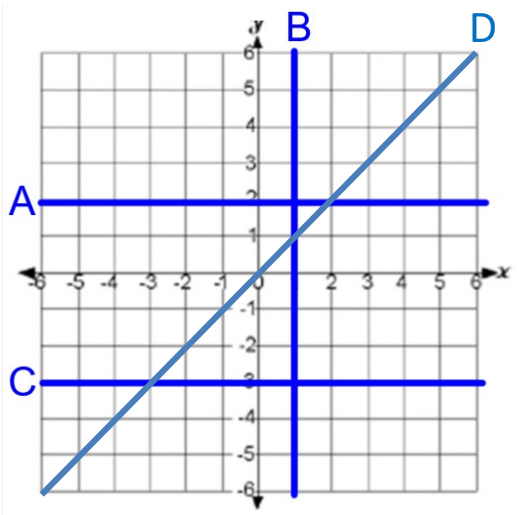
Linear: A linear graph is a straight line

Gradient: This describes the steepness of the line.

y-intercept: Where the graph crosses the y-axis.

Extra - Read/watch/do

Examples

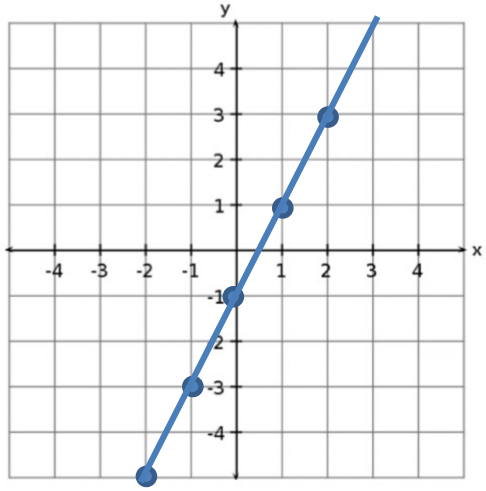


A: y = 2 B: x = 1

C: y = -3 D: y = x

Draw the graph of y = 2x - 1

X	- 2	- 1	0	1	2
Y	-5	-3	-1	1	3



Questions

1) Draw the graph of y = 3x – 2 for x values from -3 to 3 using a table.

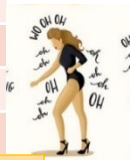
Tenses (& key verbs)

Son= they are
Hay - there is
Es - is
Tiene - has

A

Regular verbs – present tense endings

	-ar verbs	-er verbs	-ir verbs
I	-o	-o	-o
you	-as	-es	-es
he/she/it	-a	-e	-e
we	-amos	-emos	-imos
you (pl)	-áis	-éis	-ís
they	-an	-en	-en



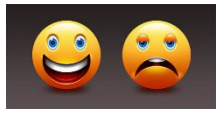
FUTURE Saying what you are going to do B

IR – to go

Voy	a	INFINITIVE (-ar –er –ir endings)
vas		*Ir*
va		*visitar*
vamos		*jugar*
vais		*nadar*
Van		*comer*
		Ver

Opinions & Pronouns C

Me chifla	Me enfada (angers)
Me impresiona	Me repugna
Me fascina	Me preocupa (worries)
Me interesa	Me aburre
Me HACE feliz ☺	Me HACE trite ☹



Connectives D

además / encima	also/furthermore
sin embargo /aunque	however/ although
Donde	where
cuando	when
puesto que / ya que	because (since)
Así que / por eso	there fore /so
Tampoco	neither
Todavía	still/ yet

Complexity E

Se puede + inf	- you can….
Se puede visitar	- you can visit
Se puede ver	- you can see

No tiene….TAMPOCO tiene… = . It doesn't have…… neither does it have…..

Adjectives F

antiguo/a	old
viejo/a	old
moderno/a	modern
nuevo/a	new
grande	big
pequeño/a	small
bonito/a	pretty
feo/a	ugly
ruidoso/a	noisy
tranquilo/a	quiet
cómodo/a	comfortable
incómodo	uncomfortable
ordenado/a	tidy
desordenado/a	untidy
limpio/a	clean
sucio/a	dirty

Hay un polideportivo nuevo
La playa es limpia pero
las fábricas son sucias

Extra: read/ watch/do:
Linguascope.com Beginners Spanish: Mi Mundo-
KS3 Bitesize Spanish 'Talking about where you live'
SCAN ME

You will be assessed on:
-: R/W Translation - Photocard and 2 questions
- Assessment – Reading cross topic)

Links to curriculum
Cultural capital: Semana Santa (Easter in Spain)
Linguistic progression example: Embed 2 tenses. Use of sub-clauses.

KO. Yr8 mod 5 Mi Pueblo

G

La ciudad The town

el aeropuerto	airport
la calle …	street
la catedral	cathedral
el centro comercial	shopping centre
el cine	cinema
la estación	station
el estadio	stadium
el instituto	school
el mercado	market
la oficina de turismo	tourist office
la piscina	swimming pool
la playa	beach
la plaza	square
la plaza de toros	bullring
el polideportivo	sports centre
el puente	bridge
el río	river
la tienda (de regalos)	(gift) shop

TOPIC VOCABULARY TRANSLATED

una avenida	an avenue
un castillo	castle
un edificio	a building
un equipo de fútbol	a football team
una fábrica	a factory
una iglesia	a church
un lugar	a place
un monumento	a monument/site
un museo	a museum
un palacio	a palace
un puerto	a port

H

¿Por dónde se va
¿Dónde está …?

a la derecha	to the right
a la izquierda	to the left
(Sigue) todo recto	straight on.
Toma …	Take …
la primera a la	the first on the
la segunda a la	the second on the
la tercera a la	the third on the

Sube …	Go up …
Baja …	Go down …
Cruza …	Cross …
Dobla …	Turn …
Tuerce …	Turn …

al lado de	next to
delante de	in front of
enfrente de	opposite
Está cerca.	It's near.
Está lejos.	It's far

I

Tenses (& key verbs)

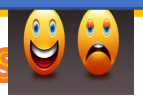
A

PAST preterite	AR	ER/ IR
I (yo)	é	í
You (tú)	aste	iste
He/she (él / ella)	ó	ió
We (nosotros)	amos	imos
You (pl) vosotros	asteis	isteis
They (ellos/ellas)	aron	ieron

B

1. fui — 1. I went / was
2. fuiste — 2. you went / were
3. fue — 3. he / she went / was
4. fuimos — 4. we went / were
5. fuisteis — 5. you (pl) went / were
6. fueron — 6. they went / were

Opinions & Pronouns



C

Mi madre dice que
(my mum says that)

Lo que más me gusta es
(the thing I like the most is)

Lo que no me gusta nada es
(the thing I do not like at all is)

Pronoun changes

Me – me
Te – you
Le – he/she
Nos – we
Os – you all
Les – they

e.g.
le molesta
– it annoys **HER**

Frequency phrases

D

A veces / muchas veces – sometimes / many times
(casi) siempre – (almost) always
A menudo – often
De vez en cuando – from time to time
Raramente – rarely
Constantemente – constantly
Frecuentamente – frequently
A diario - daily

Complexity

E

Se puede + inf	- you can….
Se puede ver	- you can see
Suelo + inf	- I tend to…
(no) es possible + inf	- It's (not) possible to
No hago nada.	I don't do anything

No hay / es ni…ni = there is not/is not neither…nor

Adjectives

F

Bueno/a	**Good**
Divertido/a	Fun
aburrido/a	Boring
relajante	Relaxing
interesante	Interesting
Gracioso/a	Fun
Fenomenal	phenomenal
Caro/a	Expensive
Barato/a	Cheap
Loco/a	Crazy
Práctico/a	Practical
Malo	Bad
Sano/a	Healthy
Malsano/a	unhealthy
Duro /a	Hard
Cansado/a	tiring

Quantifiers:
Realmente / sumamente (really)
Demasiado (too) un poco (a little)

Extra: read/ watch/do:
Linguascope.com Beginners Spanish: El Ocio
KS3 Bitesize Spanish 'Talking about freetime'

Assessment:
respond to 4 bullet points. Use of 2 or 3 tenses.
Summative assessment. Listening.

Links to curriculum
Cultural capital: Semana Santa (Easter in Spain)
Linguistic progression example: Introduce preterite tense. Frequency words.

KO. Yr8 mod 6 Mi tiempo libre

TOPIC VOCABULARY TRANSLATED

Juego + ball sports G

… al bádminton
… al baloncesto
… al cricket
… al fútbol
… al rugby
… al squash
… al tenis
… al voleibol
…al hockey

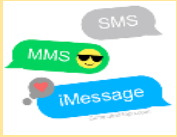
Practico /hago H

el atletismo
el ciclismo
la equitación- horse riding
el esquí
la gimnasia
la natación - swimming
el patinaje - skating
la vela - sailing
Surfing
windsurfing

Cuándo y dónde? I
When and where?

Esta mañana/tarde.	This morning/afternoon (or evening)
Esta noche.	Tonight.
Mañana.	Tomorrow.
El (sábado).	On (Saturday).
¿A qué hora?	At what time?
a la(s) …	at …
¿Dónde nos encontramos?	Where shall we meet?
en la plaza	in the square
en mi casa	at my house
en la entrada	at the entrance
en la estación	at the station
Bueno/Vale/ De acuerdo/Bien	OK
Pues	erm

Un mensaje
A text message



Un abrazo	A hug
Un beso	A kiss
Besos	Kisses
Saludos	Regards/Best wishes

¿Quieres salir? J
Do you want to go out?

¿Dígame?/¿Diga?	Hello (on answering the phone)?
Soy (Pedro).	It's (Pedro).
¿Quieres ir (al cine)?	Do you want to go (to the cinema)?
¿Quieres jugar (al tenis)?	Do you want to play (tennis)?

K

8E Combustion

1. Burning Fuels

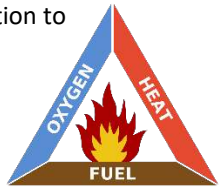
Fuel	A chemical substance from which stored energy can be transferred usefully to make things happen.
Fuel Cell	Used in hydrogen-powered vehicles, releasing energy from hydrogen.
Fuel Cell Word Equation	Hydrogen + oxygen → water
Reactants	The starting substances- on left of word equation.
Products	The new substances made- on right of word equation.
Combustion	Burning, usually in air. The reaction gives out energy which is transferred to the surroundings by heating or light.
Fossil Fuels	Fuels formed from living organisms that died millions of years ago- *petrol, diesel*
Hydrocarbons	Only contain carbon and hydrogen atoms- *petrol, diesel*
Combustion of Hydrocarbons	The carbon and hydrogen atoms react with oxygen. The carbon reacts to form carbon dioxide.
Carbon Dioxide	Carbon dioxide will turn limewater cloudy.

2. Oxidation

Oxidation	Reacting with oxygen.
Oxide	Compound formed by oxidation.
Metal Oxides	Formed when metals react with oxygen. *metal + oxygen → metal oxide*

Conservation of Mass	Mass is never gained or lost in a chemical reaction. The atoms in reactants just rearrange to form the products, no new atoms are made and none disappear.
Heating Zinc in Air	Forms a white powder zinc oxide. The mass will appear to increase because the zinc has combined with the oxygen in air.
Gas Products	If the product is a gas it may escape and make it seem like the mass has decreased.
Phlogiston	A substance scientists used to think explained why things burned that was then proven not to exist.

3. Fire Safety

Exothermic	A reaction that releases energy that we can feel as heat- *combustion*
Thermometer	Used to measure a change in the temperature.
Fire Triangle	Three factors allow combustion to occur. 
Putting Out a Fire	You must remove at least one of the three factors.
	**Explosive** Heating may cause an explosion.
	**Flammable** These substances catch fire easily.
	**Oxidising** These substances release oxygen.

Fire Extinguishers	Work by cooling a fire or stopping oxygen getting to the fuel.
Oil Fire	Water will sink through the oil and turn to steam making the fire spread out. Use foam or a fire blanket to keep oxygen away.
Electrical Fire	Water conducts electricity so you may get a serious shock. Turn off the electricity and use a powder or carbon dioxide extinguisher.

4. Air Pollution

Complete Combustion	Carbon burns in plenty of air only forming carbon dioxide.
Incomplete Combustion	Not enough oxygen for all the carbon to react with.
Products of Incomplete Combustion	• carbon dioxide- linked to global warming • carbon monoxide- poisonous gas • soot- damage lungs and trigger asthma
Impurities	Small amounts of other substances in fuels.
Sulfur Dioxide	Formed when hydrocarbons have a sulfur impurity.
Nitrogen Oxide	Formed by high engine temperatures causing nitrogen and oxygen in air to react.
Pollutants	Something that can harm living things and damage the environment.
Catalytic Converter	Found in cars to react carbon monoxide with more oxygen forming carbon dioxide. Also breaks down nitrogen oxides.

Acid Rain	Sulfur dioxide and nitrogen oxides rise into the air and dissolve in water vapour. The rain is now more acidic.
Controlling Acid Rain	Neutralisation reactions used to remove acidic gases from chimney smoke. Acidic soil /water can be neutralised by adding calcium carbonate.

5. Global Warming

Greenhouse Gases	Trap energy from the Sun in the atmosphere *e.g. carbon dioxide*
Greenhouse Effect	Energy trapped by greenhouse gases is transferred back to the Earth's surface causing it to warm up.
Earth's Temperature Over Time	The temperature of the Earth has fluctuated over time it is rising rapidly now though.
Global Warming	Increase in global temperature due to more greenhouse gases in the air and the greenhouse effect.
Climate Change	Resulting from global warming- changes to weather patterns, more storms, flood, droughts, etc.
Evidence	There is now lots of evidence for global warming. average temperatures are increasing and ice caps are melting.

Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

8G Metals and Their Uses

1. Metal Properties

Physical Properties	The properties that describe a substance on its own. *(colour, strength, density, etc.)*
Chemical Properties	How a substance reacts with other substances.
Properties of Metals	High melting points, strong, flexible, malleable, shiny, good conductors.
Copper	Used in electrical circuits because it is a good conductor of electricity and unreactive. Used in water pipes because it is unreactive, non-poisonous and malleable.
Aluminium	Used in window frames because it is strong and light.
Metals & Oxygen	Most metals react with oxygen. metal + oxygen → metal oxide *e.g. zinc + oxygen → zinc oxide*
Metals & Halogens	Metals react with halogens and other non-metals. *e.g. zinc + fluorine → zinc fluoride*
Catalysts	Speed up chemical reactions without being permanently changed themselves.
Catalytic Converter	Found in cars to help convert dangerous gases into harmless ones- often contain platinum, palladium and rhodium.

2. Corrosion

Corrosion	Any reaction with oxygen at the surface of a metal.
Rusting	The corrosion of iron.
Word Equation for Corrosion of Titanium	
titanium + oxygen → titanium oxide	
Symbol Equation for Corrosion of Titanium	
$Ti + O_2 \rightarrow TiO_2$	
Formula	Used to represent the products and reactants in a symbol equation.
Ratio	Comparison of the proportion of two quantities *e.g. in TiO_2 there are two oxygen atoms for every titanium- the ratio is 1:2*
Rusting of Iron	More complex than general corrosion- requires water as well.
Rusting of Iron Word Equation	
Iron + oxygen + water → iron hydroxide	
Preventing Rust	Use a barrier such as paint/plastic/oil to keep away air/water

3. Metals and Water

Reactivity of Metals

Metal	Reaction with oxygen in air	Reaction with cold water
potassium	🔥	🔥
sodium	🔥	✓✓✓
lithium	🔥	✓✓
calcium	🔥	✓✓
magnesium	🔥	✓
aluminium	✓✓✓	●●●
zinc	✓✓	●●●
iron	✓✓	●●●
tin	✓	●●●
lead	✓	●●●
copper	✓	✗
mercury	●●●	✗
silver	●●●	✗
gold	✗	✗
platinum	✗	✗

Increasing reactivity

Key

🔥 can catch fire	✓✓✓ reacts very quickly	✓✓ reacts quickly
✓ reacts	●●● slow or partial reaction	✗ no reaction

Reactivity	How quickly / vigorously something reacts.
Reactivity Series	A list of metals in the order of their reactivity.
Metals & Water	Metals produce metal hydroxides and hydrogen when reacting with water. *(sodium + water → sodium hydroxide + hydrogen)*

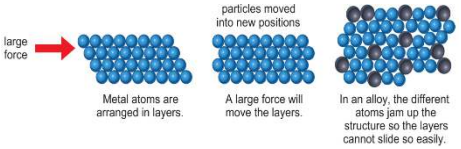
4. Metals and Acids

Potassium - Lithium	React explosively with dilute acids.
Calcium - Zinc	React very quickly with dilute acids.
Iron - Lead	React slowly with dilute acids.
Copper - Platinum	Do not appear to react with dilute acids at all.
Effervescence	The production of a gas. Occurs when metals react with an acid.
Metals & Acids	Metals react with acids to form hydrogen and a salt.
Metals & Acids Word Equation	
metal + acid → salt + hydrogen *e.g. magnesium + sulfuric acid → magnesium sulfate + hydrogen*	
Naming Salts	The first word in the salt is the metal the second depends on the acid used.
Hydrochloric Acid	HCl – forms salts ending in chloride
Sulfuric Acid	H_2SO_4 – forms salts ending in sulfate
Nitric Acid	HNO_3 – forms salts ending in nitrate
Obtaining Salts	Mix the acid and the metal. Filter the solution to remove any excess metal. Heat the solution to evaporate water leaving just the solid salt.

5. Pure Metals and Alloys

Pure	Substance made up of one type of atom.
Alloys	Mixtures of metals.
Solder	Lead mixed with tin- lower melting point than lead used for fixing pipes / electrical equipment.
Duralumin	Aluminium mixed with copper and magnesium making it lighter and stronger. Used in aircraft.
Stainless Steel	Iron mixed with carbon, chromium and nickel making it stronger and more resistant to corrosion. Used in cutlery.

Explaining How Alloys Are Strong



Melting / Boiling Points	Melting and boiling points for pure substances are fixed and occur at precise temperatures. Alloys melt and boil over a range of temperatures.

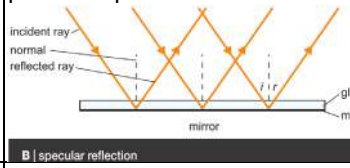
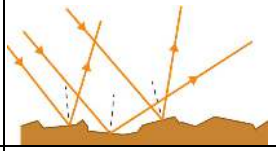
Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

8J Light

1. Light on the move

Vacuum	A completely empty space, containing no particles.
Matter	All things are made of matter. There are three states of matter: solid, liquid, gas.
Longitudinal wave	A wave where the particles vibrate in the same direction as the wave is travelling. 
Transverse wave	A wave where the vibrations are at right angles to the direction the wave is travelling. 
Ray	A narrow beam of light, or an arrow on a diagram representing the path of light and the direction in which it is travelling.
Transparent	A material that light can travel through without scattering. (Note: transparent substances may be coloured or colourless.)
Transmit	To pass through a substance.
Reflect	To bounce off a surface instead of passing through it or being absorbed.
Absorb	'To soak up' or 'to take in'.
Translucent	Material that lets light through but scatters it. You cannot see things clearly through translucent materials.
Opaque	Material that does not let light through. It is not possible to see through an opaque substance.
Scattered	Scattering occurs when light or other energy waves pass through an imperfect medium (such as air filled with particles of some sort) and are deflected from a straight path.
Reflected ray	A ray of light bouncing off a mirror.
Source	Where a sound wave or other wave begins.
Image	A picture that forms in a mirror or on a screen, or is made by a lens. You see an image when looking down a microscope.
Pinhole camera	A piece of apparatus that forms an image of an object on a screen when light rays travel through a tiny hole in the front
Shadow	A place where light cannot get to, because an opaque object is blocking the light.

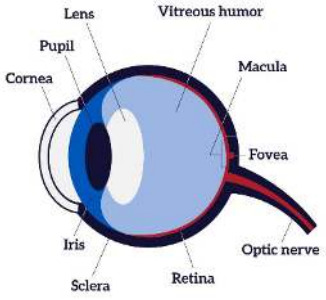
2. Reflection

Plane mirror	A smooth, flat mirror.
Ray box	A piece of equipment that produces a narrow beam of light.
Ray tracing	A method of investigating what happens to light by marking the path of a light ray.
Ray diagram	A diagram that represents the path of light using arrows.
Normal	An imaginary line at right angles to the surface of a mirror or other object where a ray of light hits it.
Incident ray	A ray of light going towards the mirror or other object.
Reflected ray	A ray of light bouncing off a mirror.
Angle of incidence	The angle between an incoming light ray and the normal.
Angle of reflection	The angle between the normal and the ray of light leaving a mirror.
Specular reflection	When light is reflected evenly, so that all reflected light goes off in the same direction. Mirrors produce specular reflection. 
Diffuse reflection	Reflection from a rough surface, where the reflected light is scattered in all directions. 
Law of reflection	The angle of incidence is equal to the angle of reflection.

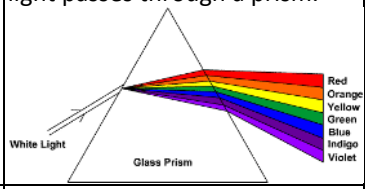
3. Refraction

Refraction	The change in direction when light goes from one transparent material to another.
Interface	The boundary between two materials.
Lens	A curved piece of glass or other transparent material that can change the direction of rays of light.
Converging lens	A lens that makes rays of light come together.
Angle of refraction	The angle between the normal and a ray of light that has been refracted.
Focal point	The place where parallel rays of light are brought together by a converging lens.
Focal length	The distance between the centre of the lens and the focal point.

4. Cameras and eyes

Digital camera	A camera that uses electronics to record an image.
Sensor	An instrument that detects something. In a digital camera, the sensors detect light and change it to electrical signals.
Memory card	Part of a digital camera that stores the images.
Aperture	A hole in a camera that controls how much light goes to the sensor.
Shutter	A device that shields and protects the sensor in a digital camera. It opens when the picture is taken.
Human eye	
Retina	The part at the back of the eye that changes energy transferred by light into nerve impulses.
Pupil	The hole in the front of the eye that light can pass through.

Rod cell	A cell in the retina that detects low levels of light. It cannot detect different colours.
Cone cell	A cell in the retina that detects different colours of light.
Cornea	The transparent front part of the eye, which covers the iris and pupil.
Iris	The coloured part of the eye.
Optic nerve	The nerve that takes impulses from the retina to the brain.
Primary colour	One of three colours that are detected by the cone cells in our eyes. The primary colours are red, green and blue.
Secondary colour	A colour made when two primary colours mix. The secondary colours are magenta, cyan and yellow.

5. Colour	
White light	Normal daylight, or the light from light bulbs, is white light.
Frequency	The number of vibrations (or the number of waves) per second. Different frequencies of light have different colours.
Spectrum	The seven colours that make up white light.
Dispersion	The separating of the colours in light, for example when white light passes through a prism. 
Prism	A block of clear, colourless glass or plastic. Usually triangular.

Filter (physics)	Something that only lets certain colours through and absorbs the rest.

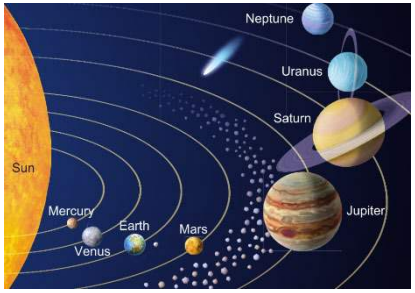
Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

8L Earth and Space

1. Gathering the Evidence

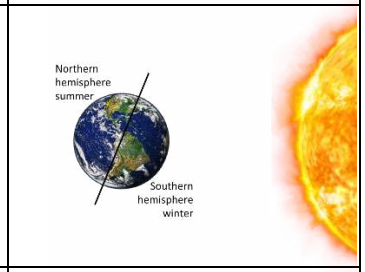
Astronomer	A scientist that studies space.
Early Astronomers	Could only use their eyes to make observations.
Ptolemy	Egyptian astronomer (*90-168*) Proposed a model with the Earth in the centre and the Moon, Sun and planets orbiting the Earth.
Nicolaus Copernicus	Polish astronomer (*1473-1543*) Suggested the Earth and other planets move in circles around (orbit) the Sun.
Reaction to Copernicus' Model	It was not accepted straight away. However observation made by Galileo using one of the first telescopes provided more evidence to support it.
Johannes Kepler	German astronomer (*1571-1630*) Proposed the model used today. The Sun is at the centre with the planets moving around in elliptical orbits. Moons orbit planets.

The Model of the Solar System

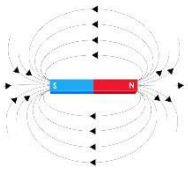


Phases of the Moon	The Moon appears different shapes at different times due to its position relative to the Earth and Sun. 
Spacecraft	Allowed scientists to investigate space more by collecting samples and taking readings on other planets.

2. Seasons

Summer	Longer days than nights, Sun high in the sky.
Winter	Longer nights than days, Sun not very high in the sky.
Cause of Seasons	Due to the tilt of the Earth's axis by 23.5°.
Causing Summer	When the northern hemisphere is tilted towards the Sun it is summer in the UK.
Causing Winter	When the northern hemisphere is tilted away from the Sun it is winter in the UK.
Causing Seasons Diagram	
Summer Sun	Because the Sun is higher in the sky in summer the heat is more concentrated, making it feel warmer

3. Magnetic Earth

Compass	A magnet that points north.
North-Seeking pole	The end of a bar magnet that points north- shortened to north pole.
South-Seeking pole	The end of a bar magnet that points south- shortened to south pole.
Attract	When two magnets are pulled together. Opposite poles will attract each other.
Repel	When two magnets are pushed apart. The same poles will repel each other.
Magnetic Field	The area around a magnet where it has an effect. Can be found using iron filings or a small compass.
Magnetic Field Diagram	
Magnetic Field Strength	Strongest closest to each pole, the field gets weaker as you get further from the magnet.
Magnetic Field Direction	The direction of a magnetic field is always from the north pole towards the south pole.

4. Gravity in Space

Gravity	Force exerted by all objects with mass trying to pull other objects towards it.
Bigger Mass	The bigger the mass of an object, the stronger the force it exerts.
Weight	The force of gravity pulling on you. *Measured in Newtons (N)*
Gravitational Field	The space around the Earth where gravity attracts things.
Gravitational Field Strength (*g*)	At the surface of the Earth it is about 10 newtons per kilogram (N/kg).
Weight Formula	Weight = mass x g

Gravity and Orbits	The force of gravity keeps the Earth in its orbit of the Sun.
Satellite	Anything that orbits a planet.
Natural Satellite	Moons are examples of natural satellites.
Artificial Satellite	Can be put into orbit around Earth for photographing / transmitting TV programs etc

5. Beyond the Solar System

Constellation	Pattern of stars
Stars	Huge balls of gas that give out large amounts of energy. The Sun is a star.
Stars At Night	Appear less bright than the Sun because they are further away.
Galaxies	Large groups of stars.
Milky Way	The galaxy our Sun is in.
Universe	Made up by all of the millions of galaxies.
Light Year	Measurement of distance- the distance travelled by light in 1 year. Approximately ten million million kilometres.
Proxima Centauri	Nearest star to the Sun, about 4.22 light years away.

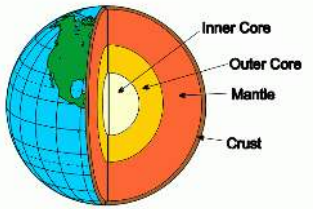
Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

8H Rocks

1. Rocks and their Uses

Geologist	A scientist who studies rocks and the Earth.
Rocks	Naturally occurring substances made up of different grains.
Grains	Made from one or more chemical compounds.
Minerals	The chemical compounds in rocks- rocks are mixtures of different minerals.
Texture	The combination of sizes and shapes of grains in a rock.
Interlocking Crystals	The grains all fit together with no gaps. They are hard and do not wear away easily.
Rounded Grains	Some rocks have rounded grains with gaps in between. They are not strong and can be worn away more easily.
Porous	Rounded grain rocks can absorb water because it gets into the gaps.
Permeable	Water can run through.
Cement	A building material made from limestone.
Gravel	A mixture of cement, sand and gravel.

2. Igneous and Metamorphic

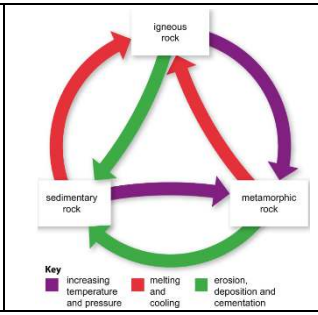
The Structure of the Earth	
Igneous Rocks	Formed when molten rock cools down *e.g. basalt, granite*
Magma	Molten rock
Lava	Magma that reaches the Earth's surface.
Small Crystals	Formed when molten rock cools down fast due to less time for particles to become ordered.
Large Crystals	Formed when molten rock cools down slowly due to more time for a large grid pattern to form.
Extrusive	Igneous rocks formed from cooling lava above the surface.
Intrusive	Igneous rocks formed underground.
Metamorphic Rocks	Formed by pressure and heat changing other rocks. *e.g. Schist, gneiss (both formed from granite) slate (from mudstone) and marble (from limestone)*
Metamorphic Rock Texture	Always made from interlocking crystals which may form coloured bands.

3. Weathering and Erosion

Weathering	When rocks are broken up by physical, chemical or biological processes.
Chemical Weathering	When rocks are broken up by chemical reactions. *e.g. gases in air making rainwater slightly acidic which then reacts with minerals in rock wearing them away.*
Biological Weathering	When rocks are broken up by living organisms. *e.g. growing plants splitting rocks apart with their roots.*
Physical Weathering	When rocks are broken up by physical processes. *e.g. changes in temperature causing expansion and contraction over time, cracking rocks.*
Expanding	Rocks get bigger when they are heated.
Contracting	Rocks get smaller when they are cooled.
Freeze-Thaw Action	Water gets into cracks in rocks, freezes, expands and then forces the crack to get bigger.
Erosion	The movement of loose and weathered rock.
Abrasion	When rock fragments bump into each other and are worn away.
Sediment	Bits of rock and sand in streams or rivers.
Glacier	Rivers of ice that move slowly but can transport large pieces of rock.

4. Sedimentary Rocks

Sedimentary Rocks	Formed when layers of sediment build up over time followed by compaction then cementation. *e.g. sandstone, mudstone*
Compaction	Pressure forces water out from the gaps between grains squashing the grains closer together.
Cementation	Dissolved minerals between the gaps act as a glue and 'cement' the grains together.
Sedimentary Rock Texture	They are always made from rounded grains. Properties depend on the type of sediment that forms them.

The Rock Cycle	

5. Materials in the Earth

Native State	Metals found as pure elements in rocks.
Ores	Rocks that contain enough of a metal / metal compound to be worth mining.
Extracting Ores	Ores are obtained by mining, then crushed and chemical reactions used to obtain the metal.
Mining Problems	Damages the environment by destroying habitats and causes pollution.
Rare Metals	Hard to obtain which makes them expensive.
Recycling	Using a material again.
Recycling Advantages	Cuts down on pollution from mining and landfill sites, allows supplies to last longer and requires less energy.

Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

Computer Science Knowledge Organiser

COMPUTING SYSTEMS

Modern computer systems receive an input, process that data and then produce an output. The data can be sored in memory. They are designed to automate any process by a program. To execute programs that operate on data.

Computing systems need a **processor**, **memory**, and **storage**. Modern systems also rely heavily on **communication** between them.

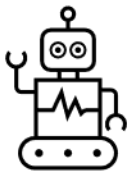
Modern computer systems receive an input, process that data and then produce an output. The data can be sored in memory. They are designed to automate any process by a program. To execute programs that operate on data.

Communication Computing systems exchange information and form networks
Programs and **data** are transferred between computing systems, when required.

Artificial Intelligence (AI)

Machine Learning

"AI has by now succeeded in doing essentially everything that requires 'thinking' but has failed to do most of what people and animals do 'without thinking' – that, somehow, is much harder!"
Donald Knuth, author of *The Art of Computer Programming, in* ***1981***
Programming computers to learn from experience



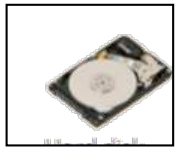
Hardware Components

CPU – Central Processing Unit
It is known as the 'brains of the computer' that processes program instructions

An instruction may:

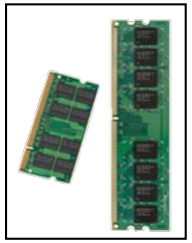
- Perform arithmetic or logic operations on data
- Perform input/output of data
- Control program flow

The **storage** (secondary memory) is the set of components that **stores** programs and data.
Storage is **persistent**: it retains its contents when the power is off.



Volatile (RAM) - Only stores information to run programs when computer is on

Non- volatile (ROM) - retains data even when the computer is switched off

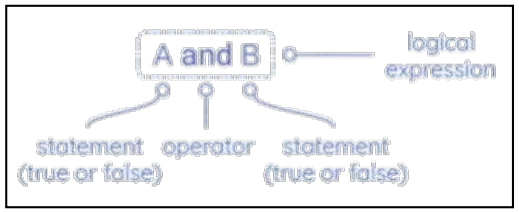


Key words

data, architecture, device, hardware, testing, input, output, software, RAM, program, CPU, storage, communication, Logic circuits

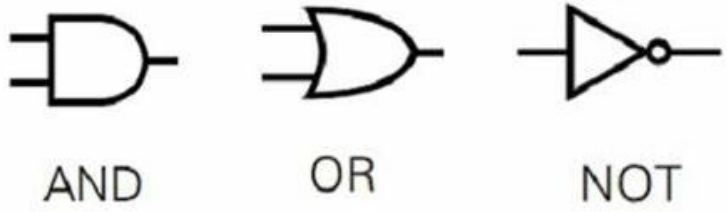
Logical Operators

Logical operations operate on statements that are **true** or **false**. There are three basic logical operations. AND OR NOT



Logical expressions — **logic circuits** can be represented using diagrams

Logical operations — logic gates can be represented using symbols



Operating Systems
All hardware needs an operating system. It is responsible for managing the hardware and providing an environment for programs to run in.

It manages: Files, Hardware, software, memory

Examples: IOS, Windows, Android, MacOS, Linux

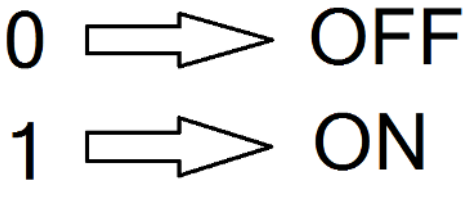
Computer Science Knowledge Organiser

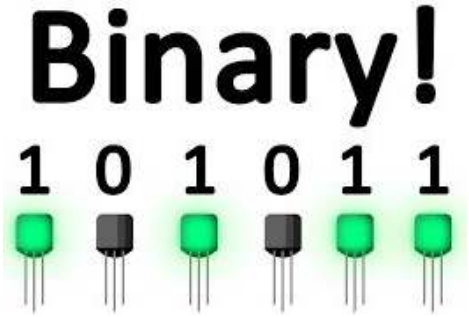
Binary – Data Representation

Key Words	
Binary number	A number system that contains two symbols, 0 and 1. Also known as base 2
Base 2	A number system where there are only 2 digits to select from. 0 – 1 as this is all binary can understand.
data	Units of information. In computing there can be different data types, including integers, characters and Boolean. Data is often acted on by instructions.
Denary (also known as decimal)	The number system you use. It contains 10 unique digits 0 to 9. Also known as decimal or base 10
Base 10	The number systems that we/humans use. Numbers 0-9 as it can make any number combination from that.

Binary Rules	Carry
0 + 0 = 0	0
0 + 1 = 1	0
1 + 0 = 1	0
1 + 1 = 0	1

Conversion table	128	64	32	16	8	4	2	1
Example binary number	0	0	0	1	0	1	1	1





Representing information with sequences of symbols, is necessary for storing, exchanging and processing information. Information in computers must be represented in a form convenient for processing.

Humans have invented lots of different ways to code information using different sounds, symbols or even lights!

Computers represent all data, including numbers, letters, symbols, images, videos and sounds using binary numbers. All binary numbers are made up of the digits) and 1.

0s and 1s are called binary digits, or bits. All characters are represented using sequences of bits.

Computers only use the two symbols 0 and 1 because all computers are built out of electrical switched which can only be on (1) or off (0).

ASCII – American Standard Code for Information Interchange

ASCII is a character set that uses numeric codes to represent characters. These include upper and lowercase English letters, numbers, and punctuation symbols.

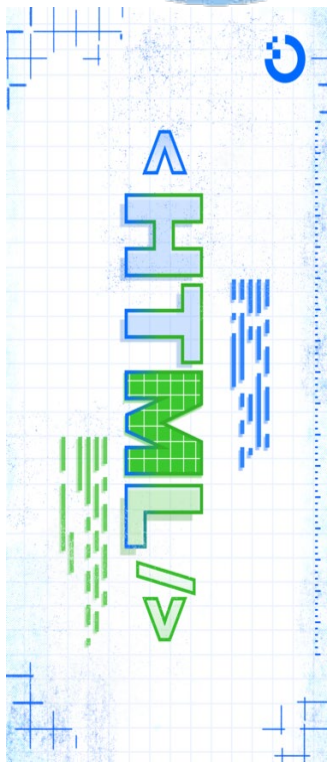
Example: a capital "T" is represented by 84, or 01010100 in binary.

Computer Science Knowledge Organiser

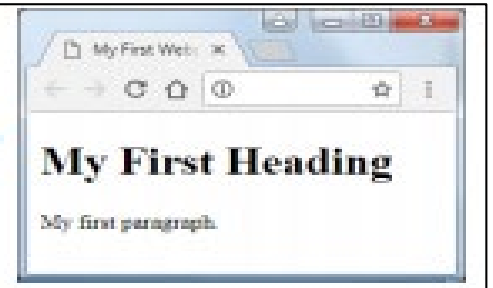
HTML

Key Words	
World Wide Web	Collection of webpages connected together by hyperlinks, using the Internet (Usually shortened to WWW)
Internet	A global network of computers all connected together
Webpage	A hypertext document connected to the world wide web
Website	A collection of webpages with information on a particular subject
Web browser	The software which displays a webpage or website on a computer
Uniform Resource Locator (URL)	An address that identifies a particular file or webpage on the internet
HTML	Hyper Text Mark-up Language – describes and defines the content of a webpage
Web script	A type of computer programming language used to add dynamic features to a webpages
Multimedia	Content that uses a combination of different types of media – for example, text, audio, images
Hyperlink	A link from a hypertext document to another location, activated by clicking on a highlighted word or image
Hotspot	An area on a computer screen which can be clicked to activate a function, especially an image or piece of text acting as a hyperlink
Navigation	The elements of a website that allows the user to move around the website. This is usually in the form of a menu or hyperlinked text or buttons
JPG	The main file type used for mages on the world wide web – uses lossy compression
PNG	Another type of image file used on the world wide web – supports transparency and uses lossless compression

Definitions: What does it do?	
<html>	Root of a HTML document
<body>	Contents of the page
<head>	Information about a page
<title>	Table title/defines title
<h1>,<h2>,<h3>	Headings
<p>	Paragraph
<img>	Image
<a>	Anchor (used in hyperlinks with href)
,	Order/unordered list
	List item
<table>	Creates and defines table
<tr>	Table row
<td>	Table data
	Bold
 	Linebreak
	Divider
<!-- -->	Comment




```
<!DOCTYPE html>
<html>
<head>
<title>My First Webpage</title>
</head>
<body>
<h1>My First Heading</h1>
<p>My first paragraph.</p>
</body>
</html>
```



Computer Science Knowledge Organiser

Year 8 Intro to Python

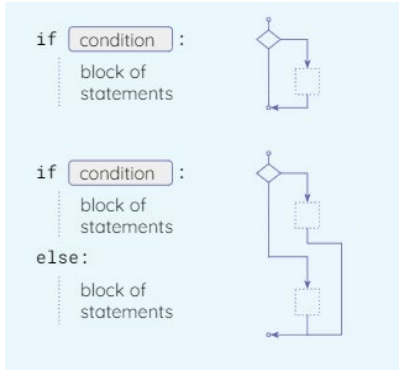
Python is a **text** based **programming language**. That can be used to create programs, games, applications and much more!

A **program** is a set of precise instructions, expressed in a **programming language**. **Translating** the programming language is necessary for a machine to be able to **execute** the instructions.

To execute a Python program, you need a **Python interpreter**.

This is a program that translates and executes your Python program.

A **selection** statement allows a computer to **evaluate** whether an **expression** is 'true' or 'false' and then perform an action depending on the outcome.



Arithmetic operators
+ addition
- difference
* multiplication
/ division
// integer division

Key terms

selection

algorithm

iteration

sequence

logical operators

input

variable

Arithmetic

output

You can use multiple branches using if, elif and else

Python helps by telling the programmer where the error is.
So if you see red error text—read it first.

Keywords	
Variable	Stores a value/data – Can be changed during the program
Float (FLOAT)	Decimal point
Integer (INT)	Whole number
Boolean (BOOL)	True or False
String (STR)	Letters, numbers, symbols inside speech marks
Data types	The different data that can be stored in a variable
Sequence	A set of instructions or rules that an algorithm uses have to be in the right order.
Syntax Error	A syntax error is a mistake in your Python program that prevents it from running (executing). Syntax errors are like spelling/grammar errors or logic error

Some common syntax errors in selection

- use if and else—no capitals
- A colon : is always required after the condition and after else.
- Use **indentation** to indicate which statements 'belong' to the if block and the else block.
- The == operator checks for equality.
- A single = is only used in assignments

Syntax Errors

All programming languages have rules for **syntax**, i.e. how statements can be assembled.

Programs written in a programming language must follow its syntax.

Programs with **syntax errors** cannot be translated and executed.

python™

Computer Science Knowledge Organiser

Year 8 Mobile App

Key Words	
abstraction	Identify the important aspects to start with
algorithm	Precise sequence of instructions
Application (app)	Software designed to run on a mobile device
Computational thinking	Solving problems with or without a computer
debugging	Looking at where a program might have errors or can be improved
blocks	Scratch bricks that we can use to code algorithms
decomposition	Breaking down a problem into smaller parts
execute	A computer precisely runs through the instructions
GUI	Graphical User Interface
iteration	Doing the same thing more than once
selection	Making choices
sequence	Running instructions in order
variable	Data being stored by the computer

Sequence, **selection** and **iteration** are all processes. In order for computers to perform tasks there is more that is needed. For example a computer will take an **input** (this might be automatic or via human input) which the computer will then **process** and the **output** will be visible on the computer monitor.

A mobile application, most commonly called an app, is a type of application software designed to run on a mobile device, such as a smartphone or tablet computer.

App Lab is a **block or text based programming language**. This allows creation and sharing of apps.

The point of an app is to connect and interact with users.
App creators tend to have an idea, a problem or a task that they want to develop user an app. These can be huge or relatively small ideas.
Decomposing the problem helps us make the task less daunting and more achievable. This involves breaking down the task into smaller more manageable parts to start with.

Most computers have an environment with tiles, icons and/or menus. These allow users to interact.
This type of interface is called the **graphical user interface (GUI)** because the user interacts with images through a mouse, keyboard or touchscreen. The GUI needs careful design consideration so that the user experience is a positive one so they want to continue to use it.

Making sure the app is successful and actually does what it was intended to do is important.
Setting **success criteria** should be determined at the start of the project and can be revisited frequently.
The success criteria should be clear and easy to follow.

Evaluating and **debugging** allow for judging the quality of the app and enables errors to be corrected and improvements to be made.

Design Technology Textiles and Electronics

Literacy / key words

Ergonomics: The study of how products and environments are designed to minimise effort and discomfort.

Primary, Secondary, Tertiary recycling – know the differences.

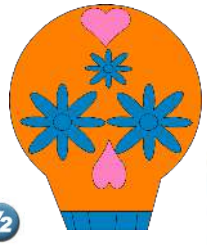
Appliqué: Pieces of fabric in different shapes and colours are attached to a larger piece of fabric to make a picture or pattern.

Embroidery: is the art of decorating fabric or other materials using a needle to stitch thread or yarn. Embroidery may also incorporate other materials such as pearls, beads, quills, and sequins.

Fast fashion: is replicating trends and mass-producing them at a low cost, bringing them to retail quickly while demand is at its highest: throwaway fashion.

The 6 r's of Sustainability

Advantage of CAD: Ideas can be drawn and developed quickly, where as…



2D DESIGN V2

A disadvantage would be that it needs a skilled workforce.

We use **ACCESS FM** to help us write a **specification** - a list of requirements for a design - and to help us **analyse and describe** an already existing product.

ACCESS FM - Helpsheet

A is for **Aesthetics**
Aesthetics means **what does the product look like?** What is the: Colour? Shape? Texture? Pattern? Appearance? Feel? Weight? Style?

C is for **Cost**
Cost means **how much does the product cost to buy?** How much does it: Cost to buy? Cost to make? How much do the different materials cost? Is it good value?

C is for **Customer**
Customer means **who will buy or use your product?** Who will buy your product? Who will use your product? What is their: Age? Gender? What are their: Likes? Dislikes? Needs? Preferences?

E is for **Environment**
Environment means **will the product affect the environment?** Is the product: Recyclable? Reuseable? Repairable? Sustainable? Environmentally friendly? Bad for the environment? **6R's of Design:** Recycle / Reuse / Repair / Rethink / Reduce / Refuse

S is for **Size**
Size means **how big or small is the product?** What is the size of the product in millimeters (mm)? Is this the same size as similar products? Is it comfortable to use? Does it fit? Would it be improved if it was bigger or smaller?

S is for **Safety**
Safety means **how safe is the product when it is used?** Will it be safe for the customer to use? Could they hurt themselves? What's the correct and safest way to use the product? What are the risks?

F is for **Function**
Function means **how does the product work?** What is the products job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?

M is for **Material**
Material means **what is the product made out of?** What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

Natural Fibres

Plant-derived

Cotton

Linen

Animal-derived

Wool

Silk

Properties of fabric:

Elasticity - The ability of a material to stretch and then return to its original shape and size when the stretching force is removed.

Flexibility - The ability of a fabric to regain its shape when stretched can be improved by adding elastic fibres into the blend,

Softness - Describes the clothing comfort performance. Along with compression, smoothness and flexibility of fabrics being handled and their end-uses.

Insulation - A material that reduces or prevents the transmission of heat or sound or electricity.

Absorbency - To take in moisture and retain liquids within its structure, affects skin comfort, static build–up, shrinkage, water repellency and wrinkle recovery.

Weight - How heavy or light a fabric is, usually measured in grams per square meter (GSM). It's a crucial factor influencing the drape, durability, and functionality of a fabric.

Extra - Read/watch/do

Fast Fashion and how the way we dress impacts the environment.
What is meant by Fairtrade?

Create a login for Tinker Cad

TINKERCAD

You will be assessed on:
- Fast fashion and sustainability.
- How to write a design specification.
- Electronic circuit construction.
- Final piece and evaluation.

FAIRTRADE

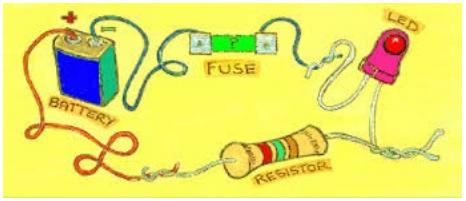
Links to curriculum:
Computing
Science
Mathematics
Engineering
Art

Design Technology Textiles and Electronics

Design Technology Textiles and Electronics

Literacy / key words

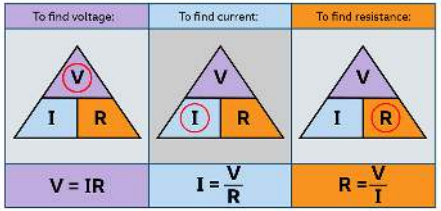
Collaboration and design fixation: Collaborative design is an excellent way of gaining feedback for designs from your peers. This helps with design fixation, where a designer might get stuck or not know how to develop their design further. This brings fresh ideas and new innovation to any project.



Electrical circuit: is a loop through which an electrical current can flow. It consists of a power source, wires and components.

A **prototype** is an early model built to test a concept or process. It is a term used in a variety of contexts, including semantics, design, electronic s, and software programming. A prototype is generally used to evaluate a new design to enhance precision by system analysts and users.

The quantities voltage, current and resistance are linked by the relationship:



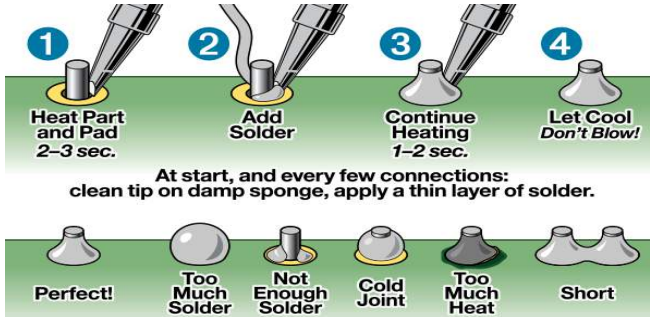
Ohm's law

Electronic Systems

When designing electronic systems, electrical engineers start with a block diagram called a systems diagram.
Systems diagrams help the designers to work out how the electronic system will work and which parts need to be connected together.

INPUT	PROCESS	OUTPUT
This is the trigger to make the circuit do what ever it is supposed to do. This is normally a switch or a sensor.	This is the part of the circuit that receives a signal from the input components and then tells the output components what to do. This could be a transistor or an integrated circuit, or even a microcontroller.	This is the part of the circuit that does the work, this could be an LED, a motor or a buzzer etc.

A good example of **components** would be: Light emitting diodes (LED's), buzzers and motors.



Safety rules when soldering:

- Never touch the hot tip of the soldering iron.
- Take great care to avoid touching the mains flex with the tip of the iron.
- Always return the soldering iron to its stand when not in use. Never put it down on your workbench.
- Work in a well-ventilated area.

Further your knowledge on electronic systems here.

Light can be produced in different ways; a **light-emitting diode (LED)** close light-emitting diode (LED)Light-emitting diodes (LEDs) glow when current passes through them. Are the most common component used for producing light.

Switches: A push-to-make (PTM) switch allows current to flow (or a signal to be passed on for processing) when pressed - therefore 'making' the circuit. A push-to-break (PTB) switch does the reverse and 'breaks' the circuit.

Transistors are a type of processing device and a special type of switch. When a small amount of volts are applied to the **Base** leg, a large current is allowed to flow from the **Collector** leg to the **Emitter** leg.

Resistors are an example of a processing device. Resistors are used to restrict the flow of current around a circuit and can prevent damage to components.

Lamps contain a thin coil of wire called the filament. This heats up when an electric current passes through it and produces light as a result.

A **capacitor** is a device for storing electrical energy, consisting of two conductors in close proximity and insulated from each other.

A **buzzer** or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, train and confirmation of user input such as a mouse click or keystroke.

Speaker: When an electrical signal is sent to the voice coil, it creates a magnetic field that interacts with the magnetic field of the permanent magnet. This interaction causes the voice coil to move back and forth, which in turn causes the diaphragm to vibrate and produce sound waves.

A **thermistor** is a component where resistance changes with its temperature. Usually, increasing temperature decreases the resistance. We can use a thermistor to turn a heater off when a house reaches certain temperatures.

Design Technology Textiles and Electronics

Food Technology

Literacy / key words

Microorganisms:

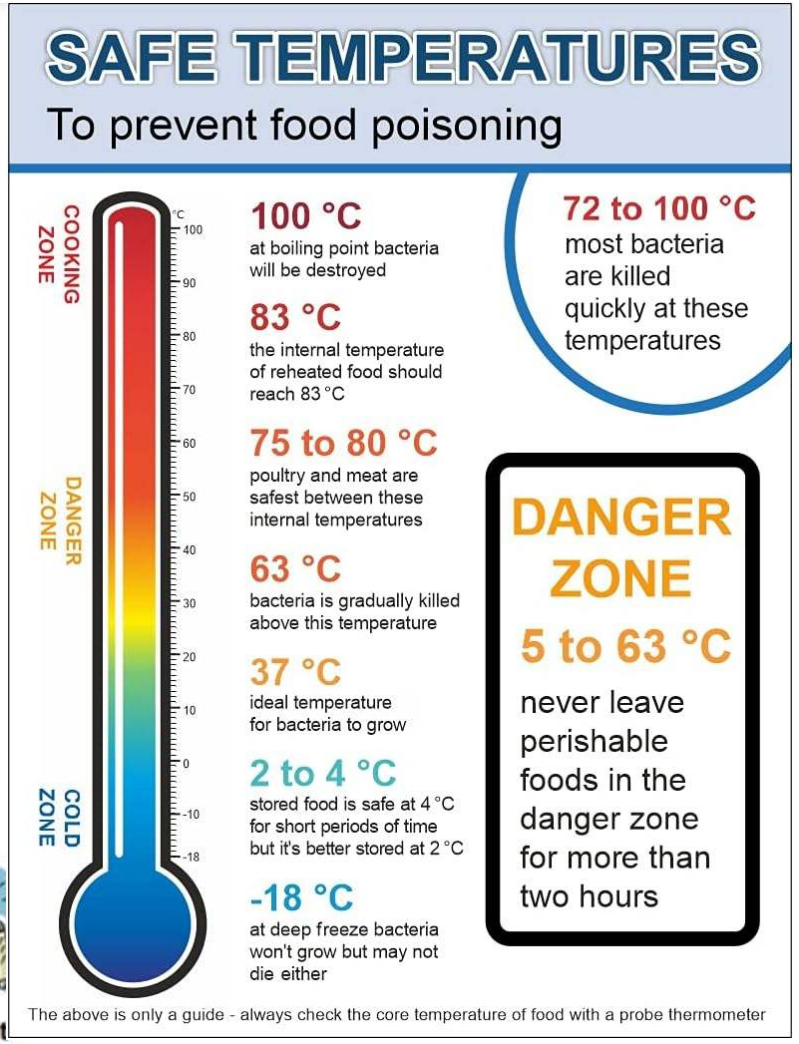
An organism that can be seen only through a microscope. They include bacteria, mould, and fungi.

Fermentation: Yeast + FATTOM = Carbon dioxide & Alcohol.

Pathogens: Bad bacteria which can cause illness.

Danger Zone: The range at which bacteria will grow 5ºC to 63ºC.

Eat Well Guide:
The Eatwell Guide shows how much of what we eat overall should come from each food group to achieve a healthy, balanced diet. You do not need to achieve this balance with every meal, but try to get the balance right over a day or even a week.



Extra - Read/watch/do

https://www.youtube.com/watch?v=9HOk8A-j4Es

https://www.bbc.co.uk/teach/class-clips-video/articles/zby76v4

You will be assessed on:

- Food Science Investigation; Yeast.
- Heat Transfer with popcorn.
- Eat well guide and Amy's diet.
- Nutrients in food

Links to curriculum:

Model exemplary practical skills and food safety and hygiene processes, including personal hygiene

Food Technology

Effect of cooking on protein

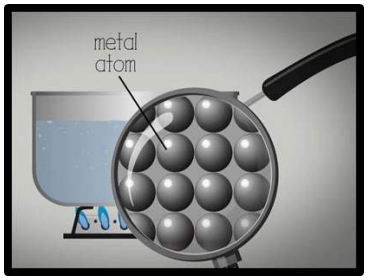
Protein denaturation:

the process of altering a protein's molecular characteristics or properties

Proteins: Coagulation

The process of turning a liquid into a solid

Example: Egg



Why food is cooked:

1. To make it safe to eat
2. To improve the shelf life
3. To develop flavour
4. To improve texture
5. To give variety

Functional and chemical properties of ingredients in cake and bread making

Cupcakes	
Self raising flour	Make the cake rise, Structure, dextrinises –add colour
Caster sugar	Sweetness, aeration
Margarine	Makes the cake moist, aeration
Egg	Binds mixture

Bread	
Strong flour	Structure, Gluten stretches helps bread rise and sets shape
Yeast	Produce CO_2 when all conditions provided so makes bread rise.
Water	Binds ingredients, provides moisture for yeast.

Methods of heat transfer

Convection - when the environment (air, water or oil) is heated up.

e.g. - baking a cake
- boiling an egg

Conduction - when heat is transferred directly.

e.g. - frying an egg

Radiation - when heat radiates

e.g. - toast

Fruit & vegetables

- 5 portions a day.
- 1 portion is a handful or 80g.
- Eat a balance of fruit and vegetables.
- Fruit and vegetables should make up at least 1/3 of each meal.
- It doesn't matter how you eat them: fresh, frozen, tinned, dried or in a juice format.

Protein-rich, non-dairy foods / Dairy and alternatives

1/3 of your meals should be made up from any combination of the following:

- dairy foods
- animal protein foods
- peas and beans
- dairy and meat alternatives.

Starchy foods:

- Choose wholegrain or high fibre verisons.
- Each meal should be bsed on at least 1/3of starchy carbohydrates.
- Starchy carbohydrates include: pasta, rice, potatoes, bread, breakfast cereals.

Water

Don't forget to drink water to prevent dehydration.

Sugar

Eat sugary / sweet foods in small quantities and less often.

Oils and spreads

Although important we should eat these sparingly and use low fat options.

Food Technology

Nutrient		Functions	
Protein		Growth – known as the body's building blocks. For growth, particularly during pregnancy & adolescence. Repair body cells and tissues, including recovery after illness or injury. To produce enzymes needed for digestion. To produce hormones that control body functions.	Animal products – meat, fish, dairy; plants – lentils, nuts, seeds
Carbo-hydrates		Source of energy. Divided into: simple 1. Sugars and complex 2. Starches and dietary fibre. Starches provide slow releasing energy & add bulk	complex – wholemeal bread, pasta, rice, potatoes with the skin
Fats		Source of energy, insulation and Helping your body absorb fat-soluble vitamins (A, D, E, & K). Four types: 1. Monounsaturated 2. Polyunsaturated (omega 3 and 6) 3. Saturated 4. Trans fats. Fats are stored under the skin and are essential for health. Too much fat can cause health problems	Monounsaturated – olive oil, avocados; polyunsaturated – oily fish, nuts, sunflower oil, soya beans; saturated – full-fat dairy, fatty meats; and trans fats – many snack foods
Vitamins A, D &C		**A**: For healthy eyes , skin and immune system **D**: The main function is to help the body absorb calcium for strong teeth & bones **C**: Helps heal wounds and prevents scurvy and helps absorb iron.	**A** – dairy, oily fish, yellow fruit; **D** – oily fish, eggs, fortified cereals **C** – citrus fruit, broccoli, sprouts, berries, kiwi
Minerals-Calcium		Essential for many processes, e.g. bone growth/strength, nervous system, red blood cells, immune system. Only needed in small amounts.	**Calcium**: milk, canned fish, broccoli; **Iron**: watercress, brown rice, meat; **Zinc**: shellfish, cheese, wheatgerm; **Potassium**: fruit, pulses, white meat

Extra - Read/watch/do

https://www.youtube.com/watch?v=xtFx55a-j0Y&list=PLSXnX8lDffhTq41shvMiA7n9xCVlt7_nN&t=5s

Links to curriculum: Discuss the importance of energy balance and how to maintain a healthy weight throughout life; Demonstrate how to analyse a diet and make improvements; Perform nutritional analysis and use the results to plan recipes, meals and diets; Promote the benefits of a healthy diet and active lifestyle.

Food Technology

Types of Microorganisms

Yeast, Mould, Bacteria (Bad bacteria are known as Pathogens)

Some Pathogens that causes Food Poisoning:

Campylobacter - Raw or undercooked meat, particularly raw poultry, unpasteurised milk, untreated water.

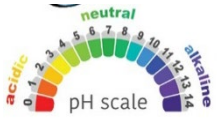
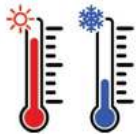
E. Coli - Raw or undercook ed meat and poultry or related products (eg gravy), raw seafood products, unpasteurised milk or products made from it (eg cheese) contaminated water.

Listeria - Unpasteurised milk or products made from it

Soft cheeses (eg camembert, brie) ready-to-eat foods (eg pre-packed sandwiches, pâté, deli meats) unwashed vegetables contaminated with soil.

Staphylococcus Aureus - humans carry this in their nose & throat; it can be transmitted by coughing or sneezing. Ready-to-eat foods that are hand-made (e.g. sandwiches), cooked meats, unpasteurised milk and related products.

Salmonella - raw or undercooked poultry and meat, eggs and unpasteurised milk.

	Conditions for growth of Micro-organisms explained **(F A T T O M)**
F 	**Food** - Food provides energy and nutrients for bacteria to grow. High risk foods particularly protein foods such as chicken and dairy products are rich in nutrients and moisture and so promote bacterial growth.
A 	**Acid** - Most bacteria reproduce best at a neutral pH level of 7. Acidic foods with a pH below 7, or alkaline foods with a pH above 7, may stop or slow down the rate of bacterial growth.
T 	**Time** - If provided with the optimum conditions for growth, bacteria can multiply to millions over a small period of time via binary fission. This is when a bacterium divides in two every 20 minutes.
T 	**Temperature** - Bacteria need warmth to grow. The temperature a food is stored, prepared and cooked at is crucial. If this is not followed correctly then the food will not be safe to eat. The optimum temperature range for bacterial growth is between 5-63°C. This is known as the **danger zone** as it is dangerous for some foods to be in this temperature range for prolonged periods of time.
O 	**Oxygen** - Microorganisms that that require oxygen to grow are called aerobic such as most yeast.
M 	**Moisture** - Bacteria need moisture in order to grow. This is why they grow on foods with high moisture content such as chicken. Foods that are dehydrated or freeze-dried can be stored for much longer as the moisture has been removed.

Food Technology