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English Knowledge Organiser

What is Spy Fiction?

The spy thriller is a genre of literature that revolves around a storyline with secret agents and espionage. Part action-adventure and part thriller, spy stories often follow a government agent racing against the clock to thwart a big attack or uncover an enemy's plans in order to save lives—sometimes even the world.

BUZZ Words!

See if you can try and include some of the following vocab in your writing; they're great examples of ambitious vocab! Interrogating -Menace -Villainous -Impenetrable -Espionage -Intelligence -Detection -Infiltrate -Sabotage -

Language Devices (AKA Figurative Language)

Including figurative language in your writing enables your reader to visualise exactly what you want them to. It gets your reader to use their imagination to picture your story, like a movie in their mind!

Have a go at adding a suitable spy-fiction appropriate example for each of the following:

*check the next page for the bank of definitions, in case you've forgotten what any of these are! ${\it m \odot}$

| Narrative Hooks The opening of a story must engage a reader's interest. | <u>Sentence Types</u> | Why use them? | Key ingredients of spy fiction |
|--|---|---|---|
| However, a story needs to keep that interest until the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the beginning to the end by using a range of <i>hool</i> from the | Minor: A very short sentence that does not include a verb. | To shock the reader, to quicken the pace of | Pace |
| setting, characters and situation of a story. | Simple: A sentence that contains a single clause (a noun and a verb). | the story or to build a feeling of suspense. | Suspense |
| 3. Climax must overcome Characters encounter the most serious problem of the story 4. Resolution | Compound: Two clauses joined by a connective word such as "and" or "because". | To give more descriptive detail to a character, a setting or a situation. | What's gonna happen? |
| The problem is resolved – either happily or sadly. | Complex: A sentence that contains at least one main clause and a subordinate clause. | To build tension by keeping all of the answers or information from the reader until later in the story. | Tension s p - - - |



English Knowledge Organiser

| SPEECH | Use of | How | Use of | Use of | Body | Variation | Use of |
|-------------|----------|------------|-------------|------------|------------|------------|-------------|
| CHECKLIST: | prompt | convincing | research to | persuasive | language | of tone of | Standard |
| | cards – | are | support | language | and facial | voice for | English and |
| Can you | еуе | arguments/ | arguments | techniques | expression | impact | complex |
| self-assess | contact | reasons | | | | and effect | vocabulary |
| how you | with | | | | | | |
| think your | audience | | | | | | |
| speech | | | | | | | |
| went? | | | | | | | |
| | | | | | | | |
| | | | | | | | |











Possible people who could inspire you:

- 1. Marcus Rashford
- 2. Malala Yousafzai
- 3. Michelle Obama
- 4. David Attenborough
- 5. Greta Thunberg
- 6. Gill Scott
- 7. Emma Watson
- 8. Ellie Simmonds
- 9. Alan Turing



English Knowledge Organiser



Persuasive techniques to consider:

Tick these off as you use them.

- Direct address-using words like 'you' to the audience.
- Alliteration- repeating the same starting letters for effect.
- Rhetorical Question- a question that is not expected to be answered.
- Facts and statistics- e.g. 1 in 10 of us, 30000 people...
- Anecdote- a personal story.
- **Expert opinion-** a quote from a doctor, professor etc.
- Figurative language- use metaphors, similes etc for effect.
- **Repetition** repeating a word or phrase for effect.
- Rule of 3- Using three words in a list for effect.
- Emotive language-Words that create an emotive response.

Art Knowledge Organiser

Sarah Graham



Key features: Hyper realistic- bold colouraccurate proportionsappropriate fonts- reflectionshighlight- 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 copy the fonts?

| KEY WORDS AND ME | 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. 7 | | | | | |

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.



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



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



| lambic 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 <i>pit</i> , 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

<u>Act 1</u>

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.

<u>Act 2</u>

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.

<u>Act 3</u>

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.

<u>Act 4</u>

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.

<u>Act 5</u>

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.

<u>Themes</u>

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



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

The Seven Movements:

ComposerGustav HolstPlanet SuiteMovementOrchestraDynamicsTempoAtmosphereTempoStringsBrassPercussionWoodwindContrastSymphonic SuiteSynthesizer

Themes Instrumentation Texture

KEY WORDS:

Other works we have studied:

Claire De Lune – Debussy

Piano solo, slow, romantic, moderately quiet. Represents the sad but lonely moonlight.

Structure

Crescendo

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.

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

Music

and

Space

Year 8 Spring Term

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/ouro2 |

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.



Contour lines join places that have equal height. They tell us the shape of the land, the height of the land and the steepness of slopes.





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.



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.



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!

How do glaciers erode the land?

Glaciers erode through two key processes:

- 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.

How do glaciers affect our landscape?









Geography Knowledge Organiser: Topic 4 - Population and Migration

d kilc k

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.



Did you know the global population reached 8 billion in November 2023? If you took 8 billion steps you would circle the Earth 139 times. If you're 8 billion seconds old, you're 254 years old. The world' population is growing because people are living longer, not because there are high birth rates. It took 12 years to grow from 7 years, but will take 15 years to grow to 9 billion. Population growth is slowing down.

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.



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.

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 64 mill 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.

History Knowledge Organiser



Manchester During the Industrial

Topic 3: The Industrial Revolution

Revolution

- 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.



| | 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. | History Key Words: |
| Education | Most children did not go to school. Only 6 universities in Britain. | Compulsory for all 5 – 12 year old girls and boys. | name given to the time period between 1750 and |
| 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. | 1900 where the way people lived, worked and produced goods changed |
| The Vote | Only 5% of the population could vote. | Most men could vote but women could not. | <u>Textiles</u> - Cloth or goods |
| 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. | knitting. <u>Death rate</u> - The number of deaths per 1000 people |
| | | | per year. |



Conditions of Industrial Towns

- Living conditions were extremely poor and people were crammed in houses together.
- > This meant conditions were dirty and unhealthy.
- Diseases such as Cholera spread quickly through industrial towns.



Working Conditions for Children

- Very low wages.
- Extremely dangerous operating and maintaining heavy machinery and many children died working in factories.
- Harsh punishments.
- ➤ Hunger and thirst.



Manufacturing - Making something on a large scale

using machinery.





- 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!



The way in which



Religion and Ethics Knowledge Organiser

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.



YEAR 8 SIKHI BELIEFS & PRACTICES

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 wellbeing of society, fostering unity and compassion in the multicultural landscape of the United Kingdom.



GURU

GRANTH SAHIB



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.

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.

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**.

Last week of Jesus' life

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.

YEAR 8 RADICAL TEACHINGS OF JESUS

What teachings and ideas from Jesus were radical?

 \geq

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.

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.



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 global climate change







The link between the data can

be explained verbally

The axis should fit all the values

on and be equally spread out

value decreases"

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





Maths Knowledge Organiser

PERCENTAGE CHANGES



Key Concept

Multipliers

| Find 15% | × 0.15 |
|--------------------|--------|
| Increase by 15% | × 1.15 |
| Decrease by 15% | × 0.85 |

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

Year 8

Tip There is a % function on your calculator.

> To find 25% of 14 on a calculator: **2, 5, SHIFT, (, ×, 1, 4, =**

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 × (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

Questions

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

m29.27 (2 30.08 (d 0743 (64 720.0 (2 50.0 (d 24.0 (62 60 (2 0.27 (d 04.6 (1 :283W2NA





LES DIRECTIONS

Excusez-moi, OÙ est/ se trouve le.../ la... ? WHERE is the...?

Excusez-moi OÙ **sont/ se trouvent** les... ? WHERE **are** the...?

Allez tout droit. Go straight on. Tournez <u>à</u> gauche. Turn left. Tournez **à** droite. Turn right. Prenez la première rue à droite. Take the first to the right. Prenez la première rue à gauche Take the first to the left. Prenez la deuxième rue à gauche. Take the second left Prenez la deuxième rue à droite. Take the second right. C'est à droite/ à gauche. It's on the right/ left. Au carrefour, tournez à droite. At the crossroad turn right. Au carrefour, tournez à gauche. At the crossroad turn left. Aux feux, tournez à droite. At the lights turn right. Aux feux, tournez à gauche. At the lights turn left.

INFINIVES "TO..." / ...-ING AllER à (to go to) ; visitER (TO visit) ; voir (TO see); faiRE du/ de la/ des (TO do) ; admirER;

QU'est-ce qu'<u>IL Y A dans TA</u> ville? What <u>IS THERE/ IS</u> in <u>YOUR</u> town?

- > Dans ma ville **il y a** ...
- L un café
- un centre commercial
- un cinéma
- un hôtel
- 8 un parc

2

- 10 un stade
- 12 une piscine
- 14 des musée<u>S</u> some museums

- 2 une église a church
- 4 un château a castle
- 6 un centre de loisirs a leisure centre

3

- 8 un marché a market
- 9 un restaurant
- 11 une patinoire an ice rink
- 13 **des** magasins some shops

Cependant / Par contre/ En revanche / Mais
 IL <u>N'</u>Y A PAS DE/D' parc; pas de cinéma; pas de château; pas de patinoire

MORE OPINONS

[Est-ce que] tu aimes ta ville? Do you like you town/ city

- 1. Je pense que c'est <u>une</u> ville ennuy<u>euse</u>.
- 2. Selon moi c'est ennuyeux et vraiment nul à mon avis.
- 3. Selon ma mère, c' est pas mal {not bad}, mais trop petit. (too small).
- 4. Je pense que c'est bien {good}, joli et assez intéressant.

MFL Knowledge Organiser

Present tense: regular verbs ENT -er verbs -ir verbs -re ve je / j' habit-e -is habit-es -is tu Il/elle/on habit-e -it habit-ons Nous -issons -on: Vous (pl) habit-ez -issez -ez Ils or elles habit-ent -issent -ent

| rbs | ▓∎⋛₽₿ |
|-----|----------------|
| | Aller – to go |
| | Je vais |
| | Tu vas |
| 5 | II /elle va |
| | Nous allons |
| t | Vous allez |
| | Ils elles vont |

KEY IRREGULAR VERBS in the present

| FAIRE [to do] | ÊTRE [to be] | AVOIR [to have] |
|-------------------|------------------|-----------------|
| Je fais | Je suis | J'ai |
| Tu fais | Tu es | Tu as |
| ll/ elle/ on fait | ll/elle/on est | ll/elle/ on a |
| Nous faisons | Nous sommes | Nous avons |
| Vous faites | Vous êtes | Vous avez |
| lls / elles font | lls / elles sont | lls/ elles ont |

| Opinions & Pronouns | | | | | | |
|--|--|--|--|--|--|--|
| Ce que j'aime <u>LE PLUS</u> c'est [What Hike <u>the most is]</u> Ce qui ME PLAÎT c'est [What I enjoy is] | | | | | | |
| 'aime [bien] Je n'aime pas du tout e préfère Je ne supporte pas (ça) m'amuse Je ne supporte pas (ça) m'amuse Mintéresse (ça) m'enpuie Mintéresse | | | | | | |
| Frequency words & Connectives | | | | | | |
| quelquefois sometimes parce que/ car because souvent often cependant however cous les jours every day de plus furthermore cout le temps all the time mais but ou or Premièrementdeuxièmement firstlysecondly (et) en fin (and) finally | | | | | | |
| Complexity | | | | | | |
| 1. nepas not 2. neplus no more / no longer 3. Il y a / il n'y a pas DE there is / are / isn't / aren't **TIF - il y avait – there were (neg = il n'y avait pas de) **TIE - c'était =it was | | | | | | |
| 4. qui est / qui sont which is / which are | | | | | | |
| • Expressions of frequency | | | | | | |
| d'habitude usually adverbs) normalement normally quelquefois sometimes | | | | | | |

tous les weekends

every weekend

KO. Yr8 Spring 2 - M4 - Ma Zone



C'EST ... = IT IS ... CE N'EST PAS... = IT IS NO 1. beau / belle = beautiful 2. joli [e] = pretty 3. laid [**e**] = ugly 4. intéressant [e] = interestin Adjectives 5. grand [e] / petit [e] = big / small 6. Ennuy**eux** [**euse**] = boring 7. excitant [e] = exciting 8. dangereux [euse] = dangerous 9. nul [**le**] = rubbish 10.énorme = enormous Α 11.génial [e] = great 12.pittoresque = picturesque 13.nouveau [elle] = new 14.vieux / *vielle = old $15.s\hat{u}r[e] = safe$ 16.touristique = touristic 17. historique = historical

QUANTIFIERS

un peu = a bittellemplutôt = rathertrop =assez /très= quite/veryvr

tellement = so trop = too y vraiment = really

KEY QUESTIONS

1 Où habites-tu?Where do you live?2. Qu'est-ce qu'il y a?What is there? What's in?2. Où est?Where is?4. Où sont?Where are?5. Tu aimes..? Aimes-tu..? Do you like..?

<u>TOPIC VOCABULARY TR</u> **INVITATIONS ideas** SUGGESTING TO GO OUT/ REACTIONS to invitations 2 la cathédrale Notre-Dam aller au bowling 1. aller à une fête? TO go to a party? 2. A [Est-ce que] tu veux ...? Do you want ...? l'Arc de Triomphe aller en boîte? TO go clubbing? 3. B [Est-ce que] vous voulez ...? Do you want ...? faire une promenade/ une balade? 4. sortir go out? la Grande Arche de la TO go for a walk? aller à LA .../ au .../ aux ...? Défense faire du vélo? TO go cycling? 5. 6. faire du patin à glace? TO go iceskating? Oui, je veux bien! Yes, do! 1. 7. faire les magasins? TO go shopping? le Sacré-Coeu 1 2. D'accord ОК Bonne idée! Good idea! jouer au foot? TO play football? 8. Chouette, guand? 4. Great. when? le musée du Louvre jouer au baby-foot? 9. Non, merci! Je suis fatigué[e] *I am tired* 5. 10. regarder un match de f O watch l'avenue des Champs Élysées Désolé [e] je NE peux PAS! Sorry! I can't! 6. Je n'ai pas envie! I don't feel like it! 11. voir un film? TO see a film? Ça ne me dit rien! I don't fancy it! la tour Eiffe 3 la Cité des ces et de Pouvoir = to be able to/ can l'Industrie SUBORDINATE clause "where YOU can" À Sale il y a un centre commercial, <u>OÙ ON PEUT</u> faire les magasins. 1. Je peux – I can le Centre Pompido À Manchester II y a des restaurants **OÙ ON PEUT** manger et boire. Tu peux – you can/ can you Il peut / elle peut – he / she can À Paris il y a le louvre <u>OÙ ON PEUT</u> admirer la Joconde. 3.

4. À Manchester il y a des stades de foot <u>OÙ ON PEUT</u> regarder des match

Il peut / elle peut – he / she can
 *ON PEUT – we can / you can / one can
 Vous pouvez – you can/ can you
 Ils / ells peuvent – they can

Montmartr

| 8F | Combustion | | Mass is never gained or lost | Fire | Work by cooling a fire or | | Sulfur dioxide and nitrogen |
|---------------|-------------------------------------|---------------|--------------------------------|------------------|---|---------------|-----------------------------------|
| | | | in a chemical reaction. The | Fire | stopping oxygen getting to | Acid Pair | oxides rise into the air and |
| | 1 Durning Fuels | Conservation | atoms in reactants just | extinguisher | the fuel. | | dissolve in water vapour. The |
| | 1. Burning Fuels | of Mass | rearrange to form the | | Water will sink through the | | rain is now more acidic. |
| | A chemical substance from | | products, no new atoms are | | oil and turn to steam making | | Neutralisation reactions used |
| Fuel | which stored energy can be | | made and none disappear. | Oil Fire | the fire spread out. Use | Controlling | to remove acidic gases from |
| | transferred usefully to make | | Forms a white powder zinc | | foam or a fire blanket to | | chimney smoke. Acidic soil |
| | things happen. | Heating Time | oxide. The mass will appear | | keep oxygen away. | Acid Rain | /water can be neutralised by |
| | Used in hydrogen-powered | Heating Zinc | to increase because the zinc | | Water conducts electricity | | adding calcium carbonate. |
| Fuel Cell | vehicles, releasing energy | in Air | has combined with the | | so you may get a serious | | |
| | from hydrogen. | | oxygen in air. | The state of the | shock. Turn off the | 5 | . Global Warming |
| Fuel Cell Wor | rd Equation | | If the product is a gas it may | Electrical Fir | electricity and use a powder | | Tran energy from the Sun in |
| Hydrogen + o | xygen \rightarrow water | Gas Products | escape and make it seem like | | or carbon dioxide | Greenhouse | the atmosphere <i>e.a. carbon</i> |
| Reactants | The starting substances- on | | the mass has decreased. | | extinguisher. | Gases | diovide |
| | left of word equation. | | A substance scientists used | | | | Energy tranned by |
| Products | The new substances made- | | to think explained why things | | 4. Air Pollution | | greenbouse gases is |
| | on right of word equation. | Phlogiston | burned that was then proven | Complete | Carbon burns in plenty of air | Greenhouse | transferred back to the |
| | Burning, usually in air. The | | not to exist. | Combustion | only forming carbon dioxide. | Effect | Earth's surface causing it to |
| | reaction gives out energy | | | Incomplete | Not enough oxygen for all the | | |
| Combustion | which is transferred to the | | 3. Fire Safety | Combustion | carbon to react with. | E a utila / a | The terms exeture of the Forth |
| | surroundings by heating or | | A reaction that releases | | carbon dioxide- linked to | Earth's | The temperature of the Earth |
| | light. | Exothermic | energy that we can feel as | | global warming | Temperatur | e has fluctuated over time it is |
| | Fuels formed from living | | heat- combustion | Products of | carbon monoxide- | Over Time | rising rapidly now though. |
| Fossil Fuels | organisms that died millions | | Used to measure a change in | Incomplete | poisonous gas | | Increase in global |
| | of years ago- <i>petrol, diesel</i> | Thermometer | the temperature. | Combustion | soot- damage lungs and | Global | temperature due to more |
| | Only contain carbon and | | Three factors allow | | trigger asthma | Warming | greenhouse gases in the air |
| Hvdrocarbon | s hydrogen atoms- <i>petrol</i> . | | combustion to | | Small amounts of other | | and the greenhouse effect. |
| | diesel | | occur. | Impurities | substances in fuels | | Resulting from global |
| | The carbon and hydrogen | Fire Triangle | | Sulfur | Formed when hydrocarbons | Climate | warming- changes to |
| Combustion | atoms react with oxygen | | | Diovido | have a sulfur impurity | Change | weather patterns, more |
| of | The carbon reacts to form | | | Dioxide | Formed by high ongine | | storms, flood, droughts, etc. |
| Hydrocarbon | s carbon dioxide | | FUEL | Nitrogen | Formed by high engine | | There is now lots of evidence |
| Carbon | Carbon dioxide will turn | Putting Out a | You must remove at least | Oxide | temperatures causing nitrogen | Evidence | for global warming. average |
| Dioxide | limewater cloudy | Fire | one of the three factors | | Compatible that say have | evidence | temperatures are increasing |
| DIUNIUE | innewater cloudy. | | Evolosive | Della Contra | Something that can harm | | and ice caps are melting. |
| | 2. Oxidation | . West | Heating may cause an | Pollutants | living things and damage the | | |
| Oxidation | Reacting with oxygen. | | evolution | | environment. | Work throu | gh memorising the |
| | Compound formed by | × | Explosion. | | Found in cars to react carbon | information | – highlight each definition |
| Oxide | oxidation. | J.L. | | Catalytic | monoxide with more oxygen | onco you kr | ow it When you have |
| | Formed when metals react | <u>₹</u> 3 | These substances catch fire | Converter | torming carbon dioxide. Also | Unce you kr | |
| Metal | with auroan | | easily. | | breaks down nitrogen oxides. | completed | your highlighting completed |

the gap fill and activities sheet to support your re

second

ractice.

with oxygen. metal + oxygen → metal oxide These subs overgen

Oxides

These substances release oxygen.

8G Metals and Their Uses

| 1. Metal Properties | | | | | | |
|-----------------------------|---|--|--|--|--|--|
| Physical | The properties that describe a | | | | | |
| Properties | substance on its own. | | | | | |
| rioperties | (colour, strength, density, etc.) | | | | | |
| Chemical | How a substance reacts with | | | | | |
| Properties | other substances. | | | | | |
| Properties | High melting points, strong, | | | | | |
| of Motals | flexible, malleable, shiny, good | | | | | |
| of wietais | conductors. | | | | | |
| | Used in electrical circuits | | | | | |
| | because it is a good conductor | | | | | |
| Conner | of electricity and unreactive. | | | | | |
| соррег | Used in water pipes because it | | | | | |
| | is unreactive, non-poisonous | | | | | |
| | and malleable. | | | | | |
| Aluminium | Used in window frames | | | | | |
| Aluminum | because it is strong and light. | | | | | |
| Motals 8 | Most metals react with oxygen. | | | | | |
| | metal + oxygen → metal oxide | | | | | |
| ONYSCII | e.g. zinc + oxygen \rightarrow zinc oxide | | | | | |
| | Metals react with halogens and | | | | | |
| Metals & | other non-metals. | | | | | |
| Halogens | e.g. zinc + fluorine \rightarrow zinc | | | | | |
| | fluoride | | | | | |
| | Speed up chemical reactions | | | | | |
| Catalysts | without being permanently | | | | | |
| | changed themselves. | | | | | |
| Found in cars to help conve | | | | | | |
| Catalytic | dangerous gases into harmless | | | | | |
| Converter | ones- often contain platinum, | | | | | |
| | palladium and rhodium. | | | | | |

| 2. Corrosion | | | | |
|---|---------------------------------|--|--|--|
| Correction | Any reaction with oxygen at the | | | |
| Corrosion | 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 | | | | |
| $Ti + O_2 \rightarrow TiO_2$ | | | | |

| ormula | Used to represent the products | | | |
|--------------------|---|--|--|--|
| | and reactants in a symbol | | | |
| | equation. | | | |
| | Comparison of the proportion | | | |
| atio | of two quantities <i>e.g. in TiO</i> ₂ | | | |
| atio | there are two oxygen atoms for | | | |
| | every titanium- the ratio is 1:2 | | | |
| ucting of | More complex than general | | | |
| usting of | corrosion- requires water as | | | |
| | well. | | | |
| lusting of I | ron Word Equation | | | |
| ron + oxyg | en + water $ ightarrow$ iron hydroxide | | | |
| roventing | Use a barrier such as | | | |
| reventing | paint/plastic/oil to keep away | | | |
| ust | air/water | | | |
| | | | | |
| 3 Metals and Water | | | | |



| 📥 can catch fire | viv reacts very quickly | v reacts |
|------------------|-------------------------|-------------------|
| 🗸 reacts | slow or partia | al X no reacti |

ReactivityHow quickly / vigorously
something reacts.ReactivityA list of metals in the order of
their reactivity.

| Metals & | Me ⁻ hyd rea | tals produce metal Iroxides and hydrogen when cting with water. | | | | |
|----------------------|--------------------------------------|---|--|--|--|--|
| Water | (sodium + water \rightarrow sodium | | | | | |
| | hyd | roxide + hydroaen) | | | | |
| | | | | | | |
| | 4.1 | Metals and Acids | | | | |
| Potassium | 1 - | React explosively with dilute | | | | |
| Lithium | | acids. | | | | |
| Calcium - | Zinc | React very quickly with dilute acids. | | | | |
| Iron - Lead | ł | React slowly with dilute acids. | | | | |
| Copper - Platinum | | Do not appear to react with dilute acids at all. | | | | |
| Effervesce | ence | The production of a gas. Occurs when metals react with an acid. | | | | |
| Metals & | | Metals react with acids to | | | | |
| Acius | | s Word Equation | | | | |
| metal + ac | id - | salt + hydrogen | | | | |
| e a maan | esiu | $m + sulfuric acid \rightarrow$ | | | | |
| maanesiu | m su | lfate + hvdroaen | | | | |
| Naming Sa | alts | The first word in the salt is the metal the second | | | | |
| | | depends on the acid used. | | | | |
| Hydrochlo Acid | oric | HCl – forms salts ending in chloride | | | | |
| Sulfuric A | cid | H ₂ SO ₄ – forms salts ending in sulfate | | | | |
| Nitric Acio | 1 | HNO₃ – 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. | | | | | | |
|------------|---|--|--|--|--|--|--|
| | Lead mixed with tin- lower | | | | | | |
| C - 1 - 1 | melting point than lead used for | | | | | | |
| Soluei | fixing pipes / electrical | | | | | | |
| | equipment. | | | | | | |
| | Aluminium mixed with copper | | | | | | |
| Duralumin | and magnesium making it | | | | | | |
| Duraiumin | lighter and stronger. Used in | | | | | | |
| | aircraft. | | | | | | |
| | Iron mixed with carbon, | | | | | | |
| Stainless | chromium and nickel making it | | | | | | |
| Steel | stronger and more resistant to | | | | | | |
| | corrosion. Used in cutlery. | | | | | | |
| Explaining | How Alloys Are Strong | | | | | | |
| | particles moved into new positions | | | | | | |
| large | | | | | | | |
| M | Ietal atoms are A large force will In an alloy, the different anged in layers. move the layers. In an alloy, the different atoms jam up the structure so the layers cannot slide so easily. | | | | | | |
| | Melting and boiling points for | | | | | | |
| Melting / | pure substances are fixed and | | | | | | |

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.

Boiling

Points

occur at precise temperatures.

Alloys melt and boil over a

| | 8H Rocks | Magma | Molten rock | | When rocks are broken up by | | igneous |
|-------------------------------|---|-----------------------------|---|---------------------------|---|------------------------------------|--|
| | | Lava | Magma that reaches the | | physical processes. | | IUCK |
| 1 6 | Rocks and their Uses | Lava | Earth's surface. | Physical | e.g. changes in temperature | | |
| Geologist | A scientist who studies rocks and the Earth. | Small Crystals | Formed when molten rock cools down fast due to less time for particles to become | Weathering | causing expansion and contraction over time, cracking rocks. | The Rock Cycle | |
| Rocks | Naturally occurring substances made up of different grains. | | ordered. | Expanding | Rocks get bigger when they | | sedimentary metamorphic rock rock |
| Grains | Made from one or more chemical compounds. | Large | cools down slowly due to | Contracting | Rocks get smaller when they are cooled | | Key increasing metiting and grossion, deposition and commutation |
| | The chemical compounds in | Ci ystais | pattern to form. | | Water gets into cracks in | 5.1 | Materials in the Earth |
| Minerals | rocks- rocks are mixtures of different minerals. | Extrusive | Igneous rocks formed from cooling lava above the | Freeze- Thaw Action | rocks, freezes, expands and then forces the crack to get | Native State | Metals found as pure elements in rocks. |
| Texture | shapes of grains in a rock. The grains all fit together with | Intrusive | surface. Igneous rocks formed | Erosion | bigger. The movement of loose and weathered rock | Ores | Rocks that contain enough of a metal / metal compound to be worth mining |
| Crystals | no gaps. They are hard and do not wear away easily. | | Formed by pressure and heat changing other rocks. | Abrasion | When rock fragments bump into each other and are worn | Extracting | Ores are obtained by mining, then crushed and chemical |
| Rounded Grains | grains with gaps in between. They are not strong and can be | Metamorphic Rocks | e.g. Schist, gneiss (both formed from granite) slate (from mudctone) and marble | Sediment | away. Bits of rock and sand in | Ores | reactions used to obtain the metal. |
| | worn away more easily. Rounded grain rocks can | | (from limestone) | Glacier | Rivers of ice that move slowly but can transport large pieces | Mining Problems | destroying habitats and causes |
| Porous | absorb water because it gets into the gaps. | Metamorphic Rock Texture | interlocking crystals which may form coloured bands. | | of rock. | Rare Metals | Hard to obtain which makes them expensive. |
| Permeable | Water can run through. | | | 4. | Sedimentary Rocks | Recycling | Using a material again. |
| Cement | A building material made from limestone. | 3. We | athering and Erosion When rocks are broken up by | Sedimentary | Formed when layers of sediment build up over time | Recycling | Cuts down on pollution from mining and landfill sites, allows |
| Gravel | A mixture of cement, sand and gravel. | Weathering | physical, chemical or biological processes. | Rocks | followed by compaction then cementation. | Advantages | supplies to last longer and requires less energy. |
| 2. Igne | eous and Metamorphic | | When rocks are broken up by chemical reactions. | | e.g. sandstone, mudstone Pressure forces water out | | |
| | Inner Core | Chemical Weathering | e.g. gases in air making rainwater slightly acidic which then reacts with minerals in | Compaction | from the gaps between grains squashing the grains closer together. | Work thr informat definitior | ough memorising the ion – highlight each n once vou know it. When |
| The Structure of the Earth | Mantie Crust | Biological I | rock wearing them away. When rocks are broken up by living organisms. | Cementatio | Dissolved minerals between n the gaps act as a glue and 'cement' the grains together. | you have highlight | completed your ing completed the gap fill |
| | | Weathering | e.g. growing plants splitting rocks apart with their roots. | Sedimentary Rock | They are always made from rounded grains. Properties | and activ support y | vities on the second sheet to your retrieval practice. |
| Igneous Rocks | Formed when molten rock cools down | | | Texture | depend on the type of sediment that forms them. | | 31 |
| | e.g. basait, granite | | | | | | |

| | 8J Light | | Material that does not let light through. It is not possible | Incident ray | A ray of light going towards the mirror or other object. | Angle of | The angle between the normal and a ray of light that |
|--------------|---|------------------|---|-----------------------------------|--|-------------------|--|
| 1. Vacuum | A completely empty space, | Opaque | to see through an opaque substance. | Reflected ray | A ray of light bouncing off a mirror. | refraction | has been refracted. The place where parallel rays |
| Matter | All things are made of matter. There are three states of matter: solid, liquid, gas. | Scattered | Scattering occurs when light or other energy waves pass through an imperfect medium | Angle of incidence Angle of | The angle between an incoming light ray and the normal. The angle between the normal and the ray of light leaving a | Focal poin | t of light are brought together by a converging lens. The distance between the the centre of the lens and the |
| Longitudinal | A wave where the particles vibrate in the same direction as the wave is travelling. | Stattered | particles of some sort) and are deflected from a straight path. | reflection | mirror. When light is reflected evenly, so that all reflected light goes off in | i ocar leng | focal point. 4. Cameras and eyes |
| wave | longitudinal | Reflected ray | A ray of light bouncing off a mirror. | Specular | the same direction. Mirrors produce specular reflection. | Digital camera | A camera that uses electronics to record an image. |
| - | A wave where the vibrations are at right angles to the direction the wave is | Source | Where a sound wave or other wave begins. A picture that forms in a | reflection | incident ray normal reflected ray | Sensor | something. In a digital camera, the sensors detect light and change it to electrical signals |
| wave | travelling. transverse | Image | mirror or on a screen, or is made by a lens. You see an image when looking down | | B specular reflection Reflection from a rough surface, where the reflected light is | Memory card | Part of a digital camera that stores the images. |
| | A narrow beam of light, or an arrow on a diagram representing the path of light and the direction in which it is travelling | Pinhole | A piece of apparatus that forms an image of an object | Diffuse reflection | scattered in all directions. | Aperture | how much light goes to the sensor. |
| Ray | | camera | on a screen when light rays travel through a tiny hole in the front | | | Shutter | A device that shields and protects the sensor in a digital camera. It opens when the |
| Transparent | A material that light can travel through without scattering. (Note: transparent substances | Shadow | A place where light cannot get to, because an opaque object is blocking the light. | Law of reflection | The angle of incidence is equal to the angle of reflection. 3. Refraction | | Lens Vitreous humor Pupil Cornea Macula |
| | colourless.) | Plane | 2. Reflection | | The change in direction when | | |
| Transmit | To pass through a substance. To bounce off a surface | mirror | A piece of equipment that | Refractior | n transparent material to another. | Human eye | Fovea |
| Reflect | instead of passing through it or being absorbed. | Ray box | produces a narrow beam of light. | Interface | The boundary between two | | Iris Optic nerve |
| Absorb | 'To soak up' or 'to take in'. Material that lets light | Ray tracing | happens to light by marking the | | A curved piece of glass or | | Sclera Retina |
| Translucent | through but scatters it. You cannot see things clearly through translucent materials | Ray diagram | A diagram that represents the path of light using arrows. | Lens | other transparent material that can change the direction of rays of light. | Retina | The part at the back of the eye that changes energy transferred by light into nerve impulses. |
| L | | Normal | An imaginary line at right angles to the surface of a mirror or other object where a ray of light | Convergin lens | A lens that makes rays of light come together. | Pupil | The hole in the front of the eye that light can pas through. |
| | | | hits it. | | | | 52 |

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

| | 5. Colour | | | | | |
|-----------|-----------------------------------|--|--|--|--|--|
| White | Normal daylight, or the light | | | | | |
| light | from light bulbs, is white light. | | | | | |
| | The number of vibrations (or | | | | | |
| | the number of waves) | | | | | |
| Frequency | per second. Different | | | | | |
| | frequencies of light have | | | | | |
| | different colours. | | | | | |
| Sportrum | The seven colours that make up | | | | | |
| spectrum | white light. | | | | | |
| | The separating of the colours ir | | | | | |
| | light, for example when white | | | | | |
| | light passes through a prism. | | | | | |
| Dispersio | | | | | | |
| n | | | | | | |
| | Red Ora | | | | | |
| | Gree | | | | | |
| | White Light Glass Prism Viol | | | | | |
| Dricm | A block of clear, colourless glas | | | | | |
| r115111 | 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 I | Earth and Space | | The Moon appears different | South- | The end of a bar magnet that | Gravity and | The force of gravity keeps the | |
|-------------|-----------------------------------|------------|--|--|-----------------------------------|-------------------------------------|---------------------------------|--|
| | | | shapes at different times due | Seeking | points south- shortened to | Orbits | Earth in its orbit of the Sun. | |
| 1 63 | thering the Evidence | Phases of | to its position relative to the | pole | south pole. | Satellite | Anything that orbits a planet. | |
| 1. Ge | A scientist that studios space | the Moon | Earth and Sun. | | When two magnets are pulled | Natural | Moons are examples of | |
| Astronomer | A scientist that studies space. | | | Attract | together. Opposite poles will | Satellite | natural satellites. | |
| Edity | Could only use their eyes to | | | | attract each other. | Artificial | Can be put into orbit around | |
| Astronomers | | | | | When two magnets are pushed | Satallita | Earth for photographing / | |
| | Egyptian astronomer (90- | | Allowed scientists to | Repel a | apart. The same poles will | Satellite | transmitting TV programs etc | |
| | 108) Drangsod a model with the | Spacecraft | investigate space more by | | repel each other. | | | |
| Ptolemy | Proposed a model with the | Spaceciait | collecting samples and taking | | The area around a magnet | 5. Bey | iond the Solar System | |
| | Earth in the centre and the | | readings on other planets. | Magnetic | where it has an effect. Can be | Constellation | Pattern of stars | |
| | Moon, Sun and planets | | 2 600000 | Field | found using iron filings or a | | Huge balls of gas that give | |
| - | orbiting the Earth. | | 2. Seasons | | small compass. | Stars | out large amounts of energy. | |
| | Polish astronomer (1473- | Summer | Longer days than hights, Sun | | | | The Sun is a star. | |
| Nicolaus | 1543) | | nign in the sky. | Magnetic | | Stars At | Appear less bright than the | |
| Copernicus | Suggested the Earth and | Winter | Longer nights than days, Sun | Field | | Night | Sun because they are further | |
| - | other planets move in circles | - | not very high in the sky. | Diagram | | | away. | |
| | around (orbit) the Sun. | Cause of | Due to the tilt of the Earth's | | | Galaxies | Large groups of stars. | |
| | It was not accepted straight | Seasons | axis by 23.5°. | Magnetic | Strongest closest to each pole | Milky Way | The galaxy our Sun is in. | |
| Reaction to | away. However observation | Causing | When the northern | Field | the field gets weaker as you get | Universe | Made up by all of the millions | |
| Copernicus | made by Galileo using one of | Summer | hemisphere is tilted towards | Strongth | further from the magnet | Universe | of galaxies. | |
| wodel | the first telescopes provided | | the Sun it is summer in the UK. | Magnetic | The direction of a magnetic | | Measurement of distance- | |
| | more evidence to support it. | Causing | When the northern | en the northern nisphere is tilted away from Sun it is winter in the UK. | field is always from the porth | Light Year | the distance travelled by light | |
| | German astronomer (1571- | Winter | hemisphere is tilted away from the Sun it is winter in the UK. | | neld is always from the north | | in 1 year. | |
| | 1630) | | | | pole towards the south pole. | | Approximately ten million | |
| Johannes | Proposed the model used | | | | 4. Gravity in Space | | million kilometres. | |
| Kepler | today. The Sun is at the | | Northern , | | Force exerted by all objects | Proxima | Nearest star to the Sun, | |
| | centre with the planets | Causing | hemisphere summer | Gravity | with mass trying to pull other | Centauri | about 4.22 light years away. | |
| | moving around in elliptical | Seasons | | | objects towards it. | | | |
| | orbits. Moons orbit planets. | Diagram | | | The bigger the mass of an | | | |
| The Model o | f the Solar System | | Southern hemisphere | Bigger Mas | s object, the stronger the force | Work through memorising the | | |
| \ | Neptune | | winter | Digger Widss | it exerts. | informatio | n – highlight each | |
| | Uranus | | | | The force of gravity pulling | | | |
| | | | Because the Sun is higher in | Weight | on you | definition once you know it. When | | |
| Sun | | Summer | the sky in summer the heat is | | Measured in Newtons (N) | you have c | ompleted your | |
| | | Sun | more concentrated, making it | Gravitation | al The space around the Earth | highlighting completed the gap fill | | |
| | | | feel warmer | Field | where gravity attracts things | and activit | ies on the second sheet to | |
| Mercury | Earth Mars Jupiter | | 3. Magnetic Earth | Gravitation | al At the surface of the Earth it | support vo | ur retrieval practice. | |
| Venus | Venus | | Field lis about 10 newtons per | | | , | | |
| | | North | The end of a bar magnet that | Strength (a |) kilogram (N/kg). | | | |
| | | NOI CII- | ine enu or a par magnet triat | | | L | | |

Weight

Formula

Weight = mass x g

Seeking

pole

points north- shortened to

north pole.

34





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. | |

| | ?? |
|---|----|
| ō | 0 |
| | |

| 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.

Os 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 01010-00 in binary



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></html> | Root of a HTML document | |
| <body></body> | Contents of the page | |
| <head></head> | Information about a page | |
| <title></title> | Table title/defines title | |
| <h1>,<h2>,<h3></h3></h2></h1> | Headings | |
| | Paragraph | |
| | Image | |
| <a> | Anchor (used in hyperlinks with href) | |
| , | Order/unordered list | |
| | List item | |
| | Creates and defines table | |
| | Table row | |
| | Table data | |
| | Bold | |
| | Linebreak | |
| <div></div> | Divider | |
| | Comment | |

chtml>
chtml>
chead>
ctitle>My Pirst Webpage</title>
</head>
cbody>
chi>My First Heading</hi>
My first paragraph.
</body>
</html>



My First Heading My first paragraph





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.

if condition :

block of

statements

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 | Ke | y terms algorithm | else: block of statements | |
|--|-----------|----------------------|--|--|
| // integer division | iteration | sequence | You can use multiple if, elif and else | branches using |
| input vari Arithmeti | able logi | cal operators output | Python helps by tellin programmer where t So if you see red erro first. | ng the the error is. or text—read it |

| 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_x

| 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 | |

MOBILE SPP

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.







Mechanical Properties

| Tensile | Material's resistance to the tension caused |
|-------------|--|
| Strength | by pulling force. |
| Compressive | Material's resistance to a crushing or |
| Strength | squeezing force. |
| Shear | Material's resistance to two parallel forces |
| Strength | acting in opposite directions. |
| Torsional | Material's resistance to a twisting force. |
| Strength | |



| Strength | The ability of a material to resist a force |
|--------------|---|
| | applied. |
| Hardness | The resistance of a material to scratching |
| | and wear. |
| Toughness | The ability of a material to not break when |
| Ū | a force is suddenly applied. |
| Malleability | The ease with which the shape of a |
| | material can be changed without the |
| | material breaking. |

Physical Properties

| Density | The mass of a material per unit volume. |
|--------------|--|
| Electrical | The ability of electricity to pass through a |
| Conductivity | material. |
| Absorbency | The ability of a material to draw in moisture. |

Design Specification – Key Questions

| Α | Aesthetics | What shape should the product be? | | |
|---|---------------|---|--|--|
| | | What colour should be product be? | | |
| | | What texture should the surface have? | | |
| С | Cost | What should the cost of the product be? | | |
| С | Consumer | Who is the client or the user of the product? | | |
| | | What features of other similar products should it | | |
| | | have? | | |
| | | Does the client have any specific needs or wants | | |
| | | for the product? | | |
| Ε | Environment | Should the product be made from recycled materials? | | |
| | | How should the product be packaged? | | |
| | | How will the product be disposed of when it is no | | |
| | | longer needed? | | |
| S | Safety | What safety risks have to be considered? | | |
| | | What safety standards must the product meet? | | |
| S | Size | How long, wide and tall should the product be? | | |
| | | How much should the product weigh? | | |
| F | Function | What will the product be used for? | | |
| | | How will it work? | | |
| | | How should it be tested? | | |
| Μ | Materials and | What materials should the product be made from? | | |
| | Manufacturin | Are there any limits on the sizes of the available | | |
| | | materials? 40 | | |
| | g | How many products need to be made? | | |
| | | Which processes should be used to make the product? | | |





Ergonomics and Anthropometrics

Anthropometrics is the practice of taking measurements of the human body and provides categorised data that can be used by designers. Anthropometrics help designers collect useful data, eg head circumferences when designing a safety helmet. In this example, as there is a large variation in size, the designer would need to build some adjustment into the safety helmet design.



Ergonomics can incorporate the use of **anthropometric data** when designing products to improve the user experience. If a designer doesn't use anthropometric data during the design process, it can lead to a poor user experience that causes discomfort, pain and potential injury. **Ergonomics** is a consideration that leads to a product being designed in a way to make it easy to use. Size, weight, shape, position of buttons and controls are all aspects that contribute to it

being ergonomically designed.





How can we reduce our impact on the environment?

Use **renewable** materials rather than non-renewable means these can be replenished.

If non-renewable materials are used such as plastic (oil) **carbon emissions** are given off resulting in global warming.

Choosing **biodegradable** materials means they will break down naturally when the product comes to the end of its life. Non-biodegradable materials that have not been recycled will end up in the landfill or the sea damaging animals and habitats. Apply the **6Rs** to ensure minimal impact on the planet.

Microcontrollers are programmable components that acts like a small computer within a single integrated circuit.

Peripheral Interface Controller **<u>PIC</u>** is a commonly used microcontroller

Flowchart program is a set of instructions laid out using flowchart symbols that tells a microcontroller what to do.

Advantages And Disadvantages Of Using Plastics

- Plastics are made from a **non-renewable** resources which cannot be replaced.
- Plastics are non-biodegradable and will not decay if disposed of in landfills or the the sea causing damage to animals and habitats.
- Not all plastics can be recycled.
- + Plastics are strong and durable.
- + Plastics come in a range of sizes and colours.
- + Plastics can be easily shaped.
- + Plastics are insulators and are waterproof.



The **<u>Green Dot</u>** does not necessarily mean that the packaging is recyclable, will be recycled or has been recycled.



The **Mobius Loop**. This indicates that an object is capable of being recycled, not that the object has been recycled or will be accepted in all recycling collection systems.



Age warning logo

This indicates the product is not suitable for under 3 year olds.







| Tools and Equipment | Name | UseSafety point | Computer Aided Design |
|---------------------|-----------------------|---|---|
| | Coping Saw | To cut wood Safety Rules when using it Work should be clamped in a vice | CAD This is using computer software to draw and model a product. Examples: 2D Design, Photoshop, Macromedia Fireworks and Sketch Up Advantages: |
| | Half Round File | Smoothing wood or Styrofoam Safety Work should be clamped in a vice | Designs can be shared electronically Accurate Designs can be easily edited Disadvantages: Software and training can be |
| | Vice | Used to hold work in place Safety Allows work to be safely clamped while being cut or smoothed | expensive Security issues CAM This is using computer software to control machine tools to make products. Examples: Lasor Cuttor, 2D printer |
| | Pillar Drill | Used to drill holes in wood or plastic Safety You must wear goggles, an apron, tie your hair back, have the guard down and worked clamped securely | Advantages: • Faster • Complicated shapes are easily produced • Exact copied are easily made • Machines can run 24/7 Disadvantages: • High initial set up costs as CAM machines are expensive |
| | | \bigcirc | |

| 0/10 | | | | |
|------|--|--|--|--|
| | and model a product. | | | |
| | Examples: | | | |
| | 2D Design, Photoshop, Macromedia | | | |
| | Fireworks and Sketch Up | | | |
| | Advantages: | | | |
| | Designs can be shared | | | |
| | electronically | | | |
| | Accurate | | | |
| | Designs can be easily edited | | | |
| | Disadvantages: | | | |
| | Software and training can be | | | |
| | expensive | | | |
| | Security issues | | | |
| | | | | |
| CAM | This is using computer software to | | | |
| | control machine tools to make products. | | | |
| | Examples: | | | |
| | Laser Cutter, 3D printer | | | |
| | Advantages: | | | |
| | Faster | | | |
| | Complicated shapes are easily | | | |
| | produced | | | |
| | Exact copied are easily made | | | |
| | Machines can run 24/7 | | | |
| | Disadvantages: | | | |
| | High initial set up costs as CAM | | | |
| | machines are expensive | | | |
| | | | | |
| | Skotchl | | | |







Most <u>polymers</u> are synthetic. This means they are manmade. They are usually made from crude oil which can be obtained by drilling underground or under sea level. Crude oil is a non-renewable resource- this means that it is not replaced as it is used.

Thermoplastic polymers can be reshaped when heated. They can also be recycled.

Thermosetting polymers cannot change shape when reheated and cannot be recycled. They have extra links between the individual chains of polymer. These links stop the chains being able to move, meaning that thermosetting polymers are typically stronger and more rigid than thermoplastics polymers.

Vacuum Forming is a process that uses heat and air pressure to shape a thermoplastic. It can be used to manufacture **blister packaging.**







Ø.

| Thermon | lastic | Dol | vmore |
|---------|--------|-----|-------|
| mennop | astic | FUI | ymers |

| Туре | Properties | Uses |
|---------------|---------------------------|-------------------------|
| HDPE | Strong and stiff | Pipes, buckets, bowls |
| High Density | | |
| Polyethylene | | |
| PET | High strength and good | Drinks bottles and food |
| Polyethylene | toughness. Heat resistant | packaging |
| Terephthalate | | |
| HIPS | Reasonable strength and | Packaging |
| High Impact | good toughness | |
| Polystyrene | | |
| Acrylic | Can be transparent | Plastic windows, bath |
| | Hard wearing and tough | tubs |







| Туре | Properties | Uses |
|-------------------|----------------------------------|------------------------------|
| Epoxy Resin | High strength, stiff and brittle | Printed circuit boards, cast |
| | Excellent temperature resistance | electrical insulators |
| | | |
| Melamine | Strong, stiff and hard | Laminate coverings for |
| Formaldehyde | Resistant to many chemicals and | kitchei worktops |
| | stains | 40 |
| Urea Formaldehyde | Good strength, rigid and hard | Plugs and plug sockets |
| | Warm to the touch | |





Metal sources

Ores are naturally occurring rocks that contain metal or metal compounds in sufficient amounts to make it worthwhile extracting them.

Iron ore is used to make iron and steel. Copper is easily extracted, but ores rich in copper are becoming more difficult to find.



Metals are grouped into the following categories or classifications:

•ferrous - contain iron, rust easily and are magnetic, eg iron and steel

•non-ferrous - do not contain iron, do not rust and are not magnetic, eg copper and aluminium

•alloys - a mixture of more than one metal, eg bronze or brass.





Environmental impact

When considering the ecological and social implications of using metal, its non-renewable nature is the main concern. Metal cannot be grown and is a finite resource - there is only a certain amount within the Earth's crust.

Steel is made in huge and exceedingly hot cauldrons. Its production uses a lot of energy and contributes approximately 5 per cent of the world's greenhouse gas emissions.





| | Strength and weaknesses (properties). | Uses |
|-----------------------------------|---|--|
| Cast iron | Cheap to produce, easy to cast, is rigid, has high compressive strength, machines and absorbs vibrations well, has low tensile strength, it is brittle and cannot be forged | Pans, brake discs, large castings |
| High-carbon steel (tool steel) | Hard but brittle, less malleable than mild steel, good electrical and thermal conductivity | Taps and tools, eg screwdrivers and chisels |
| Low-carbon steel (mild steel) | Ductile and tough, easy to form, braze and weld, good electrical and thermal conductivity but poor resistance to corrosion | Nuts, bolts, screws, bike frames and car bodies |

Non Ferrous metals

| | Strength and weaknesses (properties). | | Uses |
|---|---------------------------------------|---|--|
| | Aluminium | Light in weight and malleable but strong, a good conductor of heat and corrosion resistant | Drink cans, saucepans, bike frames |
| , | Copper | An excellent electrical conductor of heat and electricity, extremely malleable and can be polished, oxidises to a green colour | Plumbing fittings and electrical wires, professional chef's saucepans |
| | Silver | A precious metal that is soft and malleable when heated, highly resistant to corrosion and an excellent electrical conductor of heat | wellery |



Check the label or packaged foods

Choose foods I in fat, salt and s

40%

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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 | | | |
| | Bread | | |
| Strong flour | Bread Structure, Gluten stretches helps bread rise and sets shape | | |
| Strong flour Yeast | Bread Structure, Gluten stretches helps bread rise and sets shape Produce CO2 when all conditions provided so makes bread rise. | | |



Why food is cooked:

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- To make it safe to eat
- To improve the shelf life
- To develop flavour
- To improve texture
- To give variety

Methods of heat transfer

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

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

<u>Conduction -</u> when heat is transferred directly. e.g. - frying an egg

Radiation - when heat radiates e.g. - toast

Effect of cooking on protein



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| Nutrient | Functions | Sources | |
|----------------------|--|---|--------|
| Protein | Growth – known as the body's building blocks. | Animal products – meat, fish, dairy; plants – lentils, nuts, seeds | |
| Carbohydrates | Source of energy. Divided into: simple carbohydrates – sugars and complex carbohydrates – starches and dietary fibre. Starches provide slow releasing energy and add bulk | complex – bread, pasta, rice, potatoes (chose wholemeal versions for fibre and potato with the skin | Grains |
| Fats | Source of energy. Four types: monounsaturated, polyunsaturated (omega 3 and 6), saturated and 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 | |
| Vitamin | Essential for many processes, eg bone growth, metabolic rate, immune system, vision, nervous system. Need small amounts only. | A – dairy, oily fish, yellow fruit; B – vegetables, wholegrain cereals; C – citrus fruit, broccoli, sprouts; D – oily fish, eggs, fortified cereals | |
| Minerals- Calcium | Essential for many processes, eg bone growth/strength, nervous system, red blood cells, immune system. Need small amounts only | Calcium – milk, canned fish, broccoli; iron – watercress, brown rice, meat; zinc – shellfish, cheese, wheatgerm; potassium – fruit, pulses, white meat | |

| Conditions for Microorganism growth (FATTO | echnology knowledge Organise | |
|---|--|---|
| (° 100 | F ood-Food provides energy and nutrients for bacteria to grow. High risk foods particularly | Yeast, Mould, Bacteria (Bad bacteria are known as Pathogens |
| | promote bacterial growth. | Some Pathogens that causes Food Poisoning: *Campylobacter-Raw or |
| pH scale | A cid-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. | undercooked meat, particularly raw poultry Unpasteurised milk Untreated water. *E. coli-Raw or undercooked meat |
| A () () () () () () () () () () | T ime- 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. | and poultry or related products (eg gravy) Raw seafood products Unpasteurised milk or products made from it (eg cheese) |
| | 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 | Contaminated water *Listeria-Unpasteurised milk or products made from it |
| | 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. | Ready-to-eat foods (eg pre-packed sandwiches, pâté, deli meats) |
| T | Ox ygen-Microorganisms that that require oxygen to grow are called aerobic such as most yeast. | Unwashed vegetables contaminated with soil *Staphylococcus aureus-humans carry this in their nose and throat and can be transmitted by coughing or sneezing. Ready-to-eat foods that |
| O F 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. | are hand-made (eg sandwiches) Cooked meats, Unpasteurised milk and related products. *Salmonella-raw unpasteurised milk |



Satchel:one log in guide



How to Log into satchel:one

 At the Log in Screen, Click 'Sign in with Office 365'

| Staff | Parent | Student |
|-----------------|---------------------|---------|
| Sale High Schoo | 1 | |
| Enter email add | ress or username | |
| Enter password | | ٥ |
| | Log in | |
| | Or log in with: | |
| ٥ | Sign in with Office | 365 |
| | G Sign in with Goo | gle |
| R | Sign in with RM U | Inify |

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| Ô | https://login.microsoftonline.com/common/oauth2/authorize?re | |
| | | |
| | Microsoft | |
| | Sign in | |
| | 5.9.1 | |
| | | |
| | No account? Create one! | |
| | Can't access your account? | |
| | | |
| | Next | |
| | | |
| | | |
| | Q. Sign-in ontions | |
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| | | |
| | | |

2. Type in your school email address.

Your School Email Address is made up from the year you started Highschool,

| Year Started | School Year |
|--------------|-------------|
| 23 | 7 |
| 22 | 8 |
| 21 | 9 |
| 20 | 10 |
| 19 | 11 |

Follow this with your first initial, second name, and the school domain address (@salehighschool.org.uk)

e.g: 21BDrake@salehighschool.org.uk



Satchel:one log in guide



3. Enter your password.This is a six digit number.(Your teachers can give you)

Microsoft

← 21BDrake@salehighschool.org.uk

Enter password

Password

Forgot my password

Sign in

Welcome to Sale High School Office 365

4. Finally, Office 365 asks about signing in.

Yes can be pressed if your log in is from your phone or own computer.



Logging into Satchel:one in this way is the same on all devices: PC, Laptop, Tablet, iPad, and Phone.



PLEASE BE PATENT!

If you are on a mobile device (phone or tablet) Satchel often 'snaps' back to the original log in screen. Wait for a few seconds and the system will change to your logged in account.