# THE BOURNE ACADEMY
# KNOWLEDGE ORGANISER

everyone is a learner, everyone is a teacher

**A**mbitious
**S**elf Confident
**P**hysically Literate
**I**ndependent
**R**esilient
**E**motionally Literate

## Year 7
## Spring Term 2025-26

Name: .....

House: .....

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**The Bourne Academy**
**Knowledge Organiser: Year 7 Spring Term**

**Excellence at The Boume Academy: Using your Knowledge Organisers'**

*'Don't just practise until you get it right practise until you can't get* it *wrong.'* - Daniel Willingham

**Routines for Excellence**

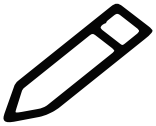
- You will get out your TBA Knowledge Organiser Booklet at the start of every lesson along with your Knowledge Organiser practise exercise book
- Your teacher will set you sections of the Knowledge Organiser to learn, off by heart, in every lesson.
- Your teacher will set you quizzes to test your knowledge every lesson.
- Your teacher will regularly set you questions that require you to APPLY your knowledge
- Your TBA Knowledge Organisers are saved on Show My Homework and on TBA website

**How to revise with your Knowledge Organisers'**
**Self-quizzing**

**Look/read, cover, write** and then green pen check your answers to show you where your 'knowledge gaps' are. Repeat until you have mastered the knowledge...until you can't get the knowledge wrong


Look/Read


Cover


Write


Check

**Low-stakes testing**
Your teachers will always have a **'Do now'** activity on the board at the start of lesson. Do as much as you can from memory. Use your Knowledge Organiser to green-pen check what you have accurately remembered. Then green pen correct. Repeat, each time checking and correcting until you have mastered your knowledge gaps.


# HOW DO WE REVISE WITH OUR KNOWLEDGE ORGANISERS?

## RECORD IT

Record yourself on your phone or tablet reading out the information. These can be listened to as many times as you want.

## TEACH IT

Teach someone your key facts and then get them to test you, or even test them.

## FLASH CARDS

Write the keyword/date on one side and the explanation on the other. Ask someone to quiz you on either side.


## BACK 2 FRONT

Write down the answers and then write what the questions the teacher may ask to get those answers.

## HIDE AND SEEK

Read through your Knowledge Organiser, put it down and try to write out as much as you can remember. Then keep adding to it until it is full.

## SKETCH IT

Draw pictures to represent the facts or dates. It could be a simple drawing or something that reminds you of the answer,

## POST ITS

Using a pack of post it notes, write out as many of the keywords or dates as you can remember in 1 minute.


## PRACTICE

Some will remember knowledge by simply writing the facts, over and over again.


## READ ALOUD

Simply speak the facts and dates out loud as you're reading the Knowledge Organiser. Even try to act out some of the facts - it really helps you remember.

**1:**
Aboriginals are the **indigenous** people, or the original inhabitants of Australia.
Humans are thought to have migrated to Northern Australia from Asia using primitive boats. A current theory holds that those early migrants themselves came out of Africa about 70,000 years ago, which would make Aboriginal Australians the oldest population of humans living outside Africa.

Early Aboriginal rock art includes cave paintings dating back over 17,000 years.

Colours used were '**earthy**' colours because their palette was limited to **colours found in nature**: reds, oranges, yellows, browns, plus black and white. Aboriginal artwork contains **symbols**, **animals**, and lots of **dots**.

**2:**
The **Dreamtime** is a commonly used term for describing important features of Aboriginal spiritual beliefs and existence. It is not generally well understood by non-indigenous people.

Aboriginals believe that the Dreamtime was way back, at the very beginning. The land and the people were created by the **Spirits**. They made the rivers, streams, water holes, the land, hills, rocks, plants, and animals. It is believed that the Spirits gave them their hunting tools and each tribe its land, their totems, and their **Dreaming**.

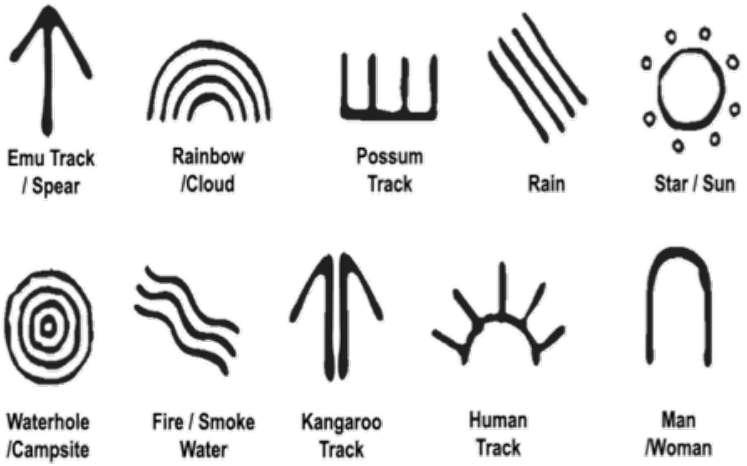
The Spirits made sacred sites for the Aboriginal people. The Aboriginals performed **ritual ceremonies** and customary **songs** near the sacred sites to please the Ancestral spirits and to keep themselves alive.

Dreamtime is the foundation of Aboriginal religion and **culture**. It dates back some 65,000 years. It is the story of events that have happened, how the universe came to be, how human beings were created and how their **Creator** intended for humans to function within the world as they knew it.

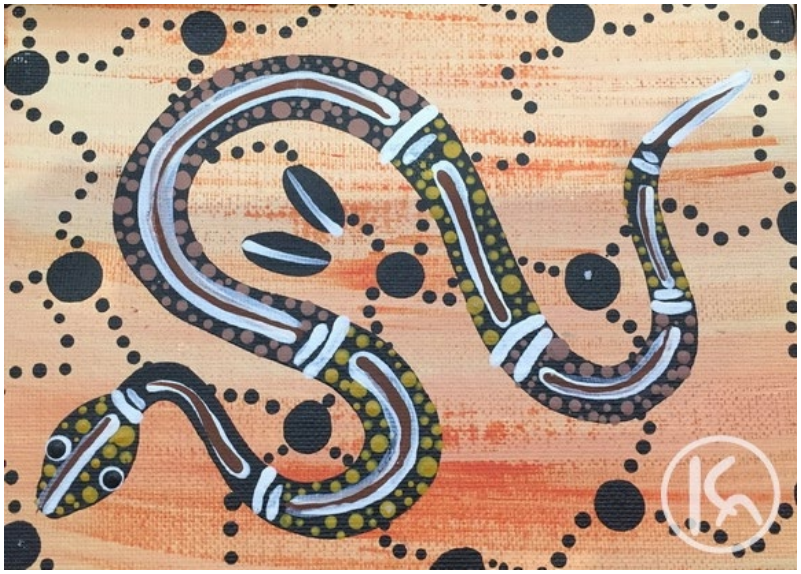
Aboriginals believe that humans are on an equal footing with nature, are part of nature and are morally obligated to treat animals, plants, and landforms with **respect**. The Aboriginal people have their own beliefs about death and consider this experience to be merely a transition into another life and the **afterlife** is very similar to their lives before death.

**3: Aboriginal Flag:** The symbolic meaning of the flag colours:
Black – represents the Aboriginal people of Australia.
Yellow circle – represents the Sun, the giver of life and protector.
Red – the red can have two meanings: representing the red earth, and Aboriginal peoples' spiritual relation to the land and the blood of the people.

**Knowledge Organiser: Year 7 Spring Term – Art & Design (Aboriginal Art and Symbols)**







**Section A:**

A new genomic study, or DNA study, has revealed that **Aboriginal Australians** are the oldest known civilization on Earth, with ancestries stretching back roughly 70,000 years.

More than 26 million people live in Australia, in the UK there are nearly 69 million people. Aboriginal Australians make up 3.3% of Australia's population. **Why do you think the number is so low?**

**Consider what kind of things and factors might influence this number, what determines the size of the population?**

James Cook was a British explorer, navigator, and cartographer, he reached the south-eastern coast of Australia on 19th April 1770, his expedition became the first recorded of Europeans to have encountered Australia's eastern coastline.

Australia was colonized by Britain in 1788. British settlement of Australia began as a Penal Colony. **What does this mean?**

**Section B:**

**Why was Australia colonized by the British?**

The reasons that led the British to invade Australia were simple. **The prisons in Britain had become unbearably overcrowded**, a situation worsened by the refusal of America to take any more convicts after the American War of Independence in 1783.

**Do you think that colonization is a positive or negative thing?**

**What are the impacts of colonization?**

**Section C:**

**What did the British do to the Aboriginal people?**

The English settlers and their descendants **expropriated native land and removed the indigenous people by cutting them from their food resources** and engaged in genocidal massacres.

**Section D:**

**Why are the Aboriginals struggling today?**

Communities are neglected, exhausted. Aboriginal communities are also suffering from a mix of issues, often a consequence of the trauma people have experienced, **lack of services**. Communities lack medical and disability services, and often have no Home or Community Care services. Lack of education and employment are also significant factors.

**Key Words:**

**Cartographer** – a person who draws or produces maps.

**Indigenous** – originating in a particular place, native.

**Trauma** – a deeply distressing or disturbing experience.

**Expropriated** – to deprive of ownership or the right of ownership. To take over the property of another.

**Colonized** – to settle among and establish control over (the indigenous people of an area).

**Genocidal** – involving the deliberate killing of many people from a particular nation or ethnic group.

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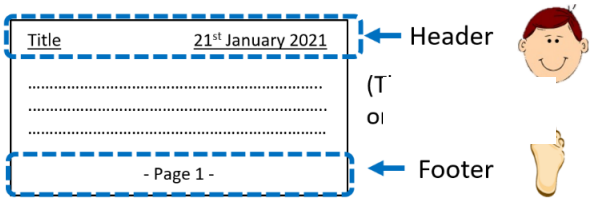
**Knowledge Organiser: Year 7 Spring Term - Computing**

## 1. Word Processing

**a) Microsoft Word**

Word processing software, such as for creating letters/essays.

**b) Headers** and **footers** repeat on every page.




**c) Formatting** is changing the appearance or the layout of a document.

**d) Theme** is having consistent formatting throughout a document.

**e) Template** is a file that has a pre-created layout and style acting as a document's starting point.

**f) Mail merging** creates lots of personalised documents based on a single template.

**g) Hard copy** is a physical printed copy of a document, such as a letter handed to someone.

**h) Soft copy** is a digital version of a document, such as an email attachment.

## 2. Spreadsheets

**a) Microsoft Excel**

Spreadsheet software is used to organise data. We can then run powerful calculations, make graphs and charts, and analyse patterns.

**b) Formulas** are used to calculate values between different cells, such as:

=A1*B1 (multiply) = A1/B1 (divide)

**c) Functions** are pre-set formulas that quickly perform a range of complex tasks, such as:

| | |
|---|---|
| =SUM(A1:A10) | adds up total value |
| =MAX(A1:A10) | finds the highest value |
| =AVERAGE(A1:A10) | finds the average |

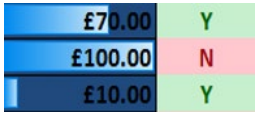
**d) Sort** organises data, such as alphabetically.

**e) Filter** is used to find specific data by only showing certain types of data.

**f) Row** is a line of horizontal cells.

**g) Column** is a line of vertical cells.

**i) Conditional formatting** automatically changes the appearance of cells based on the value.




## 3. Data

**a) Data** is raw (unprocessed) numbers, text and symbols. For example:

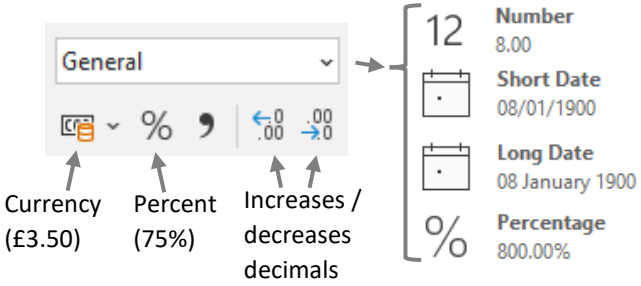
Fred, Joan, 14, 12, Lucy, 13.

**b) Information** is data that has been given meaning and structure. For example:
Fred is 12
Joan is 13
Lucy is 14.

**c) Data types** are the format of the values in the cells, such as: £, %, date, time

Examples of data types include:

| | |
|---|---|
| Text = "Hello" | Number = 789 |
| Currency = £5.99 | Date = 21/03/23 |
| Percent = 46% | Boolean = "True" "False" |



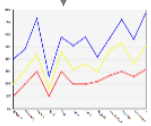
## 4. Data Analysis

**a) Charts and graphs** are used to visually represent data to easily compare data and spot trends.

<u>Bar Chart</u>
Used to show **comparisons**

<u>Pie Chart</u>
Used to show **proportions**

<u>Line Graph</u>
Used to show **trends**

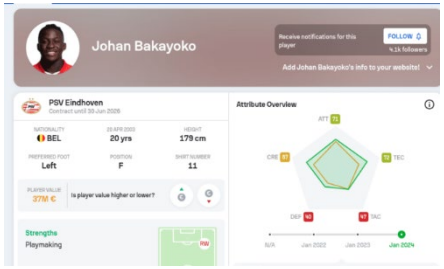


**b) Data modelling** is looking at data and using it to make future predictions and decisions.

An example of data modelling is predicting the weather based on current and past readings.

**c) Data dashboard** is a visual summary of information to quickly understand the data.

An example data dashboard is a footballer performance summary:




## 5. Software

**a) Application software** are programs created to do a specific task for the end user. Often called apps for short. Examples include games and office programs, such as Microsoft Word.

**b) Word processing** is application software a user can use to create text-based documents.

**c) Desktop publishing** is a type of application used for created documents with both text and images, such as magazines.

**d) Presentation** software is used for creating slideshows with features such as animations and frame transitions.

**e) Database** software is used to organise data. This data is kept in tables arranged in fields (columns) and records (rows).

**f) Operating system** manages the computer's resources, runs application software and provides user accounts. An example would be windows 11.

**g) Utility software** helps the computer run often working in the background. An example would be anti-virus software.

## 6. Hardware

**a) Input devices** are used to enter data into a computer, such as a controller.

**b) Output devices** are used to receive data from the computer and convert it into a human-perceptible form, such as a speaker.

**c) Storage devices** are used to store data, such as a USB flash drive.

**d) Image capture devices** are designed to take photos and videos, such as a drone or head camera.

**e) Sensors** are a type of input device that automatically take readings of the environment and input this data into a computer. For example: a motion sensor connected to an alarm system.

**f) Hard drive** is used to store files and programs which retains (keeps) its data when turned off.

**g) RAM** is used for data currently being used. This data is lost when the computer turns off.

**h) Motherboard** is a circuit board that acts as a central hub to connect internal components together.

The Bourne Academy

**Bourne Scholars Knowledge Organiser: Year 7 Spring Term – Computing**

## 1. Word Processing: Microsoft Word

### a) Using Templates

Create a CV (one page summary when applying for jobs) using Word templates:

i) Open Word, and search for "CV" in the online templates.

ii) Start adding your information, such as your skills, what subjects you're good at, and what clubs/activities you do outside of normal lessons.

iii) Save your document as "**CV**" in your computing folder (in your Documents area).

### b) Headers and footers

Create a new word document with 50 blank pages (use Ctrl + Enter to quickly add pages).

By inserting headers and footers, add the following on every page:

i) Title "Headers and Footers".
ii) Today's date (which automatically stays up to date).
iii) In the footer, page numbers, which automatically number each page.
iv) Save your document as "Headers and Footers" in your computing folder.

## 2. Spreadsheets: Microsoft Excel

### a) Recording Data

In Student Resources → !IT → Scholar open "data for spreadsheet extension".

Now start a new spreadsheet file and create a table to record the information from the word document you just opened. Then:

i) Add formulas to add up each team's scores
ii) Add a function to find out the average score each team got over the season
iii) Add a function to find out the maximum score each team got over the season

| | |
|---|---|
| =SUM(A1:A10) | adds up total value |
| =MAX(A1:A10) | finds the highest value |
| =AVERAGE(A1:A10) | finds the average |

iv) Create a line graph to compare the results of how each team performed over the season.
v) Add formatting to make your table of data stand out so it is clear. Add a title bar at the top and insert some suitable graphics.
vi) Save your spreadsheet as: "Sport Results" in your computing folder (in your documents).

## 3. Data Dashboard

**a) Data dashboard** is a visual display of data providing information at a glance to track, analyse and gain a deeper understanding.

e.g.

### b) Create a Data Dashboard

i) Ask Mr Orme for the "Weather Dashboard" booklet.
ii) Open a new blank spreadsheet file
iii) Import the CSV file (location in booklet) into your spreadsheet.
iv) Work through the booklet to create an interactive spreadsheet.
v) Add formatting to make your table of data stand out so it is clear. Add a title bar at the top and insert some suitable graphics.
vi) Save your spreadsheet as "Weather Dashboard" in your computing folder (in your documents).

**1. Basic Dance Actions**

a. Gesture- shoulder roll, arm circle, kick
b. Jump- straight jump, tuck jump, leap
c. Turn- turn on one leg, step turn step
d. Travel- run, walk, leap
e. Balance- rise, arabesque
f. Fall- slide onto the floor

**2. The Greatest Showman**

Celebrates the birth of show business and tells of a visionary who rose from nothing to create a spectacle that became a worldwide sensation.

The dance scenes in The Greatest Showman are energetic, dynamic and help tell the story of the musical.

The opening number features both modern and classic choreography that sets the tone for the film. The dance is inspired by circus performances with dancers, acrobats and fire breathers combining both circus elements with fast choreography.

**3. Roles in the circus**

- The Ring Leader
- Contortionist
- Acrobats
- Trapeze performers
- Fire breathers
- Aerial artists
- Tight rope walker

| 4. Key word | Definition |
|---|---|
| **a. Action** | What the dancer does. |
| **b. Dynamic** | How the dance is performed; varying in speed, quality and flow. |
| **c. Choreography** | The art of creating dance. |
| **d. Freeze Frame** | A still position, held for at least 3 seconds. |
| **e. Transition** | Movement which links one freeze frame to another. |

## 5. Tango

The Tango originated in the streets of Buenos Aires, Argentina and Montevideo, Uruguay, in the late 1800s. The roots of this dance lie in African candombe, Cuban habanera as well as European waltzes and polkas. It is a social dance usually performed with a partner.

### a. Stylistic Features

- Gliding travelling actions
- Embrace hold with a partner
- Lead and follow relationship
- Smooth movements with abrupt stops
- Intense and passionate mood

## 6. Bollywood

Bollywood dance is the name given for dance used in Indian (Hindi) films. It is a fusion of various dance styles, including traditional Indian dance styles such as Khatak and Bhangra, as well as other dance styles such as jazz and hip hop.

### a. Stylistic Features

- Specific hand gestures
- Lots of unison
- Dramatic facial expressions
- Mood and dynamics match the music
- Use of flat or flexed feet

## 7. Dance Hall

Dancehall is a popular music and dance style from Jamaica and other Caribbean islands. It is sometimes referred to as 'bashment'. It started as a form of freestyle and social dance but has since developed to become more choreographed.

### a. Stylistic Features

- Heavily influenced by its. African roots
- Repetition of set movements
- Fluid movement of the torso
- Weight is grounded
- Facial expressions show confidence

The Bourne Academy

**Bourne Scholars Knowledge Organiser: Year 7 Spring Term - Dance**

**1. Basic Dance Actions**

a. Gesture- shoulder roll, arm circle, kick
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**3. Stylistic Qualities in The Greatest Showman**

There is a range of dance styles used in the Greatest Showman. This includes:

**a. Jazz**

The jazz dances are high energy with synchronized movements, classic jazz hands and tap-inspired footwork.

**b. Hip Hop**

Hip hop is used to add a more modern and edgy feel especially in ensemble numbers to create a lively and inclusive circus atmosphere.

**c. Acrobatic and Circus**

Reflecting the circus theme there are acrobatic stunts, flips, and aerial work that add to the spectacle and physicality of the performance

**d. Contemporary**

Contemporary is a more fluid dance style and has expressive movements helping to add emotion to the story.

| **4. Key word** | **Definition** |
|---|---|
| **a. Action** | What the dancer does. |
| **b. Dynamics** | How the dance is performed; varying in speed, quality and flow. |
| **c. Choreography** | The art of creating dance. |
| **d. Freeze Frame** | A still position, held for at least 3 seconds. |
| **e. Transition** | Movement which links one freeze frame to another. |
| **f. Timing** | The use of time or counts when matching movements to sound and/or other dancers. |
| **g. Canon** | When the same movements overlap in time. |
| **h. Unison** | Two or more dancers doing the same movement at the same time |
| **i. Levels** | Distance from the ground: low, medium or high. |
| **j. Focus** | Use of the eyes to enhance performance or interpretative qualities. |

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### a. Stylistic Features

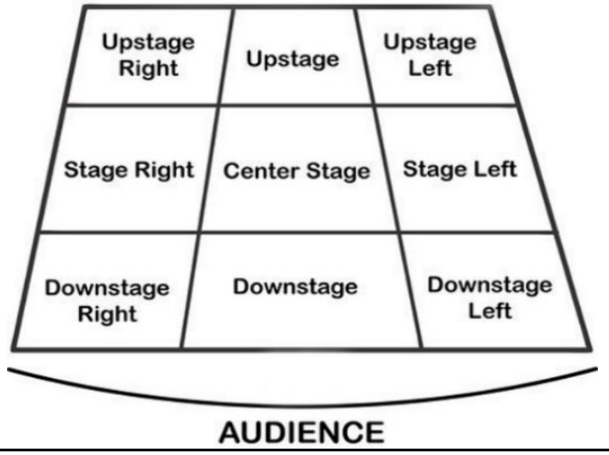
- Heavily influenced by its. African roots
- Repetition of set movements
- Fluid movement of the torso
- Weight is grounded
- Facial expressions show confidence

## 8. Task

Using the information provided along with your own research name 3 similarities and 3 differences between the dance styles Tango, Bollywood and Dance Hall.

| 1. Key Words | Definition |
|---|---|
| A. Script | Written by a playwright, which tells the actors what to say and do. |
| B. Playwright | A person who writes the scripts for plays, which then go on to be staged in theatrical productions |
| C. Stage Directions | Stage Directions tell the actors how to speak or act their character in a certain way. Stage Directions also explain how the staging may be in the performance |
| D. The stage | The area in which you perform. |
| E. Rehearsal | A practice of the performance. You can have dress rehearsals and technical rehearsals. |
| F. Naturalistic | Acting as realistically as possible as close to 'real life' as an actor can perform. |
| G. Stanislavski | A Russian theatrical practitioner. He believed in naturalistic performances that were as realistic as possible. |
| H. Dramatic Tension | drives the drama and keeps an audience interested. The tension comes when opposing characters, dramatic action, ideas, attitudes, values, emotions and desires are in conflict creating a problem that needs to be resolved |
| I. Entrances and Exits | How a character comes onto and leaves the stage. This must be done in character. |

**2. Stage Positioning**




**3. Learning Lines**

| | |
|---|---|
| A. Read and cover | Read the line out loud, then cover the script with your hand and try and say the line without reading it. Repeat until you've learnt it |
| B. Gesture and Action | For each line you need to add a choreographed movement or gesture for each line |
| C. Vocal Skills | Experiment with different vocal dynamics. Change the volume of your voice for each line. The first line you might shout, then whisper the second and say the third at a normal speaking volume. Add a Liverpool accent |
| D. Call and Response | A partner reads you one of your lines and you repeat it back to them without looking at the script until learnt. Then add the next line putting them together. |

| 4. Physical Performance Skill | Definition | 5. Vocal Performance Skill | Definition |
|---|---|---|---|
| A. Gesture | a movement of part of the body to express a particular feeling, idea or intention, e.g. a nod of the head | A. Tone | a quality in the voice that expresses the speaker's feelings or thoughts, often towards the person being spoken to |
| B. Movement | when the actor uses their facial expressions, gestures, body language and levels to communicate their emotions to the audience | B. Volume | the level of sound produced by an actor |
| | | C. Pace | The speed at which an actor speaks |
| C. Facial Expression | a look on the face that shows how someone is feeling; using the way you look to get our points across | D. Pause | a short period where an actor stops speaking before starting again. Used to create meaning or dramatic tension. |
| D. Posture | the way an actor positions and stands or walks to convey a character or emotion | E. Diction | When an actors speaks clearly to deliver their lines. |
| E. Body Language | a way of an actor communicating the feelings of their character using the position of your body, or actions | F. Accent | the manner of speaking or pronunciation; which can communicate information about a character to an audience. |

| 6. Evaluating Performance | Step One Before Performance | Step Two During Performance | Step Three After Performance Be ready to share your evaluation |
|---|---|---|---|
| A. What went well? | Select either a physical or vocal performance skill to evaluate | While you watch the performance look out for specific examples of how the skill is being used and the impact it has. | The way the group used _____ was very successful because it showed the audience that…… . |
| B. Even Better If… | | | The group could improve further by adding ……. This would have shown the audience that…… . |

**1. Rehearsal Techniques for Scripted Characters**

Hot seating - An actor giving responses to questions in character. Helps to create a more developed and complex character. Must work alongside improvisation.

**Hot Seating Rules:**

**A. Actor in the chair:**

- Answer questions in role
- To use characterisation skills: Facial expressions, Vocal skills, and body language
- Use improvisation skills
- Move the drama on by providing new information
- Being fully committed to your character throughout the whole performance

**B. Actors asking the questions**

- Ask leading questions to move the drama on
- Listen to what is said before so that the same question isn't asked twice
- To use characterisation skills, facial expressions, vocal skills, and body language

**C. Move the Drama on:**

When performing the actor moves the drama on by introducing new information that the audience/actors don't know

**D. Leading questions:**

When the actor asks questions which subtly prompts the respondent to answer in a particular way. For example, I heard last week that you and Charlotte had an argument, is this true?

| 2. Key Words | Definition | 3. Key Words | Definition |
|---|---|---|---|
| A. Script | Written by a playwright, which tells the actors what to say and do. | A. Naturalistic | Acting as realistically as possible as close to 'real life' as an actor can perform. |
| B. Playwright | A person who writes the scripts for plays, which then go on to be staged in theatrical productions | B. Stanislavski | A Russian theatrical practitioner. He believed in naturalistic performances that were as realistic as possible. |
| C. Stage Directions | Stage Directions tell the actors how to speak or act their character in a certain way. Stage Directions also explain how the staging may be in the performance | C. Dramatic Tension | Drives the drama and keeps an audience interested. The tension comes when opposing characters are in conflict creating a problem that needs to be resolved |

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**Knowledge Organiser: Year 7 Spring Term- English**

| 1. Poetic Form | Definition |
|---|---|
| **a) Form** | The type of poem eg. free verse, dramatic monologue. |
| **b) Stanza** | A group of lines in a poem. A poetic paragraph. |
| **c) Rhythm** | The beat of a poem created by stressed and unstressed syllables |
| **d) Syllable** | A beat of spoken language. For example, water has two syllables- wa/ter |
| **e) Rhyme** | Two words with the same sound, typically at the end of lines. |
| **f) Alternate rhyme** | When every other line rhymes. |

| 2. Poetic Structure | Definition |
|---|---|
| **a) Structure** | The order of events and punctuation within the poem. |
| **b) Tone** | The mood of the writing. The feeling that the writer has created. |
| **c) Speaker** | The voice of the poem or text. The person from whose point of view the poem or text is written. |

| 3. Topic words | Definition |
|---|---|
| **a) Culture** | The behaviours, ideas and beliefs of particular people or society. |
| **b) Non-Fiction** | Writing that is informative or factual (e.g. newspaper articles, speeches, editorial opinion pieces, travel writing, memoirs, autobiographies, blogs, etc.). |
| **c) Argue** | When you give reasons and evidence in support of an idea, action or theory, usually with the intention of persuading others to share your view. |
| **d) Viewpoint** | The writer's way of looking at or thinking about something. |
| **e) Intention** | The purpose and reason for writing. |
| **f) Article** | A piece of writing in a newspaper or magazine. |
| **g) Headline** | The title of the article. |

| 4. Discourse markers | Example |
|---|---|
| **a) Sequencing arguments** | Firstly, Secondly, Additionally, etc. |
| **b) Furthering arguments** | Furthermore, Consequently, Moreover, etc. |
| **c) Concluding arguments** | Ultimately, Finally, Overall, etc. |

| 5. Language Methods | Definition | Example |
|---|---|---|
| **a) Imagery** | When descriptive language is used to create a clear picture. | A host, of golden daffodils;<br>Beside the lake, beneath the trees, fluttering and dancing in the breeze. |
| **b) Metaphor** | Comparing two things by describing one as the other. | Her eyes were diamonds shining in the sun |
| **c) Extended metaphor** | A metaphor that is developed or returned to over the course of a sentence, a paragraph, or even an entire text | In 'Not My Business,' the yam is an extended metaphor for human impulse to cling to life. |
| **d) Alliteration** | Using the same sound at the start of words near each other. | Peter Piper picked a peck of pickled peppers. |
| **e) Anecdote** | A short story about a real incident or person. | "I have a friend who wasn't given a promotion because she was female." |
| **f) Facts** | Something that is known or proven to be true. Used as evidence in a news article. | J.K. Rowling wrote seven Harry Potter books and has sold hundreds of millions of copies worldwide. |
| **g) Statistics** | Facts which are obtained by analysing information expressed in numbers. | 73% of people reported issues with their phone signal in recent months. One in seven young people reported an incident of bullying. |
| **h) Rhetorical question** | Questions used to make a point. They do not require an answer. | Why shouldn't they feel upset about this? |
| **i) Triple** | Using three words or phrases that act together for maximum impact. | This behaviour is abusive, cruel and illegal. |
| **j) Imperative verb** | Verb that is used to give an order or command. | Clean up after yourself. |

| 1. Extended vocabulary | Definition |
|---|---|
| **a) Plosive** | "b," "p," "t" and "d" sounds – which can be harsh, aggressive or shocking. |
| **b) Anaphora** | A repetition of words, phrases or clauses. |
| **c) Oxymoron** | A figure of speech in which two contradictory things are placed together. For example, "Seriously funny." |
| **d) Ambiguity** | A word or phrase where there are two or more possible meanings and it is unclear which is the correct one. |
| **e) Blank verse** | Poetry written in non-rhyming, ten syllable lines. |
| **f) Elegy** | A form of poetry which is about the death of its subject. |
| **g) Parody** | A comic imitation of another writer's work. |
| **h) Quatrain** | A four line stanza. |
| **i) Sestet** | A six line stanza. |

| 2. Poets | Additional reading |
|---|---|
| **a) Raymond Antrobus** | The Perseverance (2018) |
| **b) Rupi Kaur** | Milk and Honey (2015) |
| **c) Benjamin Zephaniah** | Talking Turkeys (1995) |
| **d) Amanda Gorman** | The Hill We Climb (2021) |
| **e) George the Poet** | Search Party: A Collection of Poems (2015) |
| **f) Caleb Femi** | Poor (2020) |

| 3. Extended writing | Tasks |
|---|---|
| **a) Research** | Research a famous poet and create a fact file about them. |
| **b) Research** | Research how a poet's culture has impacted on their poetry. |
| **c) Writing** | "We must not only read literature from other countries, but also written from different perspectives." Write a persuasive speech to give to the class explaining your views on this statement. |

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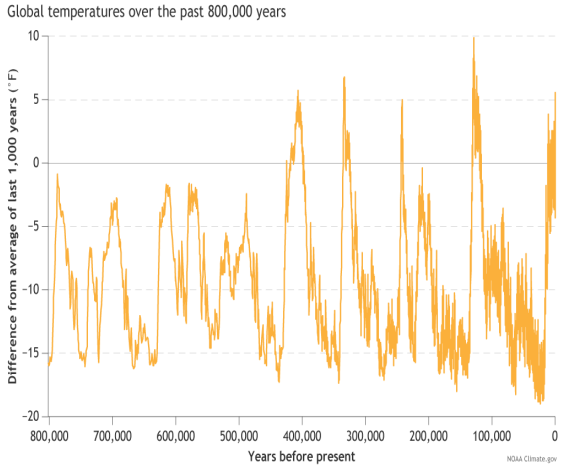
**Knowledge Organiser: Year 7 Spring Term - Geography**

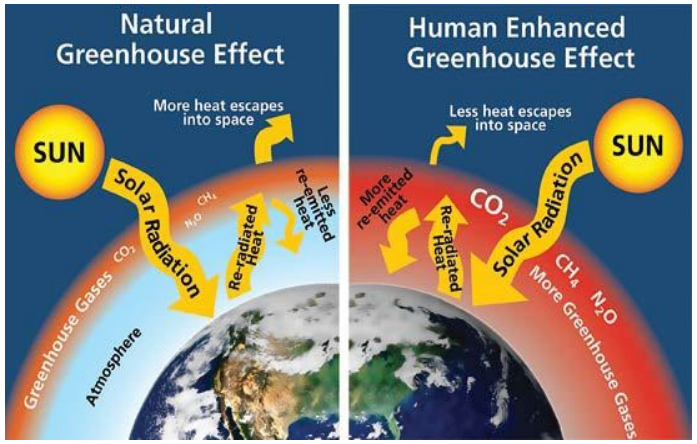
## 1: How has climate changed over time?



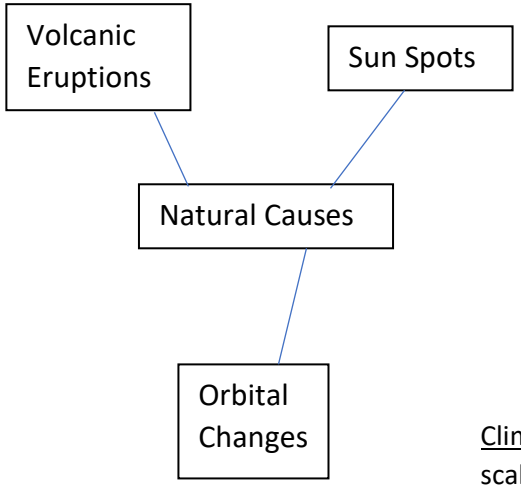

## 2: How do we know about past climate?

| Tree Rings | Ice Cores | Pollen | Historical Records |
|---|---|---|---|
| • Wide ring = lots of growth = warmer and wetter climate.<br>• Narrow ring = less growth = colder and drier climate. | • Each ice core contains trapped gases, ash, and pollen debris. | • Plants release pollen.<br>• This pollen can be collected in soil samples.<br>• Specific plants need certain climatic conditions. | • Paintings, diaries, newspapers, books pictures all show evidence of past climates. |

## 3: Human causes of climate change

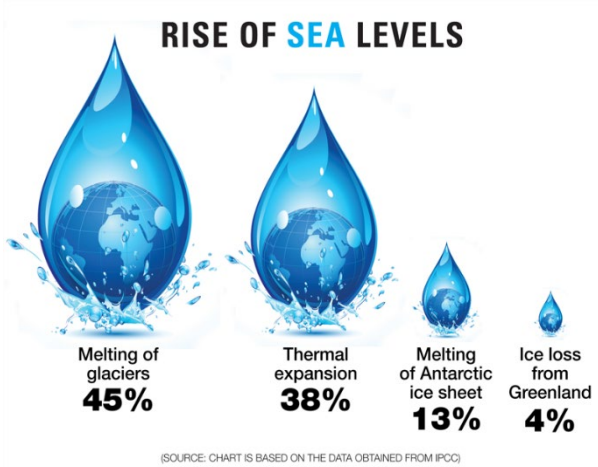



## 4: Natural causes of climate change




## 5: Sea Level Rise

- The average sea levels have risen by 20cm since 1900. By 2100 sea levels are expected to rise by a further 26-82cm. This will flood agricultural land in Bangladesh and India.
- As sea levels rise, rates of coastal erosion will increase. Fresh water supplies will become contaminated by saltwater and coastal areas will be prone to damage from storm surges.




## 6. Key Word

Climate Change: Climate change is the long term, large scale change in climate patterns and weather conditions.

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**Knowledge Organiser: Year 7 Spring Term - Geography**

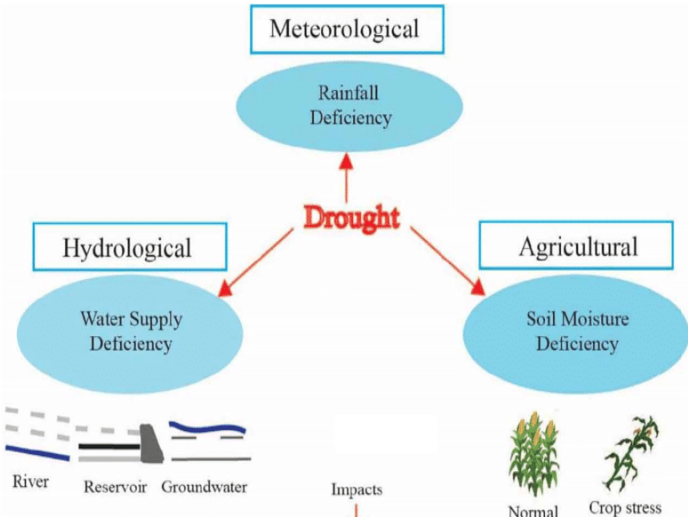
## 7: Key Terms

| Key Terms | |
|---|---|
| Climate Refugee: | A person who is forced to leave their home because of the impacts of climate change. |
| Impact: | What happens because of climate change. |
| Fluctuate: | When something changes. |
| Enhanced Greenhouse Effect: | The ozone layer thickening because of human activities. |
| Ozone Layer: | The invisible blanket of gases around the Earth. |
| Greenhouse Gas: | A gas that thickens the ozone layer. |
| Aid: | When help or assistance is given to somebody in need. |

## 8: Flooding in the UK

- According to the Government the number of households at risk of flood will be up to 970,000 homes in the 2020s, up from around 370,000 in January 2012.
- The protection against increasing flood risk, because of climate change, requires rising investment.
- In 2009, the Environment Agency calculated that UK needs to be spending £20m more compared to

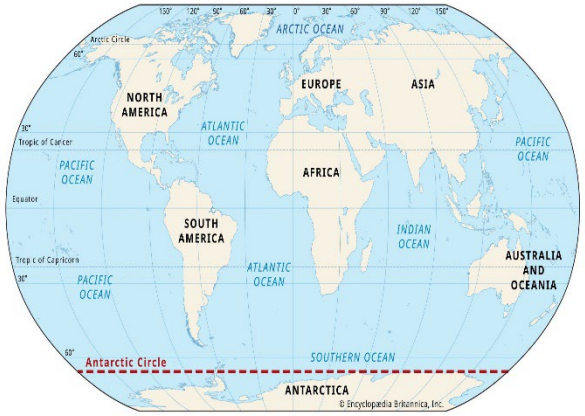
## 9: Causes of Drought



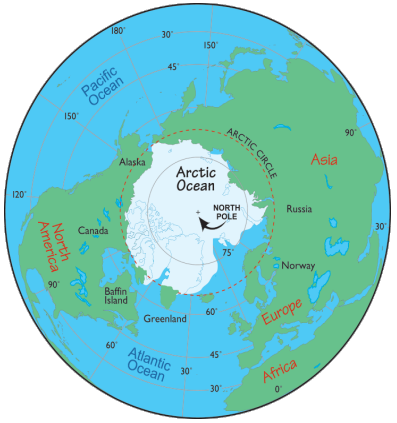

## 10: Responses

- Mitigation = avoid/stop it
- Adaptation = change to live alongside it

## 11: Arctic & Antarctica Locations








## 12: Antarctica climate change

- One of the most rapidly warming places on Earth.
- Ocean temperatures increased by 1°C since 1955.
- Penguin colony numbers have declined.
- Krill have declined in numbers.
- Glaciers and ice shelves retreated.

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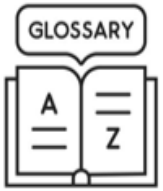
**Bourne Scholars Knowledge Organiser: Year 7 Spring Term – Geography**

### 1. Tier 3 Key Words: You must be able to use Geographical terminology in your written work.

Create a glossary for the below key words;

Enhanced greenhouse effect, climate change, ozone layer, aid, mitigation, adaptation, glacier, Milankovitch Cycles, greenhouse gases, thermal expansion (water), multiplier effect.

Then, use these words in written summaries about the topic theory.




### 2. Geographical Research: Part of being a Geographer is to research examples of Geographical events.

Research each of the following:
You need to find out!

1. The biggest snowflake
2. The fastest wind speed
3. The coldest temperature
4. The hottest temperature
5. The loudest thunderstorm
6. The biggest sandstorm

### 3. Climate Zones: Being able to identify similarities and differences is an important skill in Geography.

Draw an arrow from the climate zone icon to the correct climate zone name. Think of an example of each one.
How do they compare?


Polar
example:

Temperate
example:

Arid
example:

Humid
example:

### 4. Mapping: You need to be able to locate examples of Geographical events.

Find a blank world map.
Label each example listed below onto the map.
Then find out why it happened and explain it.

1. In 2015 the temperature in India got so hot that the roads started to melt?
2. The temperature of lightning can reach 50,000 degrees Fahrenheit. 5 times hotter than the sun!
3. May 2014 in Missouri in the USA a farmer was burning his field. The fire mixed with the strong winds and caused a "firenado"
4. In 1981 it rained frogs in the city of Nafplio in Southern Greece
5. The average Lightning bolt is 6 miles long.

### 5. Graphical Skills: It is important to be able to plot and interpret graphs.

Climate can be plotted onto a Climate Graph. This shows the average temperature and rainfall across a year.
The line shows temperature, and the bars show rainfall (precipitation). Example shown.
Use the data below to draw and plot a climate graph.


Key
Temperature (°C)
Precipitation (cm)

Climate Data for Edinburgh

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max temp (°C) | 6.2 | 6.5 | 8.7 | 11.1 | 14.2 | 17.3 | 18.8 | 18.5 | 16.2 | 13.2 | 8.1 | 6.9 |
| Rainfall (mm) | 57 | 42 | 51 | 41 | 51 | 51 | 57 | 65 | 67 | 65 | 63 | 58 |

### 6. CATT: To reach the higher levels in Geography, you need to develop all explanations.

One way of developing your explanations is to think about a multiplier effect. This is where one event/factor leads to another and leads to another.

Use the sentence starters below to answer the following question: *will the people of the Maldives become the first climate refugees?*

**C** – consequently
**A** – as a result
**T** – this means that
**T** – therefore

| A. Tudors Summary | |
|---|---|
| **1. Who were the Tudors?** | The Tudors were a royal family who ruled England from 1485-1603. They first came to power when Henry Tudor won the Battle of Bosworth, ending the War of the Roses. He became King Henry VII. England was then ruled by his son, Henry VIII; then Henry VIII's children - Edward VI, Mary I and Elizabeth I. |
| **2. The Reformation in Europe** | By 1500, the Catholic Church had developed a reputation for corruption and were criticised for being too wealthy and taking advantage of Christians. Protestants believed that each Christian should have a personal relationship with God and should have access to the Bible in their own language (instead of Latin, which only priests could read). Protestants began giving sermons which attacked the Catholic Church and used the newly invented printing press to spread their ideas. |

| B. Tudors Key Dates | |
|---|---|
| **1. 1485** | Henry Tudor (Henry VII) wins the Battle of Bosworth Field and becomes King of England. The Tudor dynasty begins. |
| **2. 1517** | Martin Luther nails his 95 Theses to the church door in Wittenberg, starting the Reformation. |
| **3. Jan 1533** | Henry VIII marries Anne Boleyn, his second wife, having divorced his first wife, Catherine of Aragon. |
| **4. Nov 1534** | Act of Supremacy makes Henry the supreme head on earth of the Church of England severing England from the Catholic Church in Rome. |
| **5. 1536** | Dissolution of the Monasteries by Henry VIII. |
| **6. 1553** | Mary I burns Protestants in Counter Reformation |
| **7. 1559** | Elizabeth introduces her Religious Settlement which tries to unite Catholics and Protestants in England. |

| C. Tudors Keywords | |
|---|---|
| **1. Dynasty** | A succession of powerful people from the same family, e.g. Tudor Family |
| **2. Tudors** | Royal dynasty that ruled England between 1485 and 1603 |
| **3. Reformation** | A movement to reform the Catholic Church started by Martin Luther in Germany. |
| **4. Protestantism** | A form of Christianity that split with the Catholic Church. |
| **5. Break with Rome** | England's decision to leave the Catholic Church in 1534. |
| **6. Act of Supremacy** | A law passed by Parliament which led to the creation of the Church of England by making Henry VIII the head of the church. |
| **7. Oath of Supremacy** | An oath of allegiance to the monarch as Supreme Head of the Church of England. |
| **8. Dissolution of the Monasteries** | The closure of all Catholic monasteries in England by Henry VIII in 1536. |
| **9. Heir** | A son or daughter who will inherit titles and land from their parents. |
| **10. Counter reformation** | Catholic attempt to fight back against the spread of Protestantism in Europe. |
| **11. Religious Settlement, 1559** | Elizabeth's legal compromise returning England to Protestantism while allowing Catholics to worship in secret. |

| D. Stuarts Summary | |
|---|---|
| **1. Who were the Stuarts?** | The first Stuart king was James I. He had been King of Scotland, but when Elizabeth I died without an heir, he took the throne of England, as he was her closest living Protestant relative. This then united Scotland and England for the first time. During his reign, James faced protest from Catholics, and some even tried to blow him up in Parliament - this is also known as the Gunpowder Plot. His son Charles I then took over the throne and the country fell into a Civil War. |

| E. Civil War Key Figures | |
|---|---|
| **1. Charles I** | King of England who helped cause the English Civil War. |
| **2. Henrietta Maria** | Catholic French princess who was married to Charles I. |
| **3. William Laud** | Archbishop of Canterbury during the reign of Charles I. |
| **4. King James I** | Father of Charles I. Had been the victim of Gunpowder Plot and left behind a legacy of difficult relations with Parliament. |
| **5. John Pym** | MP and a leading critic of Charles I in Parliament. |
| **6. Oliver Cromwell** | Leader of the Parliamentarians during the English Civil War. |
| **7. Lucy Hay** | English courtier and conspirator during the English Civil War. |

| F. Civil War Key Dates | |
|---|---|
| **1. 1629** | Charles I argued with parliament and dismisses them for 11 years. |
| **2. 1633** | William Laud introduced religious reforms that were too similar to Catholicism, which angered Protestants. |
| **3. 1634** | Charles expanded the Ship Tax without consulting parliament. |
| **4. 1637** | Charles tried to introduce a new Scottish prayer book - this led to war. |
| **5. 1640** | Charles recalled parliament and dismissed it several times before the 'Long Parliament' began. |
| **6. 1641** | Parliament issued a list of complaints against Charles. |
| **7. 1642** | Charles tried to arrest 5 MPs but was stopped and was forced to flee London. The English Civil War began. |

| G. Civil War Keywords | |
|---|---|
| **1. Civil War** | A war between citizens of the same country. |
| **2. Absolutist** | A ruler with supreme authority and power. |
| **3. Parliament** | Lawmakers in Britain. |
| **4. MP** | Member of Parliament. |
| **5. Puritan** | A group of deeply religious Protestants. |
| **6. Ship Tax** | Money usually paid by towns on the coast, for navy defence during a war. |
| **7. Republic** | A country with no monarch - rulers are elected instead. |
| **8. Cavalier** | Those who supported the King during the English Civil War. |
| **9. Roundhead** | Those who supported parliament during the English Civil War. |

**AO1: Demonstrate knowledge and understanding of the key features of the periods studied.**

**1.1 Chronology**
- Create a Tudor timeline from the Battle of Bosworth Field in 1485 to the death of Elizabeth in 1603.

**1.2 Historical Terminology**
- Define the following words: printing press, coronation, hierarchy, Catholic, Protestant, Globe Theatre, reign

**1.3 Key Features (Historical Knowledge)**
- Research Elizabeth's early years and record a brief biography of how she became queen.

**AO2: Explain and analyse historical events and periods studied using historical concepts.**

**2.1 Change & Continuity**
- In less than 100 words, explain how a new Protestant Church experience would differ from a Catholic Church experience for the average English person.

**2.2 Cause and Consequence**
- Explain at least 3 causes of the Spanish Armada invasion in 1588.

**2.3 Significance**
- Explain why Sir Francis Drake's circumnavigation of the globe was a significant moment in English History.

**AO3: Analyse, evaluate and use primary sources to make judgements.**

**3.1 Valid inferences**
- What can you infer from this 1588 portrait of Queen Elizabeth created by an unknown artist?

**3.2 Nature, Origin, Audience, Purpose**
- What is the nature, origin, audience and purpose of this portrait?

**3.3 Usefulness**
- Explain why this source might have limited usefulness to a historian trying to get an accurate understanding of the reign of Queen Elizabeth.

**AO4: Analyse, evaluate and make judgements about interpretations.**

**4.1 Identifying views**
- Explain the views given by the BBC article on Elizabethan rule.

**4.2 Analysing interpretations**
- What other evidence could you provide to argue that the Elizabethan age was a "Golden Age".

**4.3 Evaluating Interpretations**
- How far do the facts that there were rebellions, famine and population increases under her reign undermine the interpretation of an Elizabethan "Golden Age"?

Elizabeth I reigned over England for a long time, from 1558 to 1603. During her reign, Elizabeth came to be known as 'Gloriana.' This name suggested that she had brought glory to her kingdom. Elizabeth encouraged this idea, and commissioned portraits, plays and poetry to advance it further.

However, by the end of Elizabeth's reign, population increases and poor harvests had led to poverty for lots of ordinary people. Rebellions occurred. Though Elizabeth created the Religious Settlement, she faced opposition from both Catholics and Puritans, who were radical Protestants.

**BBC Bitesize article "Elizabethan rule"**

The Bourne Academy

**Knowledge Organiser: Year 7 Spring Term - Hospitality & Catering**

| (1) Key Word | Definition |
|---|---|
| a) **Kneading** | Working dough to stretch the gluten and trap air for structure. |
| b) **Fermentation** | When yeast feeds on sugar to produce carbon dioxide and make dough rise. |
| c) **Gluten** | A protein in wheat flour that gives bread elasticity and structure. |
| d) **Proving** | Allowing dough to rest and rise before baking so it becomes light and airy. |
| e) **Contamination** | When harmful bacteria are spread from one food or surface to another. |
| f) **Cross-Contamination** | Transfer of bacteria between raw and cooked foods. |
| g) **Bacteria** | Microscopic organisms that can cause food poisoning if not controlled. |
| h) **Macronutrients** | The organs responsible for gas exchange in mammals, birds, reptiles, and amphibians. |
| i) **Micronutrients** | Vitamins and minerals needed in small amounts for health. |
| j) **Personal Hygiene** | Actions that keep the body clean to prevent the spread of bacteria in food. |

## (3) Health and Safety

Food safety is vital in all catering environments.

- Wash hands, tie back hair, and wear a clean apron.
- Store high-risk foods (meat, dairy, fish) below **5°C**.
- Cook foods to **75°C** to destroy bacteria.
- Keep raw and cooked foods separate to avoid cross contamination.
- Follow colour-coded chopping boards:

**Red: Raw meat / Blue: Raw fish / Green: Salad & fruit / Yellow: Cooked meat / Brown: Vegetables / White: Bakery & dairy**

## (4) Food Bacteria

Bacteria need **warmth, moisture, food and time** to grow. The **danger zone** is between **5°C and 63°C**.

Common bacteria:

- *Salmonella* - Found in raw poultry and eggs.
- *E. coli* - Found in undercooked meat.
- *Listeria* - Found in chilled foods past use-by dates.

**Prevention:**

Cook food properly, store correctly, and keep kitchens clean.

**Food poisoning symptoms:**

Vomiting, stomach cramps, diarrhoea, and fever.

## (2) Bread Making

Bread is made from **flour, yeast, salt and water**. The process involves: Mixing and kneading the dough to develop gluten. Leaving the dough to **prove** so yeast produces gas and makes it rise. **Baking** the dough to set the structure, kill yeast, and create a golden crust. The golden colour and aroma form through the **Maillard reaction** when proteins and sugars react under heat.

**1a. Sustainability**
Describe what is meant by the term sustainability. Write a paragraph giving examples of how our food industry has a negative effect on our planet and explain how we can reduce/stop them.

**1b. Greenhouse gasses**
How are greenhouse gases causing global warming?

**1c. Water use**
What can we do to reduce the amount of water we use?

**1d. Waste**
How can we reduce the amount of waste that goes to landfill sites?

**1e. Transportation**
How can we reduce the pollution created from transporting our food around the world?

**1f. Caged hens**
What can we do as individuals to support animal rights? What products can we buy instead?

**1g. Human rights**
What can we do as individuals to support Human Rights? What products can we buy instead?

**2a. Food provenance**
Describe the journey a chicken takes from its source to our plates. What impact does this journey have on animals and the planet? How can these issues be addressed?

**2b. Organic produce**
What positive impacts do organic produce have on animal rights? What positive impacts do organic produce have on the environment?

**2c. Fair trade foods**
How does fair trade effect the lives of the farmers and the communities they live in?

**2d. RSPCA Assured and MSC labels**
Describe how the following foods can be sustainably sourced:

- Chicken
- Fish

**3a. Manufacture/distribution**
What impact does manufacture and distribution of food have on the environment? How can these be avoided?

**3b. Food miles/ Carbon footprint**
Write a paragraph explaining what food miles and carbon footprints are. How do they impact the environment? Suggest ways in which food miles and carbon footprints can be reduced.

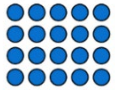
**4a. Consumption (use)**
Think about the life cycle of a food you enjoy eating. How much impact on the environment has that food had? How can we reduce the negative impact of the food industry through the foods we choose to eat and buy?

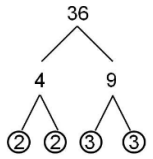
**4b. Waste**

Describe the negative impact our food waste has on the environment? How can we reduce the amount of food we use and waste?

The Bourne Academy

**Knowledge Organiser: Year 7 Spring Term - Mathematics (Axioms and Arrays, Factors and Multiples)**

| 1. Axioms and Arrays | | |
|---|---|---|
| **Keywords** | **Definition** | **Example** |
| **a. Arrays** | An ordered arrangement | The array shows 5 equal groups of 4, or 4 equal groups of 5  |
| **b. Inverse** | An opposite function or operation | The inverse of multiplying is dividing<br>$7 \times 2 = 14$<br>$14 \div 7 = 2$ |
| **c. Commutativity** | Giving the same answer whichever way round the calculation is written | $5 \times 2 = 2 \times 5$<br>$6 + 3 = 3 + 6$ |
| **d. Associativity** | Giving the same answer when grouping the numbers in different ways | $(2 \times 4) \times 3 = 2 \times (4 \times 3)$<br>$8 \times 3 = 2 \times 12$ |
| **e. Distributivity** | Multiplying a number by a group of numbers added together | $3 \times (2 + 4)$<br>$= 3 \times 6$<br>$= 18$<br><br>$3 \times 2 + 3 \times 4$<br>$= 6 + 12$<br>$= 18$ |
| **Sparx independent practice codes:** | | M952, M409, M637 |

| 2. Factors and Multiples | | |
|---|---|---|
| **Keywords** | **Definition** | **Example** |
| **a. Integer** | A whole number | $10$ is an integer |
| **b. Factor** | A number multiplied by another to make the desired number | 5 is a factor of 30 because $5 \times 6 = 30$ |
| **c. Multiple** | The result of multiplying a number by an integer | The first four multiples of 4 are:<br>4, 8, 12, 16 |
| **d. Prime number** | An integer with exactly two factors: 1 and itself | 5 is a prime number because it can only be divided by 5 and 1 |
| **e. Lowest Common Multiple (LCM)** | The smallest number that is a multiple of each number | The LCM of 3 and 4 is 12<br>3, 6, 9, 12<br>4, 8, 12, 16 |
| **f. Highest Common Factor (HCF)** | The largest number that divides exactly into each number | The HCF of 6 and 15 is 3<br>Factors of 6: 1, 2, 3, 6<br>Factors of 15: 1, 3, 5, 15 |
| **g. Product of Prime Factors** | Find which prime numbers multiply together to make a number | $36 = 2 \times 2 \times 3 \times 3$<br>  |
| **Sparx independent practice codes:** | | M823, M227, M698, M322, M108, M365 |

The Bourne Academy

**Knowledge Organiser: Year 7 Spring Term - Mathematics (Expressions, Equations, and Inequalities)**

## 1. Keywords

| Keyword | Definition | Example |
|---|---|---|
| **a. Expression** | A statement written using numbers and letters.<br>A letter represents a **variable**.<br>A number in front of the variable is called the **coefficient.**<br>The number on its own is called the **constant.** | $4x + 8$<br>coefficient variable constant |
| **b. Simplify an expression** | To simplify an expression, add or subtract the terms with the same variable. | $a + 2b + a + 3b = 2a + 5b$ |
| **c. Expand** | To expand a bracket, multiply each term in the bracket by the term outside the bracket. | $2(3a + 5) = 6a + 10$ |
| **d. Factorise** | The opposite of expanding. Place terms back into a bracket by dividing by the highest common factor. | $5x + 30 = 5(x + 6)$ |
| **e. Inverse** | The opposite of a calculation or operation. | The inverse of multiplying is dividing |
| **f. Equation** | A statement with an equal sign to show that two expressions are **equal.** | $2y + 5 = 11$ |
| **g. Identity** | An *equation which is true all the time*. | $2x \equiv x + x$ |
| **h. Formula** | A fact or rule written with mathematical symbols. | Area of a rectangle = length x width<br>or $A = l \times w$ |
| **i. Inequality** | Less than $<$ Less than or equal to $\leq$<br>Greater than $>$ Greater than or equal to $\geq$ | $9y + 1 < 19$ |

**Sparx independent learning codes:** M175, M428, M417, M327, M208, M979, M795, M531, M949, M120, M237, M792, M100, M707, M509, M957, M118

## 2. Worked Examples

a) Solve the equation $3y - 7 = 8$

+7 | $3y - 7 = 8$ | +7
÷3 | $3y = 15$ | ÷3
$y = 5$

b) Solve the inequality $4x + 3 < 27$

-3 | $4x + 3 < 27$ | -3
÷4 | $4x < 24$ | ÷4
$x < 6$

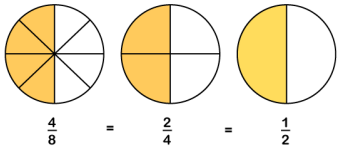
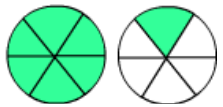
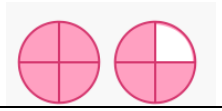
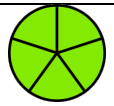
c) Here is a function machine

input → ÷ 4 → - 1 → output

Calculate the output when the input is 12
$12 \div 4 - 1 = 4$
Calculate the output when the input is 31
$(7 + 1) \times 4 = 32$

**Knowledge Organiser: Year 7 Spring Term - Mathematics (Manipulating Fractions)**

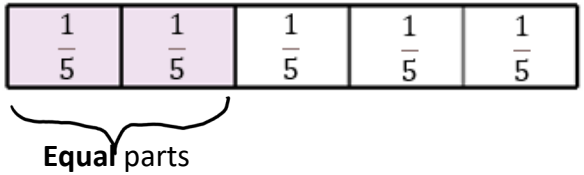
## 1. Keywords

| Keyword | Definition | Example |
|---|---|---|
| **a. Fraction** | A number that represents an **equal** part of a whole. It contains a numerator (top) and a denominator (bottom). The numerator is *divided* by the denominator. | $\frac{1}{4}$ means 1 out of 4 equal parts  |
| **b. Equivalent Fractions** | Fractions that have the same value but look different. |   |
| **c. Improper Fraction** | A fraction which has a greater numerator (top) than its denominator (bottom). | $\frac{7}{6}$  |
| **d. Mixed Number** | A number represented by an integer and a fraction. | $1\frac{3}{4}$  |
| **e. Simplify** | Finding an equivalent fraction where the numbers are reduced as much as possible. | $\frac{4}{10} \overset{\div 2}{=} \frac{2}{5}$ |
| **f. Whole** | A fraction with a numerator (top) equal to its denominator (bottom), which is equal to 1. | $\frac{5}{5} = 1$  |

**Sparx Independent Learning Codes:**
M158, M939, M410, M671, M335, M835, M601

## 2. Worked Examples

a) Shade $\frac{2}{5}$ of this shape




b) Write $\frac{3}{2}$ as a mixed number:

$\frac{3}{2} = \frac{2}{2} + \frac{1}{2}$

$\frac{2}{2} = 1$ $\qquad$ $\frac{3}{2} = 1\frac{1}{2}$

c) Write $2\frac{1}{4}$ as a mixed number

Multiply the whole number by the denominator and add the numerator.

The denominator stays the same.

$$2\frac{1}{4} = \frac{2\times4+1}{4} = \frac{8+1}{4} = \frac{9}{4}$$

The Bourne Academy

**Knowledge Organiser: Year 7 Spring Term - Mathematics (Percentages)**

## 1. Keywords

| Keyword | Definition | Example |
|---|---|---|
| **a. Percent** | An amount expressed as a value out of, or per, 100.<br>Shown using the % symbol. | 50% means 50 out of, or per, 100.<br>This can be written as $\frac{50}{100}$ |
| **b. Fraction** | A number that represents an **equal** part of a whole. It contains a numerator (top) and a denominator (bottom). The numerator is *divided* by the denominator. | $\frac{1}{4}$ means 1 out of 4 equal parts<br>  |
| **c. Decimal** | A non-integer (not a whole number), expressed using a decimal point |  |
| **d. Decimal Multiplier** | A method used to calculate a percentage of an amount.<br>To use this method, convert (change) the percentage into a decimal by dividing by 100. | To calculate 15% of an amount, multiply the amount of 0.15 |
| **e. Increase** | Making greater in amount, size, or value | Increase 50 by 20% |
| **f. Decrease** | Making smaller in amount, size, or value | Decrease 50 by 20% |

**Sparx Independent Learning Codes**

M264, M235, M695, M684, M437, M905, M476, M533, M528

## 2. Worked Examples

a) Convert 20% into a decimal

$$20\% = \frac{20}{100} = 20 \div 100 = 0.2$$
$$20\% = 0.2$$

b) Convert 7% into a fraction

7% means 7 out of 100

$$7\% = \frac{7}{100}$$

c) Calculate 30% of £120 using the decimal multiplier method

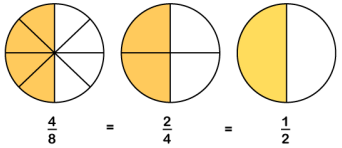
$$30 \div 100 = 0.3$$
$$0.3 \times 120 = 36$$
$$30\% \text{ of } £120 = £36$$

d) Increase 600 kg by 10% using the decimal multiplier method

$$100\% + 10\% = 110\%$$
$$110 \div 100 = 1.1$$
$$1.1 \times 600 = 660\ kg$$

**Knowledge Organiser: Year 7 Spring Term - Mathematics (Calculating with Fractions)**

## 1. Keywords

| Keyword | Definition | Example |
|---|---|---|
| **a. Fraction** | A number that represents an **equal** part of a whole. It contains a numerator (top) and a denominator (bottom). The numerator is *divided* by the denominator. | $\frac{1}{4}$ means 1 out of 4 equal parts  |
| **b. Equivalent Fractions** | Fractions that have the same value but look different. |   |
| **c. Common Denominator** | When two or more fractions have the same denominator (bottom number) | $\frac{2}{9}+\frac{5}{9}=\frac{7}{9}$ |
| **d. Sum** | Add | Find the sum of $\frac{5}{6}$ and $\frac{2}{6}$ means $\frac{5}{6}+\frac{2}{6}$ |
| **e. Product** | Multiply | Find the product of $\frac{5}{6}$ and $\frac{2}{6}$ means $\frac{5}{6}\times\frac{2}{6}$ |
| **f. Reciprocal** | 1 divided by a given number, resulting in an inverted (upside-down) fraction | The reciprocal of 6 is $\frac{1}{6}$<br>The reciprocal of $\frac{4}{5}$ is $\frac{5}{4}$ |

**Sparx Independent Practice Codes**

M410, M671, M335, M835, M601, M931, M157, M197, M110, M265

## 2. Worked Examples

a) Work out $\frac{1}{2}\div\frac{5}{7}$

Find the reciprocal of the second fraction before multiplying by the first fraction

$$\frac{1}{2}\times\frac{7}{5}=\frac{7}{10}$$

b) Calculate $\frac{4}{6}\div 2$

Find the reciprocal of the whole number and multiply by the fraction and simplify

$$\frac{4}{6}\times\frac{1}{2}=\frac{4}{12}=\frac{1}{3}$$

c) Evaluate $\frac{1}{2}+\frac{1}{3}$

Find a common denominator before adding the fractions together

$$\frac{1}{2}\overset{\times 3}{\underset{\times 3}{}}=\frac{3}{6} \qquad \frac{1}{3}\overset{\times 2}{\underset{\times 2}{}}=\frac{2}{6}$$

$$\frac{3}{6}+\frac{2}{6}=\frac{5}{6}$$

d) Work out $\frac{9}{11}-\frac{2}{11}-\frac{5}{11}$

$$\frac{9-2-5}{11}=\frac{2}{11}$$

The Bourne Academy

**Bourne Scholars Knowledge Organiser: Year 7 Spring Term - Mathematics**

## 1. Mathematical Vocabulary

Define each of the following words. Describe how each of them is used in maths

a. Vinculum
b. Camembert
c. Abscissa

## 2. Mathematician Research

Who are they?
What are they famous for?
What contributions have they made to maths?

**Zhang Heng**

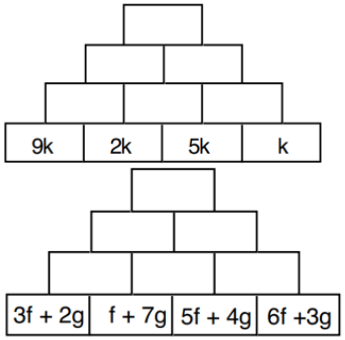
## 3. Watch

BBC Documentary The Story Of Maths 2 The Genius of the East YouTubevia torchbrowser com - YouTube (50 mins 40 sec)

## 4. Thinking Mathematically

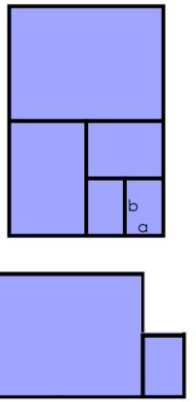
### a) Pyramids

Here are some algebra pyramids. To find the next term add the two bricks below it.




i. Can you find out the top number?
ii. What if the bottom right number was changed. How would this affect your answer?
iii. Would some terms be impossible to get?
iv. What if you included negative or decimal terms?
v. Create more pyramids of your own with one, two or three terms or even brackets. Or even more layers.

### b) Perimeter Expressions




Charlie took a sheet of paper and cut it in half. Then he cut one of those pieces in half, and repeated until he had five pieces altogether. He labelled the sides of the smallest rectangle, $a$ for the shorter side and $b$ for the longer side.

i. Here is a shape that Charlie made by combining the largest and smallest rectangles: Check you agree that the perimeter is $10a+4b$.
ii. Alison combined the largest and smallest rectangles in a different way. Her shape had perimeter $8a+6b$. Can you find how she might have done it?
iii. Create some other shapes by combining two or more rectangles,
iv. What's the largest perimeter you can make using **all** the pieces?
v. What different shapes can you make? Explore further.

### c) Crossed Ends

On the 7 x 7 These crosses can be drawn on number grids of various sizes.

i. Add opposite pairs of orange numbers (i.e. north + south, east + west).
ii. Try adding different sized crosses.
iii. Experiment with different sized grids, 8x8, 9x 9.
iv. What do you notice?
v. Can you explain your findings?

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | | 18 | 19 | 20 | 21 |
| 22 | | | | 26 | 27 | 28 |
| 29 | 30 | | 32 | 33 | 34 | 35 |
| 36 | 37 | 38 | 39 | 40 | 41 | 42 |

## 5. Short Problems

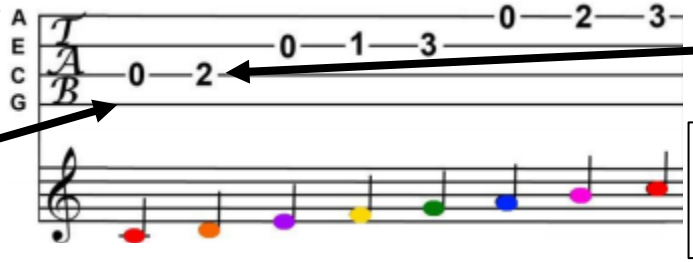
a. Paul is 32 years old. In ten years' time, Paul's age will be the sum of the ages of his three sons. What do his sons' ages add up to now?
b. Which of the following numbers could replace $x$ so that the value of $\frac{x}{5}$ lies between 3 and 4? 3.2, 14, 19
c. Cheryl finds a bag containing 50 coins. The value of the coins is £1.81. If the bag only contains two-pence and five-pence coins, how many more five-pence coins are there than two-pence coins?
d. We define $a \oplus b = ab+a+b$. If $3 \oplus 5 = 2 \oplus x$, what is the value of $x$?

| 1) Keywords and definitions | |
|---|---|
| a. Strum | Brushing your fingers over several strings at the same time to create a sound. |
| b. Chord | 2 or more notes played at the same time. |
| c. Chord Chart | A way of reading music which tells you which chords to play and for how many beats. |
| d. Bars | How written music is divided up to make it easier to read. In pop music there is 4 beats in each bar. |
| e. Beats | A measure of time in music. (Example: Count 4 beats then start playing the song). |
| f. Tempo | The speed of the music (Example: The tempo of the music was fast). |
| g. Frets | The space between the lines on the neck of a ukulele or guitar. |
| h. Tablature (TAB) | Another method of reading music for string instruments. |

**2) The Ukulele**


**3) Scale of C Major on the Ukulele using TAB**

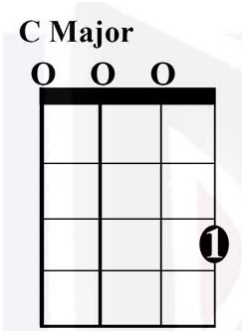
These lines represent the ukulele strings. G is the string closest to your face while A is the string closest to your feet.

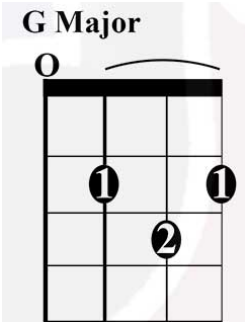


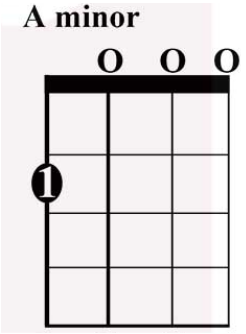

These numbers represent the fret number you need to press down on that string.

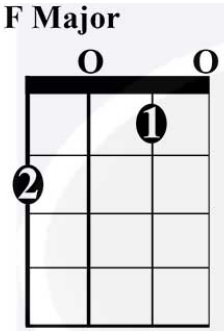
The order you play them in is like reading – left to right. It doesn't matter which line they are on.

## 4) Chords




## 5) Chord Charts

A chord chart tells you the name of the chord (i.e. C) and then the number of beats it plays for using the / symbol. Each of these chords is played for 4 beats:

1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4

**C/// | G/// | F/// | Am///**

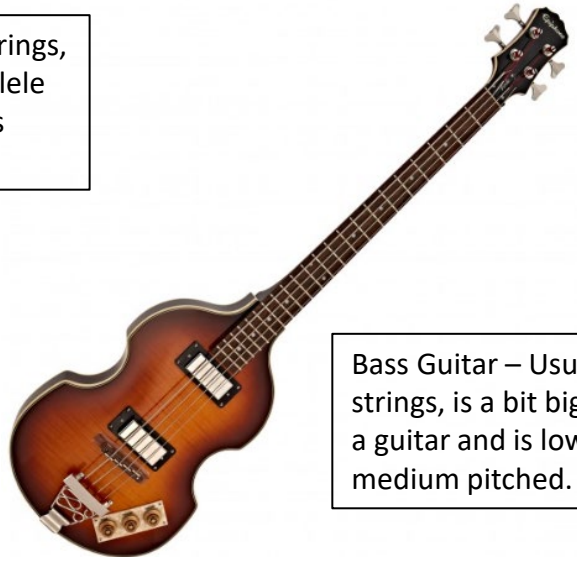
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4

**C/G/ | F/C/ | F/Am/ | C///**

## 6) String Instruments

Ukulele – Has 4 strings, is a small instrument and is high pitched.

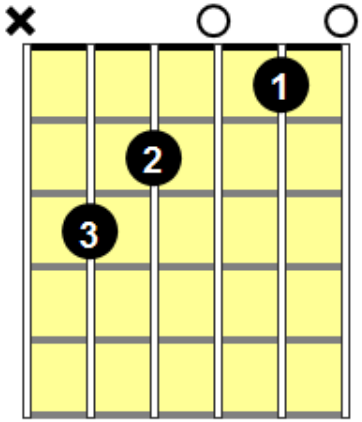
Acoustic Guitar – Has 6 strings, is much bigger than a ukulele and has a range of pitches from medium to high.



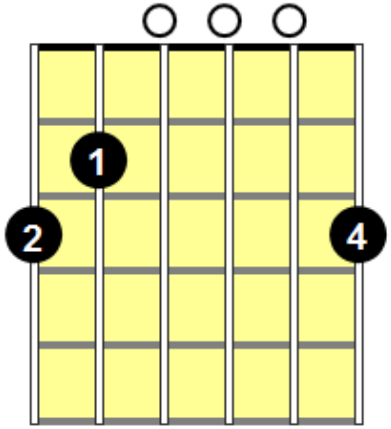
Bass Guitar – Usually has 4 strings, is a bit bigger than a guitar and is low to medium pitched.

## 1 – Chords on the Guitar

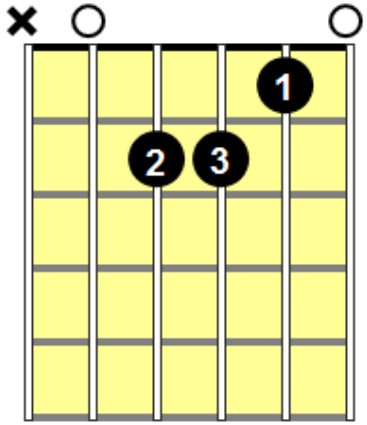
C Major



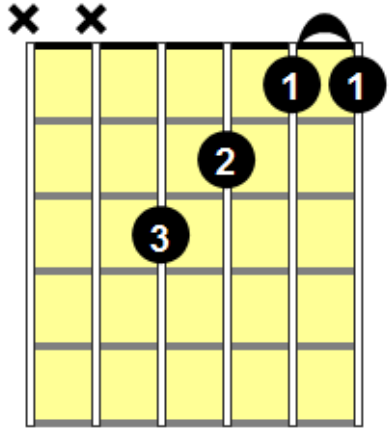

G Major




A Minor

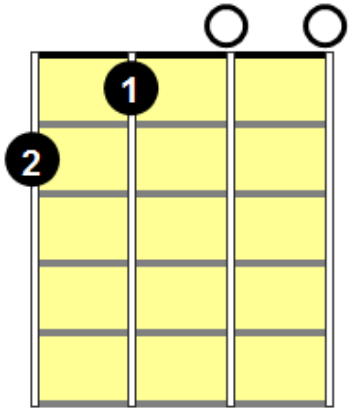



F Major

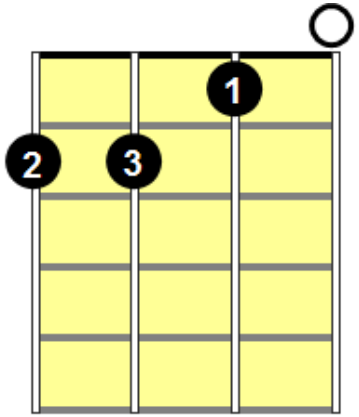



## 2 – Extension Chords for the Ukulele

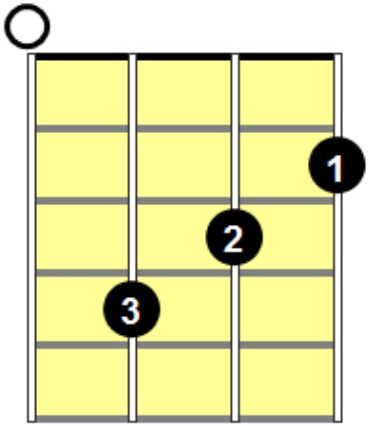
A Major



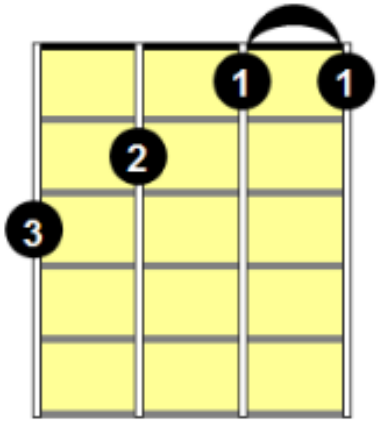

D Minor




E Minor




Bb Major



| 1. Tactical Awareness | |
|---|---|
| **a) Creating Space** | Moving into areas away from defenders to make it easier to receive the ball and support teammates. |
| **b) Maintaining Possession** | Keeping control of the ball through short passes, dribbling and making safe decisions to avoid turnovers. |
| **c) Support Play** | Positioning yourself to give the player with the ball passing options and to keep the attack flowing. |
| **d) Defending Space** | Staying close to opponents and blocking passing lanes to make it harder for the other team to attack. |
| **e) Movement off the ball** | Continuing to move when not in possession to create passing options, distract defenders, and help the team attack effectively. |
| **2. Technique** | |
| **a) Passing** | Focus on accurate and appropriate passes to teammates using the correct body positions and parts of the hand or feet. Keep possession and control. |
| **b) Receiving** | Control the ball safely whilst maintaining balance. Think about getting the ball in a position ready for the next pass. Use quick decision making. |
| **c) Dribbling** | Keep the ball close to the body. Use changes of speed and direction to create an opportunity to beat the defender. Do so with control. |
| **d) Shooting** | Use aiming and focus on accuracy before adding power. Make sure to strike or release the ball cleanly with body and eyes facing the target. |
| **e) Defending** | Stay positioned between the attacker and the goal/ target. Use your body position to slow them down and reduce their attacking options. Use timing to regain possession of the ball. |

| 3. Rules and Regulations of Handball | |
|---|---|
| **a)** | A regular game of handball is 7 vs 7. |
| **b)** | Players can take up to three steps with the ball. They may (bounce) dribble the ball to continue moving. |
| **c)** | Only the goalkeeper is allowed in the goal area. |
| **d)** | You are allowed to intercept or block passes, but no hitting or grabbing. |
| **e)** | If a minor foul occurs, a free throw will take place from where the foul occurred. |
| **f)** | A penalty is awarded if a clear chance to score is stopped unfairly. This could include fouling a player as they shoot or blocking a shot whilst stood in the goal area. |
| **g)** | If a player throws the ball out of play, the opposing team will gain possession of the ball. However, if a goalkeeper saves the ball and it goes out of play, the goalkeeper will maintain possession of the ball. |

| 4. Key Vocabulary | |
|---|---|
| **a) Skill** | An ability or action that can be performed well after practice, such as passing, dribbling or shooting. |
| **b) Technique** | The specific way a skill is performed, focusing on correct body movement and control. |
| **c) Tactics** | The decisions and strategies used during a game to outwit opponents. |
| **d) Teamwork** | Working effectively with others to achieve a shared goal. |
| **e) Movement** | How players position and reposition themselves on an off the ball to create or deny opportunities. |
| **f) Decision Making** | Choosing the best option during play, such as when to pass, dribble or shoot. |

| 1. Higher Order Thinking | 2. Research |
|---|---|
| a) Compare how teamwork is used in football and handball. Explain how passing and defending differ in both sports.<br><br>b) Explain why communication is more important than speed in some invasion games, but speed is more important in others.<br><br>c) Select a famous sports player. Write down the key skills that they need to make them successful in their role. | a) Research and attempt the Illinois agility test. Record your time.<br><br>b) Create a training session that you could complete in order for you to improve your agility.<br><br>c) Write down three ways that you could make your training session more challenging. |
| **3. Application** | **4. Analysis** |
| a) Watch a clip of a professional invasion sport of your choice. Write a short report about the attacking and defending skills shown. Include strengths and one area where the team could improve.<br><br>b) Design a simple 3-player passing drill to help year 3 students learn how to move into space. Explain the rules and what skill it improves. | Practice a new invasion game skill (e.g. dribbling a basketball) for two weeks. Keep a record of what you practised and the improvements you made. |

**The Bourne Academy**

**Knowledge Organiser: Year 7 Spring Term - Religious Studies**

## 1. A. Key Words

**1. Nativity**: The story of Jesus' birth

**2. Miracle**: An event that defies natural law

**3. Parable**: A story with a special meaning

**4. Disciples**: Jesus' followers

**5. Messiah**: A King to save the Jews

## B. Baptism

Welcomes someone into the Christian church.

Many believe it washes away sin.

Infant and Adult Baptism.

Jesus' Baptism:

Jesus was baptised by John the Baptist.

Afterwards the heavens opened, and the holy spirit came down in the form of a dove.

## C. Christian Festivals

**1. Advent**: Starts four Sundays before Christmas which prepared Christians for Jesus' arrival.

**2. Christmas**: The birth of Christ

**3. Epiphany**: Baptism of Jesus

**4. Lent**: 40 days and nights. Where people give things up and try to become better people.

**5. Easter**: Celebration of Jesus' resurrection and new life.

**6. Pentecost**: Beginning of the Church when the Holy Spirit descendent upon the disciples.

## D. Good Samaritan

Jesus taught his followers to: '*Love your neighbour as yourself*'. **Matthew 22:39**

Jesus was asked to confirm what he meant by the word 'neighbour'.

This is when he told the Parable of the Good Samaritan to explain that people should love everyone, including their enemies

The first person to pass the injured man was a priest, who crossed the road and continued walking. The second person to pass the injured man was a Levite, a priest's assistant. He also crossed the road and continued walking without helping the man. The third person to come by was a Samaritan, a person from Samaria. The Samaritans were hated by the Jews. When the Samaritan saw the man, he took pity on him. He bandaged him and cleaned his wounds. He then put him on the back of his donkey and took him to an innkeeper, whom he paid to look after him.

## E. The Three Temptations

He spent forty days and forty nights in the desert where he was tempted on three occasions by the Devil.

1) Stone into bread

2) If he worshipped the devil he could have all of the kingdoms in the world

3) If you are the Son of God throw yourself off the highest point of the temple as the angels will catch you.

## F. Zacchaeus

He was a rich chief tax collector, who Jesus asked to stay with, but people started grumbling because Jesus was going to the home of a sinner.

However, Zacchaeus promised to give half his belongings to the poor and pay back four times as much to anyone he had cheated.

Jesus concluded by saying "The Son of Man came to seek and to save the lost."

The Bourne Academy

**Knowledge Organiser: Year 7 Spring Term - Religious Studies (Holy Week)**

### A. Names for Jesus

**1. Son of God**: Jesus had links to **God's power**, **e.g.**, when performing **miracles**.

**2. Son of Man**: **Jesus was human**, he had emotions **and suffered** just like everyone else.

**3. Messiah**: The **anointed one**. In many cultures it means King or Queen. It was seen to be **the one saving the Jews from evil.**

### B. Miracles

**1. Power of nature**

- The calming of the storm
- The Feeding of the 5,000

**2. Power of Healing**

- The paralysed man
- Blind Bartimaeus

**3. Power over death**

- Jairus daughter
- Lazarus
- Resurrection

### C. Jesus cleanses the temple

When Jesus and his disciples arrive in Jerusalem they go to the temple.

It was customary for animals to be sacrificed. However, some of the traders were selling these animals for sacrifice at ten or 15 times their usual price

The temple had its own currency, money had to be changed into the correct currency, and the money changers charged an large fee.

Jesus was furious that people coming to worship God were taken advantage of. He reacted violently as he overturned the tables of the money changers and those selling doves. He said that his Father's house was to be a place of prayer, but that it had been made into a den of robbers.

### D. Judas agrees to betray Jesus

Judas went to the chief priests to betray Jesus. They promised Judas some money.

Jesus and his disciples were celebrating the Passover meal together.

He said that he would be betrayed by one of his disciples, **"the one who dips his bread in the dish with me"**.

The disciples were shocked and anxious and said, **"Surely not me?"**

### F. Jesus before the Jewish Council

The Sanhedrin was the supreme council of Jews which controlled civil and religious law

Jesus was brought before the Sanhedrin accused of **blasphemy**

Many people gave false testimony against Jesus. The high priest stood up and questioned Jesus directly, which was against the rules of the court. He asked if he was the Messiah he replied **"I am."**

### E. Jesus and Pilate

Pilate tried to find a solution. He offered the crowd to either release Jesus or Barabbas, a convicted murderer.

However, Pilate's plan did not work because the Sanhedrin persuaded the crowd to ask for Barabbas to be released, instead of Jesus.

Pilate did not want to damage his relationship with the Jewish leaders, so he gave in to the crowd and sent Jesus for crucifixion

### G. Crucifixion and

Jesus was crucified at Golgotha between two bandits with 'Jesus of Nazareth, King of the Jews' on top of his cross.

As Jesus died the curtain of the temple was torn in two from top to bottom and the earth shook. Jesus' body was wrapped in cloth and taken to a tomb cut out of rock and a guard stood outside it.

After the sabbath Jesus' tomb was visited and found empty. A young man dressed in white was there. He told them that Jesus had risen and to tell the disciples, including Peter, that he would meet them in Galilee.

**A. Challenge Tasks**

1. Create 10 true or false statements on today's topic

2. Transform your learning into a series of images using up to 5 words

3. Plan an alternative lesson about what we have learnt today

4. Construct a timeline showing your learning through today's lesson

5. Produce a summary of today's lesson – then reduce the number of words used to a single sentence or three bullet points

6. Select 5 key terms that you have used today and create a summary using all the terms

7. Create 5 questions your teacher might ask about today's learning

8. Use a thesaurus to add more ambitious vocabulary into your work

**B. Research Challenge**

**Christianity**

1. Research Christian festivals in greater detail

2. Research holy week in more detail

3. Research the different gospel accounts of Jesus' resurrection

4. Research the different Christian festivals in more detail.

5. Find 5 influential quotes, that still influence society today, e.g. Love thy neighbour. Explain the relevance.

**C. Tricky Key Terms**

1. What does 'incarnation' mean?

2. What does 'atonement' mean?

3. What does 'blasphemy' mean?

4. What does 'crucifixion' mean?

5. What does 'resurrection' mean?

**D. Evaluation Challenge**

1. 'The story of Jesus is true'. Why would someone agree and why would someone disagree?

2. 'Jesus choose to enter Jerusalem at a time when he could create the greatest reaction'.

3. Why would someone agree? Why would someone disagree?

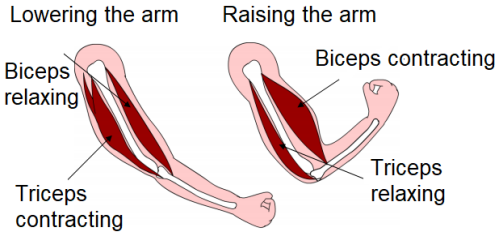
4. 'Judas is not fully responsible for Jesus' death'. Why would someone agree? Why would someone disagree?

5. 'The different gospel stories of the resurrection undermine Christian belief in resurrection'. Why would some agree or disagree?

6. Is Jesus the Son of God, or could he be seen as a very influential teacher instead?

| (1) Key Word | Definition |
|---|---|
| a) Antagonistic muscle | A pair of muscles that act on a joint. As one contracts, the other relaxes. |
| b) Bone | Hard, rigid (stiff) tissue that makes up the skeleton. |
| c) Contract | To become shorter. |
| d) Joint | The connection between two bones in a skeleton. |
| e) Ligament | Tough tissue that joins two bones together. |
| f) Skeleton | The support structure for an organism. |
| g) Tendon | Tough tissue that connects a muscle to a bone. |
| h) Tissue | A group of similar cells that carry out the same function. |

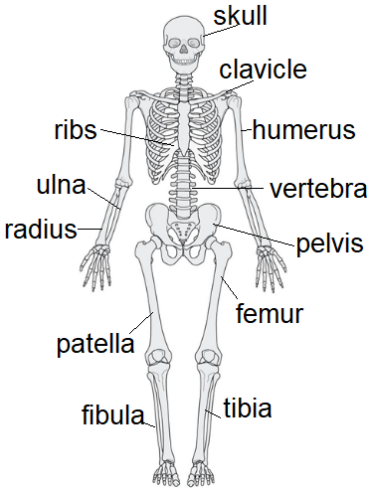
## (3) Antagonistic Muscles




Muscles can only **pull**, not push. They work in pairs to make joints move. We call them 'antagonistic pairs'

To lift your arm, the biceps muscle contracts, and the triceps muscle relaxes. To lower your arm, the biceps relaxes and the triceps contracts.

## (2) The Skeleton




The skeleton is made of many bones, held together by joints. The skeleton has four functions:

- movement – bones are attached to each other by flexible joints.
- protection of internal organs – the skull protects the brain and the rib cage protects the heart and lungs.
- support – without a spine we could not stay upright.
- produces blood cells – the bones in the skeleton produce red and white blood cells. These are made within the bone marrow (soft tissue inside the bones).

## (4) Joints and Movement

The bones of the skeleton are held together by joints. There are three types of joint:

- immovable joints - skull
- ball and socket joints – shoulder
- hinge joints – knees and elbow

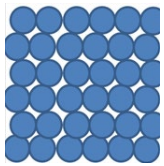
Muscles move joints in antagonistic pairs. Tendons connect muscles to bones. Ligaments connect the bones in joints.

| (1) Key Word | Definition |
|---|---|
| a) Atom | The smallest particle of an element that can exist. |
| b) Chromatography | A method of separating dissolved substances in a liquid. |
| c) Compound | A substance made of two different elements that have been chemically joined. |
| d) Compressed | Another word for squashed. |
| e) Condense | The change of state from a gas to a liquid |
| f) Element | A substance that is made from only one type of atom |
| g) Evaporate | The change of state from a liquid to a gas. |
| h) Matter | Matter is another word for substance, or 'stuff'. |
| i) Mixture | Two or more substances that are not chemically joined. |
| j) Particle | A very small bit of matter (it can be a solid, liquid, or gas) |
| k) State | The word we use to describe whether something is a solid, liquid, or gas. |

## (3) Changes of State

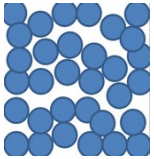
A change of state is a **physical** change for example, a solid to a liquid. A physical change can be reversed and the particles remain unchanged.


## (2) Solids, Liquids and Gases



**Solid**

Particles are closely packed and held in a fixed position.
Cannot be compressed.
Have a definite shape and cannot flow.
Least energy and vibrate in a fixed position.



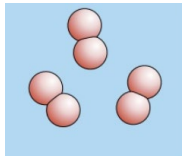
**Liquid**

Particles are loosely packed and can slide over each other.
Cannot be compressed.
Fill the shape of the container.
More energy and can flow.

**Gas**

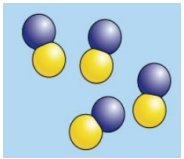
Particles are far apart and are free to move around.
Can be compressed.
Fill the shape of the container.
Most energy and move quickly.

## (4) Elements, Compounds and Mixtures



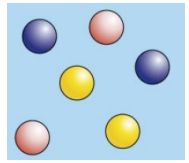
**Element**

An element is a substance that is made up of only one type of atom. All the atoms are the same.



**Compound**

A compound is made of two or more atoms that have been chemically joined. The atoms in a compound cannot be separated without a chemical reaction.



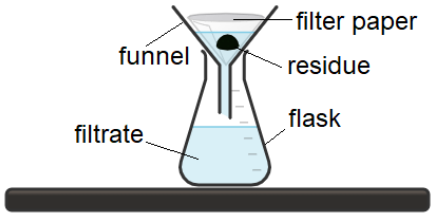
**Mixture**

A mixture is made up of two or more atoms, or compounds that are not chemically joined. A mixture can be separated into different parts.

| (1) Key Word | Definition |
|---|---|
| a) Boiling point (b.p.) | The temperature at which a liquid turns into a gas. |
| b) Chromatogram | The chromatography paper with the ink spots. |
| c) Chromatography | A method of separating a mixture of dissolved solids |
| d) Distillation | A method of separating two or more liquids by their boiling point. |
| e) Filter/Filtration | A method for separating an insoluble solid from a liquid (for example, sand from water) |
| f) Insoluble | A substance that will not dissolve |
| g) Pure | A substance that contains only one type of atom or compound. |
| h) Residue | The solid left after filtering. |
| i) Saturated | A solution that cannot dissolve any more solid. |
| j) Solubility | A measure of how easily a substance can dissolve. |
| k) Soluble | A substance that can be dissolved. |
| l) Solution | A Solvent with a solid dissolved into it. |
| m) Solvent | The liquid the solid is dissolved into. |

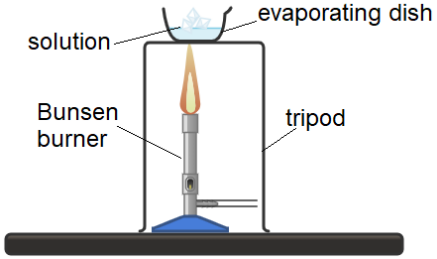
The melting/freezing point of water is **0 °C** and the boiling point of water is **100 °C.**

## (2) Filtration




Filtration is a process to separate an insoluble substance from a solution. The filter paper has tiny holes called pores, which allow small particles through, but stop larger particles.

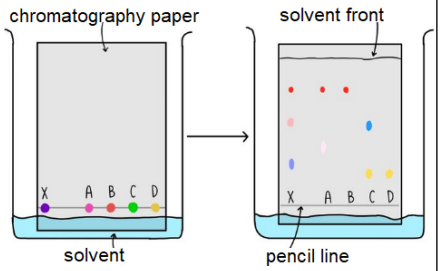
## (3) Evaporation




Evaporation is a process to separate a dissolved solid from a solution by heating. As you heat the solution, the solvent will evaporate and leave behind the dissolved solid, generally a salt.

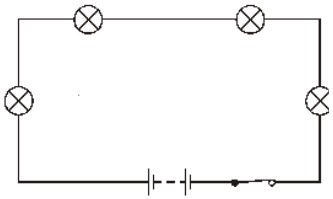
## (4) Chromatography

Chromatography is a method of separating substances dissolved in liquids, for example the dyes in inks. Different dyes will move through the paper at different rates and separate out.
Some dyes are insoluble and will not move through the solvent.



| (1) Key Word | Definition |
|---|---|
| a) Ammeter | Ammeters measure the current flowing through a circuit. |
| b) Battery | A battery is made of two or more cells joined together in series. |
| d) Component | Another word for 'part' – components are the different parts of a circuit. |
| e) Current | Current is the flow of electrons around a circuit. It is measured in amps (A). |
| f) Parallel circuit | The components on a parallel circuit are on different loops. |
| g) Potential difference (p.d.) | The amount of energy that moves from the batteries to the electrons that flow around the circuit. Potential difference is sometimes called voltage. It is measured in volts (V). |
| h) Resistance | Resistance is a measure of how easy it is for current to flow around a circuit. It is measured in ohms (Ω) |
| i) Series circuit | The components on a series circuit are on the same loop. |
| j) Voltmeter | Voltmeters measure the potential difference (voltage) in a circuit. |

**(2) Series Circuit**

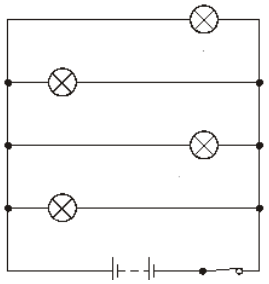


In a **series circuit**, all the components are on the same loop (except for the voltmeter). If any component breaks, the whole circuit has broken.

**Current** is the **same** all through the circuit. The ammeter will read the same wherever it is.

**Voltage** is **split** between the components (parts) of the circuit. A voltmeter will give different readings.

**(3) Parallel Circuit**



In a **parallel circuit**, the components are on different loops. If one component breaks, the current can flow through the other loops of the circuit.

**Current** is **split** between the components of the circuit. The ammeter will give different readings.

**Voltage** is the **same** all through the circuit. The voltmeter will read the same wherever it is

**(4) Resistance** is a measure of how easily current can flow around a circuit. The more components in a circuit, the higher the resistance.

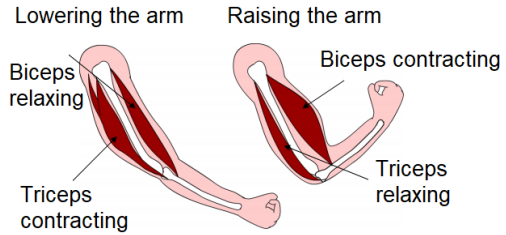
We use this equation to calculate the resistance in a circuit.

**R = V ÷ I**

resistance = voltage ÷ current

| (1) Key Word | Match the Definitions to Key words |
|---|---|
| a) Antagonistic muscle | Hard, rigid (stiff) tissue that makes up the skeleton. |
| b) Bone | Tough tissue that connects a muscle to a bone. |
| c) Contract | The connection between two bones in a skeleton. |
| d) Joint | A group of similar cells that carry out the same function. |
| e) Ligament | To become shorter. |
| f) Skeleton | A pair of muscles that act on a joint. As one contracts, the other relaxes. |
| g) Tendon | Tough tissue that joins two bones together. |
| h) Tissue | The support structure for an organism. |

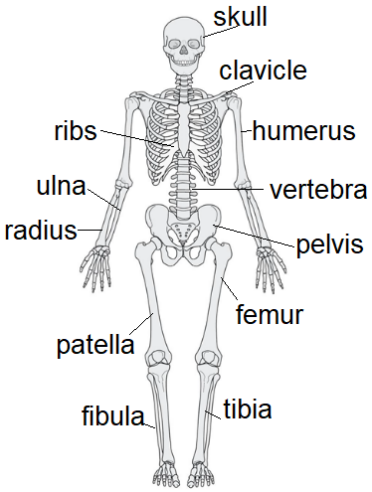
## (3) Antagonistic Muscles




a) Explain, in detail, what is meant by the term antagonistic muscles.

b) Give an example of antagonistic muscles and explain how they work together to carry out a particular function.

## (2) The Skeleton




a) State the function of the skeleton.
b) What are bones primarily made from?
c) Why is it important for children to have a dairy rich diet?
d) Give an example of a bone that protects vital organs and state which organ(s) is protects.
e) What is found in the middle of bones?
f) What does the substance found in bones do?
g) What is attached to bones to allow free movement and how are they attached to bones?

## (4) Joints and Movement

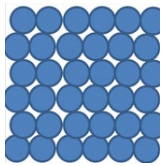
a) Name the different types of joint and give examples of where they are found.
b) What is the function of cartilage in the joint?
c) What is a tendon? Why is it an important part of a joint?
d) Explain why arthritis in joint causes pain.
e) Why is there fluid between the cartilage of 2 bones in a joint?
f) What is the function of a ligament? Why is it an important part of a joint?

| (1) Key Word | Match the Definitions to Key Words |
|---|---|
| a) Atom | The word we use to describe whether something is a solid, liquid, or gas. |
| b) Chromatography | A very small bit of matter (it can be a solid, liquid, or gas) |
| c) Compound | Matter is another word for substance, or 'stuff'. |
| d) Compressed | The change of state from a gas to a liquid |
| e) Condense | The change of state from a liquid to a gas. |
| f) Element | Two or more substances that are not chemically joined. |
| g) Evaporate | Another word for squashed. |
| h) Matter | The smallest particle of an element that can exist. |
| i) Mixture | A method of separating dissolved substances in a liquid. |
| j) Particle | A substance that is made from only one type of atom |
| k) State | A substance made of two different elements that have been chemically joined. |

## (3) Changes of State

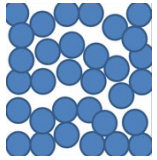
a) Describe the changes in the arrangements of particles as they go from a solid, to liquid, to gas.


## (2) Solids, Liquids and Gases



**Solid**

a) Describe the arrangement of particles in a solid
b) Describe the motion of particles in a solid
c) Are solids compressible? Explain your answer.



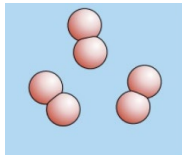
**Liquid**

d) Describe the arrangement of particles in a liquid
e) Describe the motion of particles in a liquid
f) Are liquids compressible? Explain your answer.

**Gas**

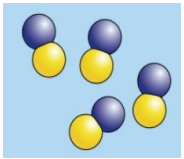
g) Describe the arrangement of particles in a gas.
h) Describe the motion of particles in a gas.
i) Are gasses compressible? Explain your answer.

## (4) Elements, Compounds and Mixtures



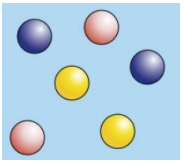
**Element**

a) Give the definition of element.
b) Some elements, like oxygen, exist as 2 atoms bonded together (e.g. $O_2$). Why does this happen?



**Compound**

c) State the definition of compound.
d) What holds the atoms together in a compound?



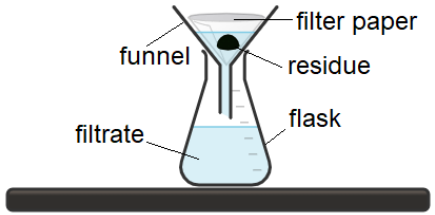
**Mixture**

e) State the definition of mixture.
f) You have been given a mixture of sand and salt water. Write a method of how you could separate the different components of the mixture.

| (1) Key Word | Match the Definitions to Key Words. |
|---|---|
| a) Boiling point (b.p.) | A method for separating an insoluble solid from a liquid (for example, sand from water) |
| b) Chromatogram | The solid left after filtering. |
| c) Chromatography | The liquid the solid is dissolved into. |
| d) Distillation | A measure of how easily a substance can dissolve. |
| e) Filter/Filtration | A substance that contains only one type of atom or compound. |
| f) Insoluble | The temperature at which a liquid turns into a gas. |
| g) Pure | A Solvent with a solid dissolved into it. |
| h) Residue | A substance that can be dissolved. |
| i) Saturated | A method of separating two or more liquids by their boiling point. |
| j) Solubility | The chromatography paper with the ink spots. |
| k) Soluble | A solution that cannot dissolve any more solid. |
| l) Solution | A method of separating a mixture of dissolved solids |
| m) Solvent | A substance that will not dissolve |

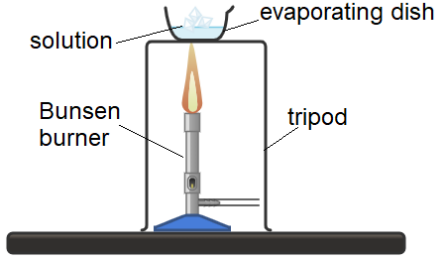
a) Draw a graph to show the heating curve of water through the changes of state melting and heating.

## (2) Filtration




a) Describe in detail, the process of filtration.
b) Give an industrial use of filtration.
c) State a household use of filtration.

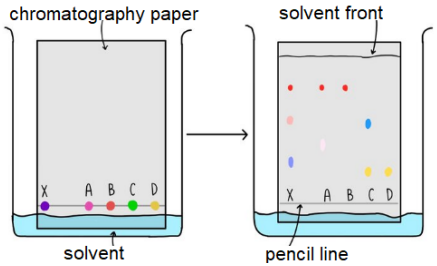
## (3) Evaporation




a) Describe in detail, the process of evaporation.
b) Give an industrial use of evaporation.
c) When evaporation of a solvent occurs, the solvent turns from a liquid to a gas. Describe the changes in particle arrangement.

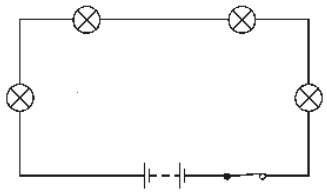
## (4) Chromatography

a) Describe, in detail, the process of chromatography.
b) Give an industrial use of chromatography.
c) Explain why the spots move up the paper at different rates.
d) How can chromatography be used to determine what is in a mixture?



| (1) Key Word | Match the definitions to the key words |
|---|---|
| a) Ammeter | A battery is made of two or more cells joined together in series. |
| b) Battery | Resistance is a measure of how easy it is for current to flow around a circuit. It is measured in ohms (Ω) |
| d) Component | The amount of energy that moves from the batteries to the electrons that flow around the circuit. Potential difference is sometimes called voltage. It is measured in volts (V). |
| e) Current | The components on a series circuit are on the same loop. |
| f) Parallel circuit | Ammeters measure the current flowing through a circuit. |
| g) Potential difference (p.d.) | Voltmeters measure the potential difference (voltage) in a circuit. |
| h) Resistance | Current is the flow of electrons around a circuit. It is measured in amps (A). |
| i) Series circuit | The components on a parallel circuit are on different loops. |
| j) Voltmeter | Another word for 'part' – components are the different parts of a circuit. |

**(2) Series Circuit**



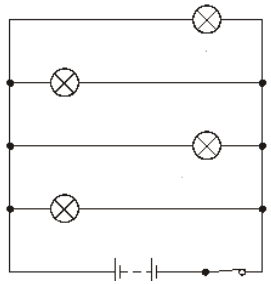
a) State what would happen to the bulbs if a battery with a lower potential difference was used.

b) What will happen to the bulbs if you use 2 batteries in the circuit but carefully unscrewed one of the bulbs from its holder?

c) What is a coulomb?

d) What causes the coulombs to flow in the circuit?

**(3) Parallel Circuit**



a) What is the rule for current in a parallel circuit?

b) In the circuit to the right, the bulb on the first loop of the circuit breaks. What happens to the rest of the bulbs in the circuit? Why does this happen?

c) The current next to the battery is measured as 8 amps. All pf the bulbs are identical. What would you expect the current to be down each branch of the circuit? Explain your answer.

**(4) Resistance**

a) A component has a potential difference of 9 V across it and a current of 3 A running through it. What is the resistance?

b) What would happen to the resistance of the circuit if you used longer wires? Plan an investigation to test this. Include the dependent and independent variables.

| Unit 6: Talking about my family members, and myself and age | | |
|---|---|---|
| **1a** | ¿Cuántas personas hay en tu familia? | *How many people are there in your family?* |
| **1b** | ¿Con quién te llevas bien en tu familia? | *Who do you get on well with in your family?* |
| **1c** | ¿Te llevas mal con alguién? | *Do you get on badly with anyone?* |
| **1d** | ¿Por qué te llevas bien/mal con tu padre? | *Why do you get on well/badly with your dad?* |
| **1e** | Hay cuatro personas en mi familia | *There are four people in my family* |
| **1f** | En mi familia somos cinco | *In my family we are five people* |
| **1g** | Me llevo bien con | *I get on well with* |
| **1h** | Me llevo mal con | *I get on badly with* |
| **1i** | mi abuelo | *my grandad* |
| **1j** | mi padre | *my dad* |
| **1k** | mi tío | *my uncle* |
| **1l** | mi hermano mayor | *my older brother* |
| **1m** | mi hermano menor | *my younger brother* |
| **1n** | mi primo | *my cousin (m)* |
| **1o** | mi abuela | *my grandma* |
| **1p** | mi madre | *my mum* |
| **1q** | mi tía | *my aunt* |
| **1r** | mi hermana mayor | *my older sister* |
| **1s** | mi hermana menor | *my younger sister* |
| **1t** | mi prima | *my cousin (f)* |
| **1u** | él tiene tres años | *he has three years (he is 3 years old)* |
| **1v** | ella tiene catorce años | *she has fourteen years (she is 14 years old)* |
| **1w** | un año | *one year* |
| **1x** | dos | *two* |
| **1y** | tres | *three* |
| **1z** | cuatro | *four* |
| **1aa** | cinco | *five* |

| | | |
|---|---|---|
| **1ab** | seis | *six* |
| **1ac** | siete | *seven* |
| **1ad** | ocho | *eight* |
| **1ae** | nueve | *nine* |
| **1af** | diez | *ten* |
| **1ag** | once | *eleven* |
| **1ah** | doce | *twelve* |
| **1ai** | trece | *thirteen* |
| **1aj** | catorce | *fourteen* |
| **1ak** | quince | *fifteen* |
| **1al** | dieciséis | *sixteen* |
| **1am** | diecisiete | *seventeen* |
| **1an** | dieciocho | *eighteen* |
| **1ao** | diecinueve | *nineteen* |
| **1ap** | veinte | *twenty* |
| **1aq** | veintiuno | *twenty one* |
| **1ar** | veintidós | *twenty two* |
| **1as** | treinta | *thirty* |
| **1at** | treinta y uno | *thirty one* |
| **1au** | treinta y dos | *thirty two* |
| **1av** | cuarenta | *fourty* |
| **1aw** | cincuenta | *fifty* |
| **1ax** | sesenta | *sixty* |
| **1ay** | setenta | *seventy* |
| **1az** | ochenta | *eighty* |
| **1ba** | noventa | *ninety* |
| **1bb** | cien | *one hundred* |
| **1bc** | años | *years* |

| Unit 7: Describing my hair and eyes | | |
|---|---|---|
| **2a** | ¿Cómo tienes el pelo? | *How do you have your hair?* |
| **2b** | ¿De qué color tienes los ojos? | *What colour are your eyes?* |
| **2c** | ¿Cómo tiene el pelo? | *How does he/she have his/her hair?* |
| **2e** | ¿De qué color tiene los ojos? | *What colour are his/her eyes?* |
| **2f** | ¿Cómo te llamas? | *What is your name?* |
| **2g** | ¿Cómo se llama? | *What is his/her name?* |
| **2h** | ¿Cuántos años tienes? | *How old are you?* |
| **2i** | ¿Cuántos años tiene? | *How old is he/she?* |
| **2j** | Me llamo… | *I am called...* |
| **2k** | Mi hermano se llama … | *My brother is called...* |
| **2l** | Mi hermana se llama … | *My sister is called...* |
| **2m** | tengo el pelo … | *I have ... hair* |
| **2n** | tiene el pelo … | *He/she has...hair* |
| **2o** | blanco | *white* |
| **2p** | castaño | *brown* |
| **2q** | gris | *grey* |
| **2r** | moreno | *dark hair* |
| **2s** | negro | *black* |
| **2t** | rubio | *blond* |
| **2u** | a media melena | *mid length* |
| **2v** | corto | *short* |
| **2w** | en punta | *spiky* |
| **2x** | largo | *long* |
| **2y** | liso | *straight* |
| **2z** | rapado | *very shot/crew cut* |

| | | |
|---|---|---|
| **2aa** | ondulado | *wavy* |
| **2ab** | rizado | *curly* |
| **2ac** | soy moreno/a | *I'm a brunette* |
| **2ad** | soy pelirrojo/a | *I'm a redhead* |
| **2ae** | soy rubio/a | *I'm blond* |
| **2af** | tengo los ojos | *I have ...eyes* |
| **2ag** | tiene los ojos | *He/she has...eyes* |
| **2ah** | azules | *blue* |
| **2ai** | grises | *grey* |
| **2aj** | marrones | *brown* |
| **2ak** | negros | *black* |
| **2al** | verdes | *green* |
| **2am** | llevo | *I wear* |
| **2an** | lleva | *He/she wears* |
| **2ao** | gafas | *glasses* |
| **2ap** | bigote | *a moustache* |
| **2aq** | barba | *a beard* |

**Unit 7 : Gramática**

**Tener – To have**

| | **Singular** | **Plural** |
|---|---|---|
| **1st Person** | Yo **tengo**<br>*I **have*** | Nosotros/as **tenemos**<br>*We **have*** |
| **2nd Person** | Tú **tienes**<br>*you **have*** | Vosotros/as **tenéis**<br>*You (all)* **have** |
| **3rd Person** | Él/ella **tiene**<br>*he/she **has*** | Ellos/ellas **tienen**<br>*They **have*** |

| Unit 8: Describing myself and another family members | | |
|---|---|---|
| **3a** | ¿Te llevas bien con tu hermano/a? | *Do you get on well with your brother/sister?* |
| **3b** | ¿Cómo es tu padre/madre? | *What is your dad/mum like?* |
| **3c** | En mi familia hay cuatro personas | *In my family there are four people* |
| **3d** | Hay cinco personas en mi familia | *There are five people in my family* |
| **3e** | Me gusta | *I like* |
| **3f** | No me gusta | *I don't like* |
| **3g** | Me llevo bien con mi hermano | *I get on well with my brother* |
| **3h** | Me llevo mal con mi padre | *I get on badly with my dad* |
| **3i** | Mi perro/gato | *My dog/cat* |
| **3j** | Mi tortuga | *My turtle* |
| **3k** | porque | *because* |
| **3l** | es | *he/she is* |
| **3m** | es bastante | *he/she is quite* |
| **3n** | es muy | *he/she is very* |
| **3o** | es un poco | *he/she is a little* |
| **3p** | alto/a | *tall* |
| **3q** | amable | *kind* |
| **3r** | bajo/a | *short* |
| **3s** | delgado/a | *slim* |
| **3t** | fuerte | *strong* |
| **3u** | gordo/a | *fat* |
| **3v** | bueno/a | *good* |
| **3w** | guapo/a | *good looking* |
| **3x** | antipático/a | *unkind* |
| **3y** | divertido/a | *fun* |
| **3z** | generoso/a | *generous* |
| **3aa** | inteligente | *intelligent* |
| **3ab** | simpático/a | *nice* |
| **3ac** | terco/a | *stubborn* |
| **3ad** | tranquilo/a | *calm* |

**Unit 8 : Gramática**

**Ser – To be**

| | **Singular** | **Plural** |
|---|---|---|
| **1st Person** | Yo **soy**<br>*I **am*** | Nosotros/as **somos**<br>*We **are*** |
| **2nd Person** | Tú **eres**<br>*you **are*** | Vosotros/as **sois**<br>*You (all)* **are** |
| **3rd Person** | Él/ella **es**<br>*he/she **is*** | Ellos/ellas **son**<br>*They **have*** |

The Bourne Academy

**Bourne Scholars Knowledge Organiser: Year 7 Spring Term – Spanish**

<table>
<tr><td colspan="2">1. Grammatical vocabulary</td><td colspan="3">2. Spanish Cultural Research</td></tr>
<tr><td colspan="2">i. Define the term conjugation.<br>ii. What changes in a regular verb when we conjugate them in the present tense.</td><td colspan="2">i. Who is he?<br>ii. What is he famous for?<br>iii. Where did he come from?</td><td>Francisco Franco</td></tr>
<tr><td>3. Dictionary skills</td><td colspan="4">Find out the following information about a bilingual Spanish dictionary.<br>Look up the word “bat” in the dictionary. You will see that there are several options, depending on how it is used. Please fill in the appropriate versions below.<br><br>bat (animal)_____ to bat something away_____ cricket bat_____</td></tr>
<tr><td>4. Key Verbs</td><td colspan="4">Look up the following verbs in the present tense – fill in the blanks</td></tr>
<tr><td></td><td>Personal pronoun<br><br>Yo (I)<br>Tú (you sing)<br>él/ella (he/she)<br>nosotros (we)<br>vosotros (you pl)<br>ellos/ellas (they)</td><td>jugar – to play<br><br>juego I play<br>_____ _____<br>_____ _____<br>_____ _____<br>_____ _____<br>_____ _____</td><td>ir – to go<br><br>_____ _____<br>vas you go<br>_____ _____<br>_____ _____<br>_____ _____<br>_____ _____</td><td>hacer – to do<br><br>_____ _____<br>_____ _____<br>hace he/she/it does<br>_____ _____<br>_____ _____<br>_____ _____</td></tr>
<tr><td>5. Translations</td><td colspan="4">Translate the following into Spanish.<br>a. In my family there are seven people. _____<br>b. I get on well with my Grandmother. _____<br>c. My brothers have grey eyes and they don’t wear glasses. _____<br>d. My sister has brown and short hair. _____</td></tr>
</table>

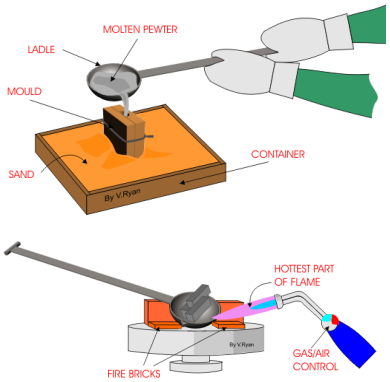
## 1. Pewter Casting

Casting is a **manufacturing process** used for making 3D shapes out of metal.

Metal is placed into a ladle and heated to its **melting point** using a gas torch.

When the metal reaches its melting point it becomes a liquid. Then it is poured into a **mould**: it goes through the **sprue** and into the **cavity**.

When the metal has cooled the mould is opened and the shape is released.




## 2. Metals

There are three main groups of metals:

**Ferrous metals** contain iron. They are magnetic and will rust (corrode). Types of ferrous metals include mild steel.

**Non-ferrous metals** do not contain iron. They are non-magnetic and will not rust (corrode). Types of non-ferrous metals include aluminium.

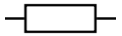
**Alloys** are a mix of metal. This means alloys have improved properties and are suitable for a range of different products. Types of alloys include **pewter,** which is used in casting.

## 3. Electronics

Different components have different functions:

**Input Components :** The input is what sets an electrical circuit in action. It allows the first signal to be sent.

**Output components :** The output is what the circuit results in and ultimately does.

| | | |
|---|---|---|
| **Batteries** |  | Store and release electrical energy. |
| **Resistors** |  | Reduced the flow of electrical current. |
| **Switches** |  | Makes or breaks a electrical circuit. |
| **LED** |  | Emits light when an electrical current in run up its Anode and down its Cathode. |

## 4. Product Analysis

A product analysis looks at current products and assesses whether they are successful or require improving.

When carrying out a successful product analysis you always ask yourself the following questions in relation to the product you are looking at….

**Medium**

**Hot**

1. Who is the product designed for? How do you know this?
2. How has the designer made the product easy to use?
3. What features does the product have which makes it a good product?
4. What features does the product have which could make it hard to use?
5. What materials have been used and why?
6. How would you improve the product?

## 5. Timbers

**Hardwoods** are durable and often used in expensive furniture. Hardwoods tend to have a close grain so look aesthetically better. They grow slowly. Example= Oak, Mahogany, Teak and Beech.

**Softwoods** are cheaper than hardwoods. They grow quickly. IKEA use softwood from sustainable forests, meaning that for every tree cut down they plant one in its place, a softwood tree takes 2—30 years to grow. This is better for the environment. They have very visible grain. Examples= Pine and Spruce.

**Manufactured boards** are timber sheets which are produced by bonding wood layers or wood fibres together. They are manmade. Examples are Plywood and MDF.

## 6. Sustainability

**R** educe — Using less materials and energy. Reducing the amount of packaging in products.

**R** euse — Designing reusable products that do not need to be thrown away straight after use.

**R** ecycle — Recycling products into new materials to be used again. Choosing recyclable materials.

Sustainability is about designers and manufacturers working together to minimise the impact products have on the environment. It is about being environmentally friendly.

## 7. New and Digital Technologies

**CAD** stands for **Computer Aided Design**. CAD software allows designers and engineers to design and model their products on computers. Designs are more easily to edited.

**CAM** stands for **Computer Aided Manufacture**. CAM processes include Laser Cutting, 3D Printing and Robotics. It is quicker, more accurate and creates intricate items.

## 8. Quality Control

**8. Quality Control** is when engineers and designs make regular checks to ensure what they are doing is correct.

Quality control checking reduces mistakes, waste materials and wasted time.

## 9. Working safely

**PPE** stands for **Personal Protective Equipment.**

PPE you will wear:

- An apron
- Safety goggles
- Leather Gloves

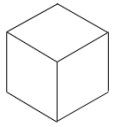
## 10. Design Communication

It is important all ideas are communicated clearly through drawings and annotation.

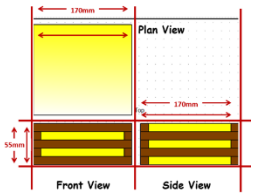
Annotation is the labelling of your work to fully explain it.

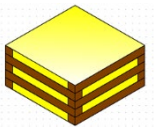
Types of drawing include:

**Isometric 3D drawing:**

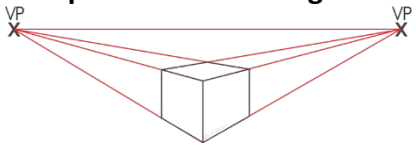



**Orthographic 2D drawing:**



**Perspective 3D drawing:**




**Free hand sketching:**

## 11. Project Tools and Equipment

**Wire Cutters**

**Metal Vice**

**Soldering iron**

**Hacksaw**

**Soldering iron Holder**

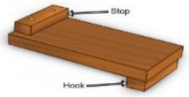
**File**

**Wet sponge**

**Engineer's Square**

**Solder sucker**

**Bench Hook**




**Solder**

**Tenon Saw**

## 12. Material Properties

**Material properties** are the characteristics of materials and the way they perform.

**Durable:** Withstands wear and tear over time.

**Hard:** Withstands scratching.

**Tough**: Withstands sudden impact.

**Strength to Weight ratio:** Strong but still lightweight.

**Ductile:** Can be stretched.

**Conductor:** Allows passage of heat or electricity.

**Insulator:** Does not conduct heat or electricity.

**Corrosion resistance:** Resistance to rust and UV light.

**Malleable:** Can be shaped, pressed and moulded.

## 13. Engineering Sectors

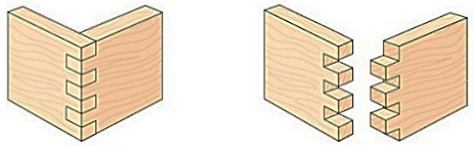
Sectors are different job areas within engineering. This includes:

Electrical, Mechanical, Automotive, Aeronautical, Architectural and Design Engineering.

Each sector carries out different engineering tasks.

## 14. Joining Materials

**Comb joints** are used in furniture construction, especially when making drawers. They provide extra strength to the corner of wooden products. Comb Joints interlock to fit components together.



**PVA adhesive** is used to join timbers. The glue takes 24 hours to fully dry before joints are secured.

**Soldered or welded joints** are used for metal components. They heat two metal components and join them with a filler metal that hardens and holds them together.

## 15. Materials

**Timbers**: MDF, Pine, Ply, Oak

**Polymers**: Acrylic, Rubber, HIPS

**Metals**: Aluminium, Mild Steel, Pewter.

The Bourne Academy

**Bourne Scholars Knowledge Organiser: Year 7 Spring Term – TED**

## 1. Higher Order Thinking: Putting knowledge into context.

Pick an everyday object or product. Now keeping that object or product in mind, pick one of the questions below to discuss it in more depth. Each question is worth 6 marks.

**Workshop tools and processes:**

Research using the internet or think back to workshop skills you have learnt. Can you discuss any ways the product could be manufactured? What tools and processes could be used?

**Material properties:**

Identify which properties are required for this product to function at its best? Evaluate why these properties are important in helping the product perform well?

**Sustainability and Renewable Energy:**

Discuss how could you make the product more environmentally friendly? Explain what you could change?

**Aesthetics:**

Is the product visually appealing? Will it appeal to its user? Discuss how could you develop the product to be aesthetically pleasing and suitable for its target user group?

## 2. Challenge Tasks: Research, Report, Create.

1) Design a solution to help a football coach carry 12 drinks bottles easily.

2) Research smart materials and suggest ways smart materials can improve everyday products in your home.

3)Design a top tips/ health and safety poster for your current TED project.

4) How can Coca Cole become a more sustainable company? Write to them highlighting ways they can be more environmentally friendly.

5) Research and discuss the life cycle of a plastic bottle. Create a poster.

6) How can everyday products be made easier to use for people with mobility problems. Redesign items in your home to make them more ergonomic and easier to use.

7) Research different Engineering jobs. Create a skills list for at least 5 job sectors.

## 3. Visit, Watch, Do.

Visit this link to a sketch-a-day YouTube channel. Pick a video tutorial and develop your drawing skills by following the instructions and demos.

https://www.youtube.com/channel/UCBtSgEZk914z5InEs_U2J3w

## 4. Analyse and Develop

1. Who is the product designed for? How do you know this?
2. How has the designer made the product easy to use?
3. What features does the product have which makes it a good product?
4. What features does the product have which could make it hard to use?
5. How would you improve the product? Why would you make that change?

Notes

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