THE BOURNE ACADEMY
KNOWLEDGE ORGANISER

everyone is a learner, everyone is a teacher

Ambitious
Self Confident
Physically Literate
Independent
Resilient
Emotionally Literate

Year 8
Summer Term 2024-2025

Name: .....

House: .....

The Bourne Academy
Knowledge Organiser: Year 8 Summer Term

Contents

The Bourne Academy
Knowledge Organiser: Year 8 Summer 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

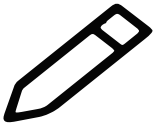
- You will get out your TBA Knowledge Organiser Booklet at the start of every lesson along with your Knowledge Organiser practise exercise book
- Your teacher will set you sections of the Knowledge Organiser to learn, off by heart, in every lesson.
- Your teacher will set you quizzes to test your knowledge 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.

The Bourne Academy

Knowledge Organiser: Year 8 Summer Term – Art

1. Plastic and the Environment

Plastic in the Ocean:

Around 13 million tonnes of plastic end up in the ocean every year, and plastic makes up 80% of all marine debris found from surface waters to deep-sea sediments. Marine species ingest or are entangled by plastic debris, which causes severe injuries and death.

4. Keywords

a. **Warm colours**: reds, oranges, and yellows
b. **Cool colours**: blues, greens, and purples
c. **Watercolour**: pigment suspended in a water-based solution
d. **Wax resist**: a technique using wax to repel water
e. **Tint**: a mixture of a colour with white
f. **Plastic**: synthetic material that uses polymers as a main ingredient
g. **Single-use**: something made for use once and thrown away or recycled
h. **Crisis**: an unstable or dangerous situation

2. Artists

Look at these artists for inspiration:

- Cindy Lane
- Amy Genser
- Alejandro Duran
- Mandy Barker
- John Dahlsen
- Steve McPherson
- Angela Haseltine Pozzi
- Gilles Cenazandotti
- Dale Chihuly

3. Pollution

The ocean is said to be Earth's life support, with 97% of the world's water held by the ocean. We rely on it to regulate our climate, absorb CO_2 and it is the number one source for protein for over a billion people.

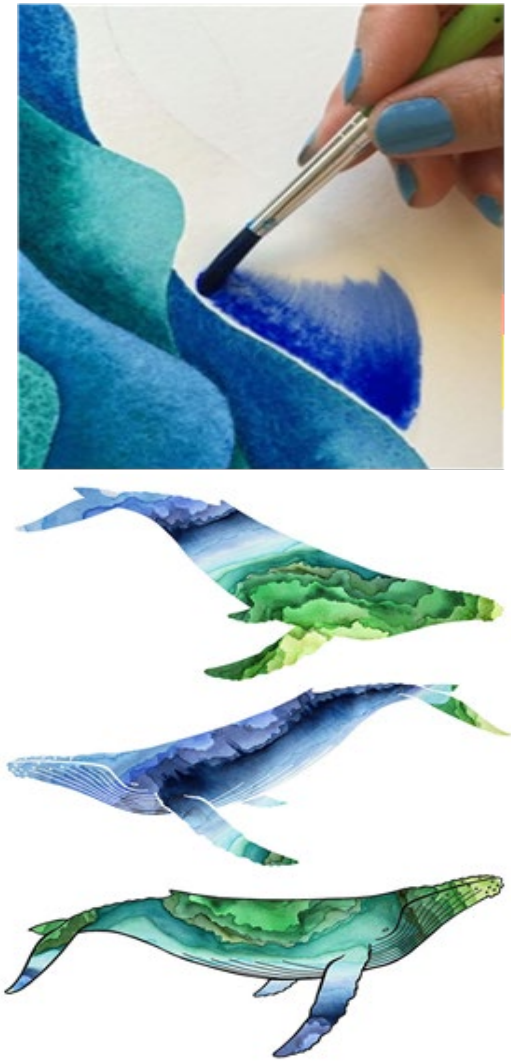
However, at the rate we are polluting the ocean with around 13 million tonnes of plastic a year, the damage we are doing to marine life and our ecosystem is becoming irreparable.
Our actions over the next 10 years will determine the state of the ocean for the next 10,000 years to come.

Plastic pollution has become one of the most pressing environmental issues, as rapidly increasing production of disposable plastic products overwhelms the world's ability to deal with them. Plastic pollution is most visible in developing nations, where collection systems are often inefficient or non-existent. But the developed world, especially in countries with low recycling rates, also has trouble properly collecting discarded plastics.

5. Shocking ocean plastic statistics

More than **1 million seabirds** and **100,000 marine animals die** from plastic pollution every year.
100% of baby sea turtles have plastic in their stomachs.
There are now **5.25 trillion** macro and micro pieces of plastic in our ocean and **46,000 pieces** in every square mile of ocean, weighing up to 269,000 tonnes.
Every day around **8 million pieces of plastic** makes their way into our oceans.
The Great Pacific Garbage Patch is around **1.6 million square kilometres** – bigger than Texas.
The world produces **381 million tonnes** in plastic waste yearly – this is set to double by 2034.
50% of this is single-use plastic and only **9% has ever been recycled.**
Over 2 million tonnes of plastic packaging are used in the UK each year.
88% of the ocean's surface is polluted by plastic waste.
Between 8 to 14 million tonnes enters our oceans every year.
Britain contributes an estimated **1.7 million tonnes of plastic** annually.
The US contributes **38 million tonnes** of plastic every year.
Plastic packaging is the biggest culprit, resulting in **80 million tonnes** of waste yearly from the US alone.
On UK beaches there are **5000 pieces of plastic and 150 plastic bottles** for each mile.
More than **1 million plastic bags** end up as rubbish every minute.
The world uses over **500 billion plastic bags** a year – that's **150 for each person on Earth.**
8.3 billion plastic straws pollute the world's beaches, but only 1% of straws end up as waste in the ocean.
Since 2020 the **number of plastics in the sea is higher than the number of fish.**
1 in 3 fish caught for human consumption contains plastic.
Plastic microbeads are estimated to be **one million times more toxic than the seawater** around it.
Products containing microbeads can release **100,000 tiny beads** with just one squeeze.

6. Cindy Lane's work: Watercolour painting



Section A: What are plastics?

Plastics are simply chains of like molecules linked together. These chains are called polymers. Therefore, many plastics begin with "poly," such as polyethylene, polystyrene, and polypropylene. Polymers often are made of carbon and hydrogen and sometimes oxygen, nitrogen, sulphur, chlorine, fluorine, phosphorous, or silicon. The term "plastics" encompasses all these various polymers.
Although there are many polymers, plastics in general are lightweight with significant degrees of strength. Plastics can be moulded, extruded, cast and blown into seemingly limitless shapes and films or foams or even drawn into fibres for textiles. Many types of coatings, sealants and glues are actually plastics too.

How many plastic items do use daily at home and when at school?

How many of those items are one-use plastics (disposed of after use)?

Section B: How is plastic made?

To make today's plastics, chemists start with various elements (atoms such as carbon, hydrogen, oxygen and so on) derived from natural resources. Chemists combine various atoms to make molecules, which are simply two or more atoms held together by chemical bonds. When making plastics, these molecules generally are called monomers. These monomers then are combined by chemical bonds into a chain or a network—this is called polymerization. The resulting materials are called polymers. Or plastics.

Do you think these processes are environmentally friendly?

Do you think that plastic manufacture is sustainable?

Section C: How many types of plastic are there?

There is no exact number. It's sort of like asking how many types of bread there are. Plastics are not simply one material made the same way every time. Although plastics can be broken down into broad types or categories, there actually are thousands of different plastics, each with its own composition and characteristics.

How many different types of plastic can you think of?

Section D: Is plastic biodegradable?

Biodegradability of plastics depends largely on the type of plastic and where it ends up. Many plastics do not biodegrade to any significant degree, regardless of environmental conditions, while some do so very slowly if exposed to air, water, and light. Both types are best recycled or used for their stored energy.

Which plastic products do you think pose the biggest threat to animals?

The plasticity during production enables plastics to be moulded, extruded, or pressed into solid objects of different shapes. Adaptability, plus a wide variety of beneficial properties, such as being lightweight, durable, and flexible, alongside cheap manufacturing methods, has contributed to widespread acceptance in contemporary society. Most modern plastics come from fossil fuel-based petrochemicals such as natural gas or petroleum. However, the most recent plastic manufacturing processes use alternatives manufactured from renewable materials such as corn or cotton derivatives.

The Bourne Academy

Knowledge Organiser: Year 8 Summer Term - Computing

1. Digital Graphics

a) Photoshop is an application for editing and creating raster-based graphics, such as photos.

b) Raster graphics are images made of pixels.

c) Illustrator is an application for editing and creating vector-based graphics, such as logos.

d) Vector graphics are images made up of code.

e) Compression means reducing the file size.

f) JPEG is an image file type that has been compressed to create a smaller file size.

g) PNG is an image file type with a small file size which can include transparent parts.

h) TIFF is an uncompressed image for high quality resolution with a large file size.

i) Pixel is the smallest unit of a digital image, often appearing as tiny dots, which together form the complete image on a screen.

j) Resolution is the amount of detail an image holds, measured in dots per inch (DPI), where higher values mean more detail.

k) Layer is a feature to stack images on top of each other, such as in front of a background.

2. Video Editing

a) CapCut is a free video editing app with tools for trimming, effects, text, and transitions.

b) Timeline is where video, audio, and effects are arranged in order to create a final edit.

c) Cut is a basic edit that removes or separates clips to control the flow of a video.

d) Transition is a visual effect used between clips, such as fades, to create smooth scene changes.

e) Trim is shortening a video clip by adjusting its start or end points.

f) Keyframe is a point in an animation or effect that marks the start or end of a change.

g) Frame rate is the number of frames shown per second (fps), affecting how smooth the video appears.

h) Aspect ratio is the width and height proportions of a video, such as 16:9 for widescreen.

i) Chroma key is a technique that removes a background using a green screen when filming.

j) Rendering is processing and exporting a video into a final playable format.

3. Web Design

a) URL - uniform resource locator is the address of a website, such as: http://www.bbc.co.uk

b) HTTP is the protocol the world wide web uses to transfer webpage data to your computer.

c) HTML (Hypertext Markup Language) is the basic code used to structure text, images, and links on a website.

d) CSS is the language used to format the layout of the webpage.

e) House style is having the same consistent style throughout all pages of a website.

f) User interface (UI) is the design of buttons, menus, and icons that help users interact with a website.

g) User experience (UX) is how easy and enjoyable it is to use a website or app.

h) Wireframe is a simple sketch of a website's layout that shows where content will go.

i) Navigation is the menu system on a website that helps users find their way around easily.

1. Data Dashboard

a) Data Modelling is looking at data and using it to make future predictions/decisions

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

c) Create an Interactive Dashboard

1. Revise the Knowledge Organiser to understand what a data dashboard is.

2. Ask Mr Orme for the 'Weather Dashboard' booklet.

3. Open a new blank spreadsheet file

4. Import the CSV file (location in booklet) into your spreadsheet.

5. Work through the booklet to create an interactive spreadsheet

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.

Save your spreadsheet as '**Weather Dashboard**' in your computing folder

2. Databases

Microsoft Access

a) Creating a Database

In Student Resources → !IT → Scholar
open 'data for database extension'.

Now start a new database file (using Access) and create a database to record the information from the word document you just opened.

b) Using Code to Control a text data file

In Student Resources → !IT → Scholar
open 'Using code to control a database'.

In Student Resources → !IT → Scholar
copy 'datafile' into your computing folder (in your OneDrive area)

Also, open 'Python' and start a 'new file'. Save it in the same folder as where you saved the 'datafile'.

In Python, create the code needed to control the data saved in the CSV text file by following the instructions in the word document.

3. Spreadsheet Software

a) Recording data in a spreadsheet

In Student Resources → !IT → Scholar
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Now start a new spreadsheet file and create a table to record the information from the word document you just opened.

Then:

1. Add formulas to add up each team's scores
2. Add a function to find out the average score each team got over the season
3. 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

Create a line graph to compare the results of how each team performed over the season.

Save in your computing folder.

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The Bourne Academy

Knowledge Organiser: Year 8 Summer Term - Dance

1. Choreographer	Christopher Bruce
a. Premier Year	1987
b. Music by	Phillip Chambon
c. Set and Costume by	Christopher Bruce
d. Lighting by	David Moore

2. Dance Styles

Christopher Bruce's choreography for Swansong incorporates a variety of dance styles, including contemporary, ballet, jazz, tap and ballroom.

Contemporary- an expressive dance style which draws inspiration from ballet, jazz and lyrical.

Ballet- a type of theatrical dance that is formed of academic dance technique.

Tap- a dance performed wearing shoes fitted with metal taps, characterized by rhythmical tapping of the toes and heels.

Jazz- a style of theatrical dance performed to jazz or popular music.

3. About Swansong

- Swan Song means the final performance of someone's career.
- Christopher Bruce choreographed Swan Song as a way to say goodbye as this was his final performance.

4. Theme and Story

- The overall theme of Swan Song is human rights and isolation.
- Swan song explores political oppression which is the act of a state entity (in this case a prison) controlling citizens by force for political reasons, particularly for the purpose of restricting or preventing the ability to take part in the political life of a society.
- Swan Song shows a victim being punished by a variety of means including an aggressive interrogation and how brainwashing, humiliation and playing with emotions may all be part of a long, nerve-wracking game.
- Swansong is about corrupt authorities.
- The guards end of as losers as they beat up the prisoner and are left looking at the chair where the dead body must be imagined. The victim's spirit escapes and is free at last.

5. Physical Skills	
a. Stamina	Musical theatre jazz is often very energetic and requires performers to be able to dance and sing at the same time and sustain their energy throughout.
b. Coordination	Dancers need to be able to move different parts of their body at the same time, often whilst singing as well.
c. Posture	Having the correct posture (not slouching) allows dancers to appear more confident whilst performing.
d. Flexibility	Having a good range of motion aids in making a dancer's work appear more seamless. Flexibility also reduces the risk of injuries and

6. Musical Theatre

Musical theatre combines songs, spoken dialogue, and dance to tell a story. A musical gives as much importance to the songs and music as other elements of the production.

Musical theatre is a genre which means that it's one set type or category of the many different types of theatre in existence. It's often quite stylistic and usually involves jazz dance.

7. Examples of Musicals:

- Chicago
- West Side Story
- Wicked
- Cabaret
- Hamilton

8. Background

Broadway jazz, or theatre jazz originated in the 1920's. It was the first time dance was an important part of a play's plot, and viewers fell in love. It is a unique blend of ballet, modern, and jazz and is distinguished by its emphasis on exaggerated movements, high energy, and story-telling. It is almost always performed by a troupe of dancers, with few solos.

9. Jack Cole

Jack Cole is the father of Broadway jazz (although he referred to the style as "jazz-ethnic-ballet"). His work spanned three decades, starting in the 1920s. He choreographed for Broadway, night clubs, film, and television, and taught many jazz dance legends, such as Bob Fosse.

Swan Song

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Jazz- a style of theatrical dance performed to jazz or popular music.

3. Meaning

- Swan Song means the final performance of someone's career.
- Christopher Bruce choreographed Swan Song as a way to say goodbye as this was his final performance.

4.Theme and Story

The overall theme of Swan Song is human rights and isolation. Swan song is concerned with political oppression. A deliberately disturbing dance showing a victim being tortured by a variety of means. It shows both the aggressive and sadistic element of interrogation and how brainwashing, humiliation and playing with emotions may all be part of a long, nerve wracking game. Swansong is all about hooliganism amongst corrupt authorities, about the injustice towards the defenceless. The guards end of as losers as they beat up the prisoner and are left looking at the chair where the dead body must be imagined. The victim's spirit escapes and is free at last. Bruce uses different popular dance styles to sinister effect. The interrogators perform tap routines to indicate the questioning of the victim, and to allow him to join in and dance with them. The dance was originally created for three males, but has been performed since with a mix of genders.

5. Physical Skills	
a. Stamina	Musical theatre jazz is often very energetic and requires performers to be able to dance and sing at the same time and sustain their energy throughout.
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1. Key words	Definition
A. Mime	Mime is the theatrical technique of suggesting action, character or emotion without using words, using only gesture, posture, facial expression and movement.
B. Commedia Dell' Arte	A style of comedy theatre developed in Italy during the 16th to 18th centuries, with stock characters such as Punchinello, Harlequin, and a, in situations improvised from a plot outline. The characters wear half masks to allow them to use speech.
C. Trestle Masks	Trestle theatre masks are masks with clear emotions that cover the full face. This means actors do not talk when wearing the mask. Using physical performance skills to bring the character to life.
D. Rules of Mask Work	- Put the mask on in the wings - Do not talk in a full face mask - Face the audience as much as possible - Clock the audience – acknowledge the audience - Pass the focus to another actor on stage
E. Stock Character	Characters that are easily identified in a piece of theatre and are in more than one performance. For example. A hero, heroine and villain.
F. Slapstick Comedy	A style of performance using exaggerated physical activity that creates humour.
G. Lazzi	Lazzi are short comedy sketched that were created and performed as part of a Commedia Dell' Arte performance.

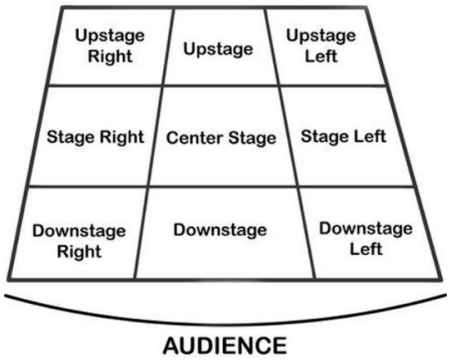
2. Commedia Character	Definition
A. Arlecchino	Also known as the Harlequin, he can be the nimble acrobatic tricky servant. Childlike, he can often be played as not too bright, but usually wins in the end.
B. Pantalone	A wealthy, miserable old man. A merchant.
C. Il Dottore	The Doctor is a smug, know it all professor, who really knows very little. He can be a doctor of anything, and he can dispense potions and pills, for example a love potion**.**
D. Il Capitano	The pretentious, self-promoting, extravagant and sonorous; ridiculous and cowardly; he boasts of his imaginary conquests at war. Fancies himself as a winner with the women.
E. Pulcinella	The argumentative, servant; a loner; he has a fatalistic philosophy and takes great pleasure in violence.
F. Columbina	The captivating lady's maid; coquettish and clever; she manages the plot with wit and benevolence; adored by everyone.

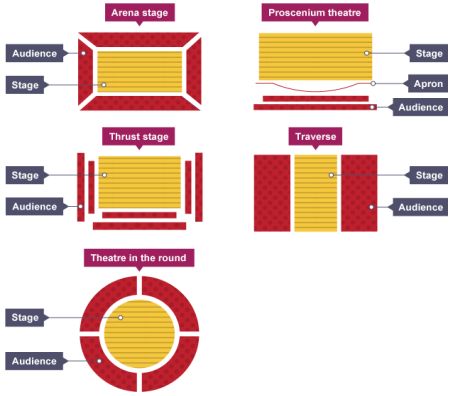
3. Evaluating Performance	Step One Before Performance	Step Two During Performance	Step Three After Performance Be ready to share your evaluation
What went well?	Select either a physical or vocal performance skill to evaluate	While you watch the performance look out for specific examples of how the skill 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…… .

Bourne Scholars Knowledge Organiser: Year 8 Summer Term – Drama

1. Higher Thinking Question	2. Mask Techniques	
What am I showing the audience?	**Four Rules of Mask**	1. Never put the mask on or take it off in front of the audience 2. Never touch the mask 3. Do not talk whilst wearing the mask 4. Ensure that you face the front, as much as possible, whilst performing
How am I communicating this?	**Three Steps to Building a Character**	1. Copy exaggerated facial expression of the mask 2. Develop exaggerated body language to suit the character. 3. Develop an exaggerated walk to suit the character
What else can I do to support my acting skills?	**Clocking**	Ensuring that your face is always focused in the direction of the audience.
How am I showing my character?	**Passing the Focus**	Moving the audience's attention from one character on the stage to another.
What is my character feeling?	**Major & Minor Characters**	Major Character: The character that the audience should focus on (of higher importance).

3. Stage Positioning





1. Context	Description
a) Shakespeare	William Shakespeare was an English playwright and poet.
b) Elizabethan era	In 1558, Queen Elizabeth I started her 44-year reign as Queen of England.
c) Religion	Society across Europe was deeply religious (predominantly catholic or protestant).
d) Patriarchal society	Government or society was controlled by men. Women were property of their fathers or husbands, and they were expected to have children.

2. Form and structure	Description
a) Prologue	A section introducing the play.
b) Rhyming Couplet	A pair of lines in poetry that rhyme.
c) Prose	Written or spoken language in its ordinary form.
d) Verse	Writing arranged in poetic form typically having a rhyme.

3. Plays	Summary
a) Titus Andronicus	A brave Roman general named Titus faces terrible betrayals and seeks justice for the wrongs done to his family, which sets off a chain of revenge and tragic consequences.
b) Othello	A tragedy that sees the downfall of a respected solider who is consumed by jealousy as a result of a manipulative villain.
c) Much Ado about Nothing	A comedy as two couples experience misunderstandings and trickery as they fall in and out of love, ultimately finding happiness and resolving their differences.
d) Romeo and Juliet	A tragic love story where two teenagers fall in love and commit suicide due to their families' ongoing feud.
e) A Midsummer Night's Dream	A comedy involving a love story, wedding plans, the misuse of magic and a case of mistaken identity.
f) Richard III	A history play about the ruthless behaviour of one man determined to become the king of England.
g) Julius Caesar	A history play involving an assassination plot against Julius Caesar (emperor of Rome).

4. Genre	Description
a) Comedy	A play that often includes humorous situations, mistaken identities, and happy endings, providing light-hearted entertainment often celebrating love and friendship.
b) Tragedy	A play that explores the downfall of a powerful character due to their own flaws or external circumstances, resulting in a tragic ending.
c) History	A dramatic retelling of real events from England's past, featuring kings, queens, and political conflicts, providing insights into the country's history and the challenges of leadership.

5. Topic Words	Definition
a) Persuade	When you attempt to convince others to take action or make a change through reasoning or argument.
b) Letter	A form of written communication which is usually addressed to somebody and sent to them in an envelope.
c) Speech	A formal address delivered to an audience.

6. Punctuation	Symbol	Definition
a) Dashes	-	Used as parenthesis to add more important information. *e.g. The case was worn – and very full – and its straps struggled to stay shut.*
b) Colon	:	Used before a list of items, a quotation, an expansion or an explanation. *e.g. The key to success includes three things: hard work, determination and perseverance.*

7. Language terminology	Definition	
a) Direct address	Speaking directly to your audience by using the personal pronouns 'you' and 'your'.	*<u>You</u> can be the difference.*
b) Emotive Language	Words used to cause an emotional response.	*The <u>victim</u> was left in a <u>horrific</u> state.*
c) Repetition	Where you repeat the same word or phrase to make an idea clearer.	*This is <u>serious</u>, incredibly <u>serious</u>.*
d) Modal verbs	Verbs that suggest the likelihood or probability of something.	*It <u>may</u> rain today.*

1. Extended vocabulary	Definition
a) Pugnacious	Eager or quick to argue or fight. Tybalt from "Romeo and Juliet," known for his hot-headedness and eagerness to engage in duels, is pugnacious.
b) Unscrupulous	Having no moral principles; not honest or fair. Richard III is a cunning and ruthless character who stops at nothing to gain and maintain power, is unscrupulous.
c) Subservient	Prepared to obey others unquestioningly. Desdemona from "Othello," a character who is portrayed as submissive and obedient to her husband, Othello, throughout much of the play, is subservient.
d) Infatuated	Intense or short-lived passion. Helena from "A Midsummer Night's Dream," who is infatuated with Demetrius and relentlessly pursues his love, despite his rejection.
e) Satirical	Criticising people or ideas in a humorous way. Benedick from "Much Ado About Nothing," who engages in humorous and satirical exchanges with Beatrice, employing clever wordplay and sarcastic commentary.
f) Presumptuous	Full of brazen confidence in decisions. Richard III from "Richard III," who exhibits presumptuous behaviour as he manipulates and deceives others to fulfil his ambitions and secure his position as king.

2. Authors	Additional reading
a) Jennifer Niven	All the Bright Places (Romeo and Juliet) – A heart-wrenching story about a girl who learns to live from a boy who intends to die.
b) Tracy Chevalier	New Boy (Othello)
c) Laura Wood	Under a Dancing Star (Much Ado about Nothing)
d) Patricia Highsmith	The Talented Mr Ripley (Macbeth)
e) Iris Murdoch	The Black Prince (Hamlet)
f) Joy McCullough	Enter the Body
3. Extended activities	**Tasks**
a) Evaluate	Choose one of Shakespeare's plays to focus on and answer the question: *To what extent are the themes of the play relevant in today's society?*
b) Research / memorise	What is a soliloquy and why are they used in Shakespeare's plays? Research famous soliloquys and memorise one from a Shakespeare play.

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Knowledge Organiser: Year 8 Summer Term - Food

1a. Customer Needs

Customers have different needs for food. This can be due to special diets, health, and even your age.

1b. Special diets

Vegetarian/vegan diets, religious diets, allergies, coeliacs disease, and food intolerances are some of the dietary needs that must be considered when cooking a preparing food to avoid the risk that someone could become ill.

1c. Life stages

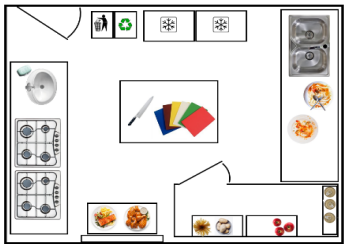
Nutrition through life differs mainly due to the need for energy and protein for growth and development. Younger people are growing, so need more energy. Older adults only need to maintain their bodies, so less energy is needed.

1d. Organoleptic

This means the qualities of food that people experience with their senses. There are 5 senses: sight, smell, taste, sound, and touch. All these senses should be considered to make food as appetising as possible.

3a. Kitchen Workflow

A kitchen workflow is the way food and staff move around the kitchen when preparing, cooking, and serving food. A good workflow ensures that a kitchen is efficient and hygienic.



3b. Kitchen operations

Receiving: Food needs to be checked before it is stored to make sure the food is in good condition and safe to eat.

- Storing: If foods are not stored correctly, it increases the risk of food poisoning.
- Preparation and cooking: Food preparation and cooking areas need to be suitable and hygienic to reduce the risk of cross-contamination.
- Holding and serving: Before serving food must be kept above 63 degrees which means the food is hot and safe to eat.
- Cleaning: Dedicated areas of the kitchen for washing up and waste disposal is important. to help create a hygienic kitchen.

4a. Front of house

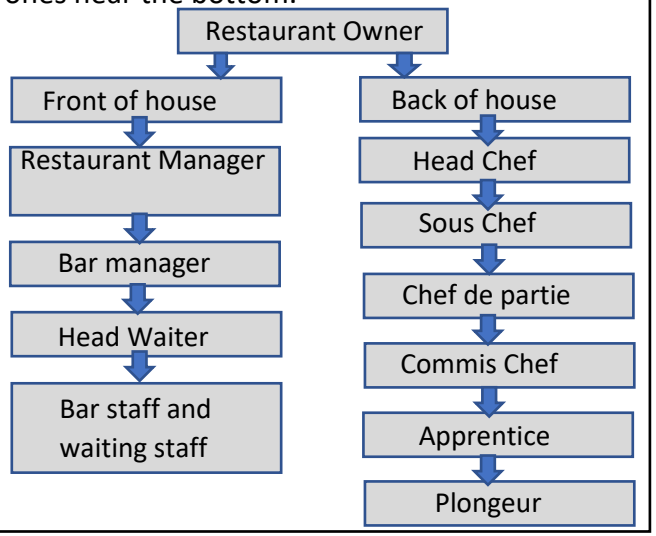
Front of house refers to any staff the customer may see, e.g. a receptionist, waiting staff.

4b. Back of house

Back of house refers to staff the customer may not see, e.g. a chef, housekeeper.

4c. Staff hierarchy (employee structure)

The staff closest to the top have more responsibilities, training and experience than the ones near the bottom.



Bourne Scholars Knowledge Organiser: Year 8 Summer Term – Food

1a. Customer Needs
What reasons might customers require different types of food?

1b. Special diets
Create a table like the example below. Include vegetarian, vegan, Hindu, Jewish, coeliacs, dairy intolerance.

Diet	Reasons for following this diet	Foods to avoid and why

1c. Life stages
The amount of energy we use over our lifetimes changes with age. Explain how that would affect the amount of carbohydrates we should eat.

Vitamin D and calcium are also important at different stages of our lives. Explain why we need it and how it differs when we get older.

1d. Organoleptic
Describe how food can be produced and presented so that our 5 senses were being used when we were eating it.

Why is food more enjoyable if we can use all of our senses when eating it?

3a. Kitchen Workflow
Write a paragraph explaining what a good kitchen workflow should look like and how it helps keep a kitchen hygienic and safe.

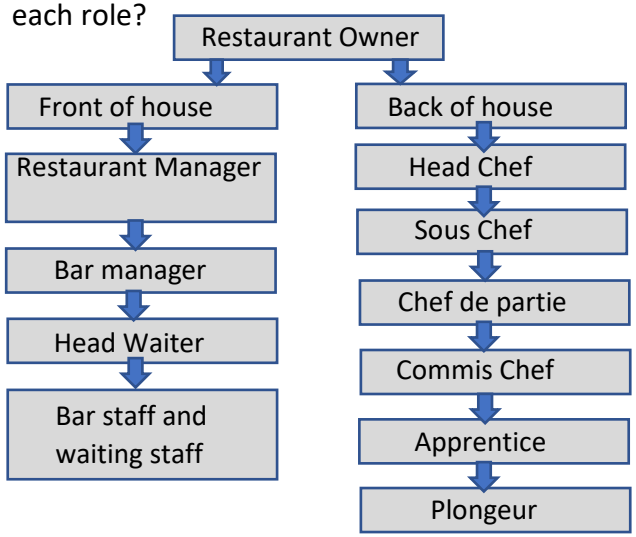
3b. Kitchen operations
For each of the following kitchen operations, write 3 rules about hygiene and safety. The rules should be about how to avoid any accidents or food poisoning. For example, when receiving food check the sell by dates to make sure it is safe to eat.

- Receiving
- Storing
- Preparation and cooking
- Holding and serving.
- Cleaning

4a. Front of house
Describe the job roles of front of house staff. What are their main duties?

4b. Back of house
Describe the job roles of back of house staff. What are their main duties?

4c. Staff hierarchy (employee structure)
Choose 2 of the job roles below. Write a job advertisement for each of these roles. What characteristics and skills would be required for each role?



The Bourne Academy

Knowledge Organiser: Year 8 Summer Term - Geography

1.Development Indicators

Indicator of development	Definition	Image
GNI per head	This is the total value of goods and services produced by a country plus money earned from other countries. It is divided by the number of people in a country	
Birth rate	The number of births per 1000 of a population in a year.	
Death rate	The number of deaths per 1000 of a population in a year.	
Infant mortality	The number of children that die before the age of one	
Life expectancy	The average number of years people can be expected to live	
Adult literacy	The percentage of adults who can read and write	
People per doctor	The average number of people there are per doctor in a country	
HDI (Human Development Index)	This uses a number of social and economic indicators combined together to give a country a score from 0-1 based on how developed it is	

2.Development Gap

The difference in development levels between the world's richest and poorest countries.

3.Development Gap Causes

Climate	Natural Hazards	Disease
Exploitation of Resources	Natural Resources	Landlocked Countries
Historical Development	Poor/Corrupt Government	High Dependency Ratio
Poor Education	Poor Medical Facilities	Lack of Clean Water

4.Global Hunger

- Approximately 1.2 billion people suffer from **under-nutrition** (deficiency of calories and protein)
- Some 2 to 3.5 billion people suffer from **malnutrition** (deficiency of vitamins and minerals)

5.Thar Desert

Opportunities and challenges in the Hot desert

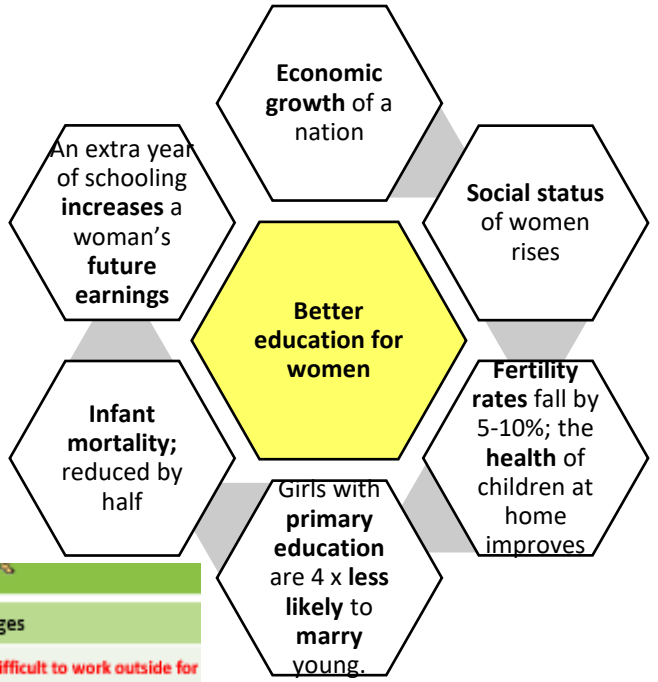
Opportunities	Challenges
• There are valuable minerals for industries and construction. • Energy resources such as coal and oil can be found in the Thar desert. • Great opportunities for renewable energy such as solar power at Bhaleri. • Thar desert has attracted tourists, especially during festivals.	• The extreme heat makes it difficult to work outside for very long. • High evaporation rates from irrigation canals and farmland. • Water supplies are limited, creating problems for the increasing number of people moving into area. • Access through the desert is tricky as roads are difficult to build and maintain.

6.Thar Desert

Hot Desert: Case Study Thar Desert – India/Pakistan

The Thar Desert is located on the border between India and Pakistan in Southern Asia. With India soon becoming the most populated country in the world in the next five years. With this, more people will plan to live in the desert.

7.Smart Economics



8.Geography of Disease

The 3 primary poverty-related diseases (PRDs) across the world are;

1) **AIDS**, low income countries account for 95% of the global AIDS cases,
2) **Malaria** (90% of malaria deaths occur in sub-Saharan Africa),
3) **Tuberculosis (TB),** low income countries account for 98% of active tuberculosis infections.

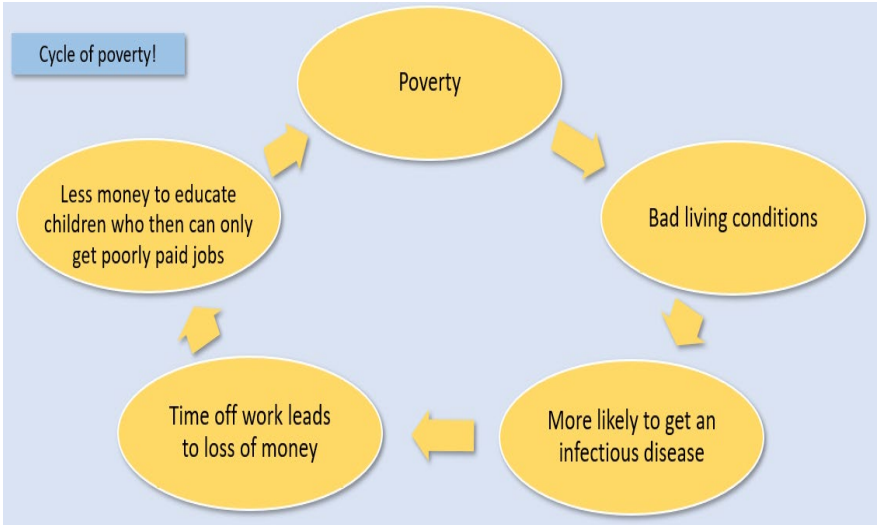
Together, these three diseases account for 10% of global deaths.

10.Aid – help or hindrance in Haiti?

- Jan 12th 2010; Magnitude 7 earthquake
- >300,000 killed
- 1.5 million people homeless
- GDP per capita before = $1,172
- At the time of the quake, 70% of the population lived below the poverty line
- $16 billion aid provided.
- Today, 60% population live below the poverty line.

11.Lagos, Nigeria

9.Cycle of Poverty



12.Millenium Development Goals (MDG's)

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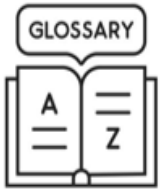
Bourne Scholars Knowledge Organiser: Year 8 Summer Term – Geography

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;

Development indicator, development gap, smart economics, aid, low income country, high income country, newly emerging country, poverty, malnutrition, development, adult literacy rate, GDP per capita.

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



2. Geographical Writing: Part of being a Geographer is to write like a Geographer.

Explain how disease can cause poverty and poverty can cause disease. Use as many of the key words below.

KEYWORDS

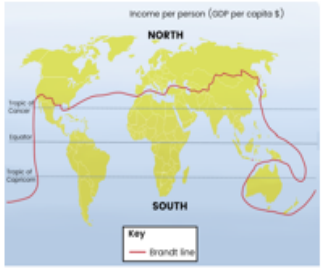
HIC
LIC
GDP
Adult literacy Rate
Access to Healthcare
Infant Mortality Rate
Life Expectancy
Overcrowding
Tuberculosis
Pneumonia
Clean Water
Ebola
Malnutrition
Poverty
Vaccinations
Rural Areas
Transport
Economic Growth
Jobs
Education
Economic Productivity

3. Identifying and explaining: Being able to identify links and explain them.

Search up the Sustainable Development Goals (SDG's). Explain how each one could reduce poverty. Link to all theory from this topic.

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

Find a blank world map.
Label the following countries; India, Pakistan, Nigeria, UK, USA, Australia, Haiti.
Then search up 5 development indicators for each one. Use that information to determine whether they are LIC, HIC, or NEE. Colour code on the map which of those countries are LIC, HIC or NEE.



5. Graphical Skills: It is important to be able to plot data.

Plot the data onto a graph to compare the development indicators for each country.

How do the countries compare?
Why do you think there may be differences?

Country	Education Index 2013	GDP/capita/PPP)
Bangladesh	0.45	3580
Brazil	0.66	15127
Chad	0.26	1991
China	0.61	15534
Costa Rica	0.65	16614
Germany	0.88	48729
India	0.47	6572
Kenya	0.51	3155
Mexico	0.64	17861
Niger	0.20	978
Switzerland	0.84	62881
United Arab Emirates	0.67	72418
United Kingdom	0.86	42608
United States	0.89	57466

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: *is money the answer to poverty?*

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

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Knowledge Organiser: Year 8 Summer Term - History (The Second World War)

A. Summary
Advances in technology and tactics meant that World War II was very different to previous wars – and even more deadly. Bombs were bigger, tanks were faster, and planes could fly further.

B. Key Words	
1. Fascism	A right-wing political system that puts the state above any one person, group or right
2. Appeasement	A policy of trying to placate or pacify a country or person by accepting their demands.
3. Chancellor of Germany	Head of government in Germany.
4. Evacuated	To move people from a dangerous place to somewhere safe.
5. Censored	When a government examine a book, film etc officially and suppress unacceptable parts of it.
6. Battle of Britain	The Battle between the RAF and the German Airforce (the Luftwaffe)
7. Operation Pied Piper	British government decision to evacuated children and other designated people to the countryside.
8. Liberated	To set someone or a country free from enemy occupation.
9. Atomic bomb	A bomb that derives its destructive power from the rapid release of nuclear energy

C. Timeline	
1. 1939	On 1 September German troops invade Poland. Two days later Britain and France declared war on Germany.
2. 1939	For four days in September, the government took over Britain's entire transport system. All of the buses and trains were used to move the most vulnerable people in society from the towns that were certain to be bombed to the countryside.
3. 1933	Hitler became Chancellor of Germany
4. 1940	German armed forces begin to advance through Western Europe. Known as Blitzkrieg. They trapped the British and French armies on the beaches around Dunkirk.
5. May 26th 1940	Small British ships rescued men from the beaches around Dunkirk and transferred soldiers to larger ships which brought them back to Britain.
6. July – October 1940	The Battle of Britain
7. Sept 1940 – May 1941	The Blitz. German bombing attack on major British cities.
8. June 1944	D-Day. The allies freed France, Belgium and the Netherlands from Nazi rule.
9. Dec 1941	The American Pacific Naval Fleet stationed in Pearl Harbour, Hawaii, were attacked by Japanese bombers.
10. 6 August 1945	The USA dropped the first atomic bomb on the Japanese city of Hiroshima.

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Knowledge Organiser: Year 8 Summer Term - History (The Middle East)

A. Summary
Western media portrays the Middle East as a region gripped by conflict. However, the stories often ignore the role of the West in the causes of conflict there.

B. Key Words	
1. Arabs	People originally from the Middle East or North Africa, whose language is Arabic.
2. Nomadic	Moving around from place to place rather than living in one place only.
3. Suez Canal	Canal that connects the Mediterranean Sea to the Red Sea.
4. League of Nations	An international organization that aimed to help prevent wars between countries, set up after the First World War.
5. United Nations	An international organisation set up in 1945 to try to solve international problems and build peace around the world.
6. Islamic fundamentalism	A movement where some Muslims want to live similarly to how the prophet Muhammad lived. They follow the teachings of the Islamic holy text literally.
7. Martyr	Someone who died fighting for their religion.
8. Extremist	Someone with political opinions and aims that most people would see as unacceptable.

C. Timeline	
1. 1900	20 million people lived in the Ottoman Empire. It was a multi-ethnic empire, with Turks, Greeks, Arabs, Kurds, Armenians and many other ethnic minorities. Half the people in the Ottoman Empire were Turkish, and Turks were in charge.
2. May 1916	Sykes-Picot Agreement. A secret agreement was made to divide the Middle East between Britain and France.
3. Nov 1917	Balfour Declaration. Britain said Jewish people should have a 'national home' in Palestine.
4. Nov 1947	The UN agreed a plan to divide Palestine into a Jewish state and an Arab state.
5. 14 May 1948	Jews in Palestine declared the creation of a new independent state called Israel.
6. 1956	The Suez crisis
7. 1978-79	Iranian Revolution. Replaced the shah (Iranians leader) with an Islamic Republic and Shia, the new leader who was a religious scholar. Brought in strict religious laws and Western influences came under attack.
8. 1980	Leader of Iraq was Saddam Hussein. Iraq's Shia population was not treated well. Led to Iran-Iraq war.
9. 2 August 1990	Iraq invaded Kuwait, its small, oil-rich neighbour.
10. 16 Jan 1991	First Gulf War. UN forces attacked Iraq after they refused to leave Kuwait.
11. 11 Sept 2001	19 members of al-Qaeda attacked targets in the USA by hijacking aeroplanes and flying them into important buildings.

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

1.1 Chronology

- Draw a timeline showing the main events that led to the Second World War. Start with the First World War, right up to Hitler's invasion of Poland.

1.2 Historical Terminology

- Define the following words: allied nations, appeasement, attrition, axis nations, blitzkrieg, censorship, fascism, indoctrination, Luftwaffe, Nazi party, Propaganda, RAF.

1.3 Key Features (Historical Knowledge)

- Why were women so important to the home front war effort in the Second World War? Explain your view.

2: Explain and analyse historical events and periods studied using historical concepts.

2.1 Change & Continuity

- Create a continuum with 'change' at one end and 'continuity' at the other. Note down examples of change and continuity about the nature of war from conflicts you have studied in the Middle Ages right up to the Second World War.

2.2 Cause and Consequence

- Describe the short-term and long-term consequences of the following events: D-Day, Dunkirk, the Battle of Britain, Pearl Harbour and the dropping of the atomic bomb.

2.3 Significance

- How significant was Japan's attack on the US in pearl harbour in getting the USA involved in the Second World War?

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

3.1 Valid inferences

- What can you infer from the source about UN involvement in Iraq's invasion of Kuwait?

3.2 Nature, Origin, Audience, Purpose

- What is the nature, origin, audience and purpose of the source?

Photograph from February 1991, a soldier from the UN force scans the Kuwaiti desert for Iraqi troops.

3.3 Usefulness

- How useful is this source for an enquiry into UN involvement Kuwait following Iraq's invasion?

4: Analyse, evaluate and make judgements about interpretations.

4.1 Identifying views

- What is the view given by Obama following the death of bin Laden?

4.2 Analysing interpretations

- What evidence can you find to support Obama's view?

4.3 Evaluating Interpretations

- Find two historians' interpretations which support the view that the West was the cause of conflict in the Middle East and two historians to counter this view.

The death of bin Laden marks the most significant achievement to date in our nation's effort to defeat al Qaeda… The United States is not – and never will be – at war with Islam. Our war is not against Islam. Bin Laden was not a Muslim leader; he was a mass murderer of Muslims. Indeed, al Qaeda has slaughtered scores of Muslims in many countries, including our own. **From a speech made by US President Barack Obama on 2 May 2011, announcing that Osama bin Laden had been killed.**

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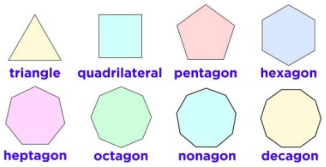
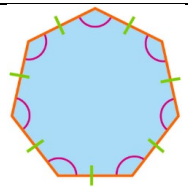
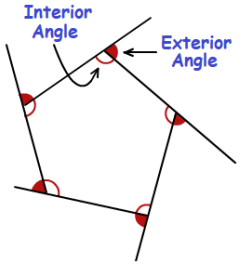
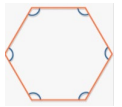
Knowledge Organiser: Year 8 Summer Term – Mathematics

1. Keyword	Definition	Example
a. Polygon	A flat or plane, two-dimensional closed shape with straight sides.	
b. Regular Polygon	Have equal side lengths and equal angles.	
c. Irregular Polygon	Side lengths and angles are different.	
d. Interior angle	An angle formed inside a polygon where two sides meet.	
e. Exterior angle	The angle formed outside the polygon. The sum of the interior and exterior angle is 180°.	
f. Formula for interior angles	Sum of interior angles in a polygon.	x = sum of interior angles of a polygon $n = number\ of\ sides$ $x = (n-2) \times 180$
g. Formula for exterior angles	Sum of exterior angles of a regular polygon is 360°.	$x =$ *each exterior angle in a polygon* $n = number\ of\ sides$ $x = \frac{360}{n}$
Sparx Codes	M679 M393 M653 M298 M999	

2. Worked Example

a. What is the sum of the interior angles in a hexagon?

$(n-2) \times 180$



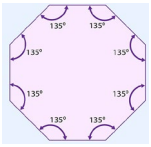
A hexagon has 6 sides

$(6-2) \times 180$

$(4) \times 180 = 720^{\circ}$

b. What is the interior angle of a regular octagon?

$(n-2) \times 180$



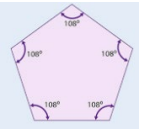
An Octagon has 8 sides

$(8-2) \times 180$

$(6) \times 180 = 1080^{\circ}$

$1080 \div 8 = 135^{\circ}$

c. Calculate the exterior angle of a regular pentagon.



$\frac{360}{n} = x^{\circ}$

A Pentagon has 5 sides

$\frac{360}{5} = 72^{\circ}$

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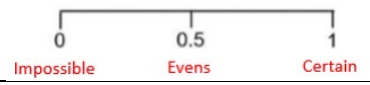
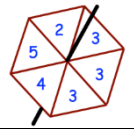
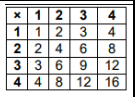
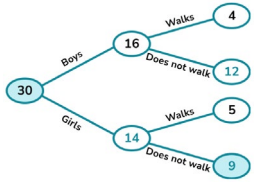
Knowledge Organiser: Year 8 Summer Term – Mathematics (Probability)

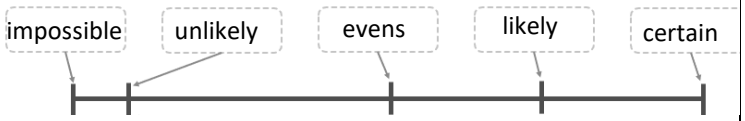
1. Keywords	Definition	Example
a. Probability scale	All probabilities must lie between 0 (impossible) and 1 (certain).	
b. Event	One or more outcomes of an experiment.	When flipping a coin the probability of getting tails is p(tails)
c. Chance	Used to describe the chance of something happening.	The probability of it raining this month is likely.
d. Probability	$\frac{number\ of\ outcomes\ that\ satisfy\ the\ event}{number\ of\ possible\ outcomes}$	 The probability of getting a 3 is $\frac{3}{6}=\frac{1}{2}$
e. Theoretical probability	A number between 0 and 1 of something occurring.	P(yellow) = $\frac{1}{5}$ or 20% or 0.2 
f. Experimental probability	An estimated probability based on the results of an experiment.	I survey 100 cars, 24 of them are blue. The experimental probability of the next car being blue is $\frac{24}{100}$
g. Independent event	When the probability of one event does not depend on the outcome of another event.	If I roll a 6 on a dice, the probability of rolling another 6 is still $\frac{1}{6}$.
h. Dependent event	An event that depends on the outcome of another event.	If you miss the bus, the probability of being late for school increases.
i. Sample space	A way of recording all the outcomes of two events.	The sample space diagram shows the different outcomes when a spinner with 4 sides are multiplied together. 
j. Frequency Tree	Frequency trees **show the actual frequency of different events.** They can show the same data as a two-way table, but frequency trees are clearer.	
Sparx Independent Learning		M655 M941 M938 M755 M206 M718

2. Worked examples

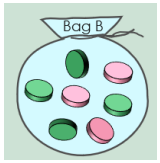
a. Place these words on the probability scale

Impossible, certain, evens, likely, unlikely

Answers



b. Work out the probability of selecting pink in the bag below:

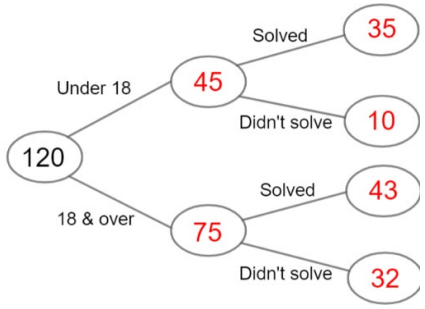


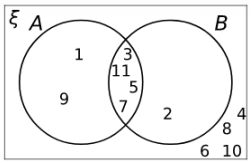
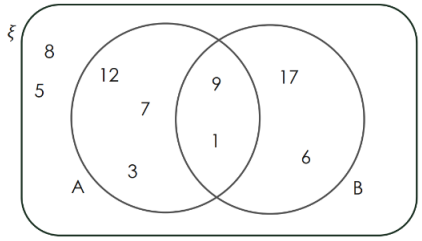
Answer= $\frac{three\ pink\ counters}{7\ counters\ altogether}=\frac{3}{7}$

c. Place the information below into a frequency tree.

120 students were given a 3 minute puzzle to solve.
45 students who tried were under 18 years old.
78 people solved the puzzle
32 people aged 18 and over did not solve the puzzle.

Answer



1.Keyword	Definition	Example
a. Venn Diagrams	The relationship between a group of different things and how they overlap.	
b. Universal Set ξ	ξ means the 'universal set' (all the values to consider in the question).	ξ = integers less than 10 1, 2, 3, 4, 5, 6, 7, 8, 9,
c. Intersection ∩	A ∩ B means the parts that belong to A and B	 • The numbers 9 and 1 are in the intersection • The numbers 12,7,3,9,1,17 and 6 are the union between set A and B. • The complement of A are 17, 6, 8, and 5
d. Union ∪	A ∪ B means both A and B	
e. Complement '	A' means 'not in set A' (called complement).	
f. AND rule for Probability	When two events, A and B, are independent: P(A and B) = P(A) x P(B)	What is the probability of rolling a 4 and flipping a Tails? $P(4\ and\ Tails) = P(4) \times P(Tails) = \frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$
g. OR rule for Probability	When two events, A and B, are mutually exclusive: P(A or B) = P(A) + P(B	What is the probability of rolling a 2 or rolling a 5? $P(2\ or\ 5) = P(2) + P(5) = \frac{1}{6} + \frac{1}{6} = \frac{1}{3}$
Sparx Independent Learning		M829 M419 M834

2. Worked examples

a. ξ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16}
A = multiples of 3
B = multiples of 5

i. Complete the Venn diagram to show this information.

ii. A number is chosen at random from the universal set, ξ , find the probability that this number is in the set A ∩ B

Answer

i. *Write all the number in set A multiples of 3*

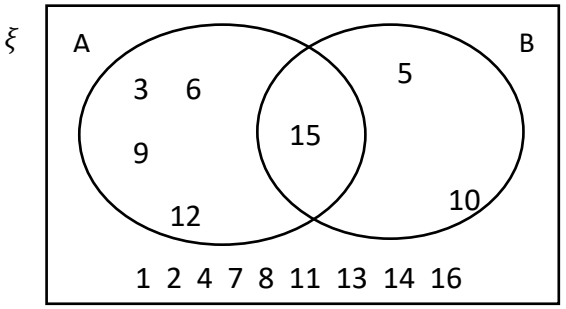
$\{3,6,9,12,\mathbf{15},\}$

Write all the multiples in set B

$\{5,10,\mathbf{15}\}$

A ∩ B = 15

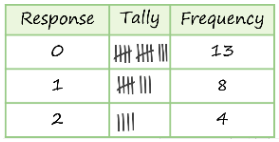
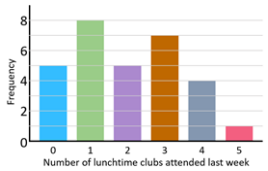
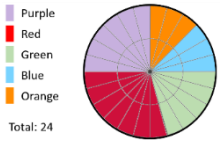
The remaining numbers in the set appear in the rectangle but not in the circles.



ii. Write down P (A ∩ B) = $\frac{1}{15}$

The Bourne Academy

Knowledge Organiser: Year 8 Summer Term – Mathematics (Univariate Data)

1. Keywords	Definition	Example
a. Quantitative data	To do with amounts; easily measured or counted, eg. amounts of items, values, etc.	Number of trees, distance travelled
b. Qualitative data	Data collected, concerning opinions, feelings, attitudes, or sensory observations.	Eye colour, car colour, mood
c. Discrete data	Information measured in units that cannot be split.	Shoe sizes, number of pets,
d. Continuous data	Numerical data that can take any value within a given range.	Height, mass, time.
e. Mean	The "central" value of a set of numbers.	What is the mean of 2, 7 and 9? 2 + 7 + 9 = 18 mean = 18 ÷ 3 mean= 6
f. Mode	The mode is the value that occurs most often.	1,2,2,2,3,4,8,10 The mode is 2.
g. Median	The middle value when a list of values are put in size order.	10, 11, 13, 15, 16 The median of this list of numbers is 13
h. Frequency Table/ Tally chart	A table used for counting and comparing.	
i. Bar charts	Used to compare discrete data. It is a graph drawn using rectangular bars to show how large each value is.	
j. Pie Charts	Used to represent groups of data by being divided into sectors, where each sector shows the relative size of each value.	
Sparx Independent Learning	M460 M738 M574 M165 M140 M183 M328 M934 M841 M940	

2.Worked Examples

a. For each of the following state whether the data collected would be qualitative or quantitative.

i. What is your favourite season?

ii. How many minutes does it take you to get to school?

iii. How long did you spend doing your homework yesterday?

iv. What is your favourite film?

Answers

i. qualitative iii. quantitative

ii. quantitative iv. qualitative.

b. Which response has the highest frequency?

Response	Tally	Frequency
Maths		3
English	𝍸 ||||	
Science	𝍸 |	
History		10
Computing		

Answer: *First complete the table*

Response	Tally	Frequency
Maths	|||	3
English	𝍸 ||||	9
Science	𝍸 |	6
History	𝍸 𝍸	10
Computing	||	2

Then identify the response with the highest frequency which is History

c. Decide whether each of the statements below are true or false

i. 5, 3, 5, 4, 3, 5 The mode is 5

ii. 4, 3, 9, 5, 3 The median is 9

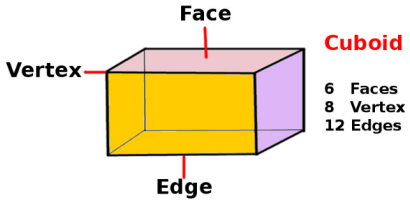
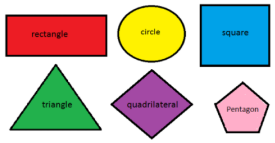
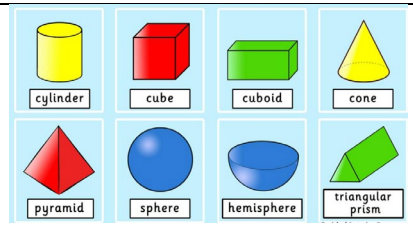
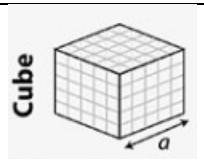
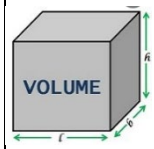
iii. 10, 3, 1, 5, 4 The range is from 6

iv. 4, 3, 1, 4 The mean is 3

Answers: *i. True ii. False iii. False iv. False*

Knowledge Organiser: Year 8 Summer Term – Mathematics (Volume and Surface Area)

1.Keywords

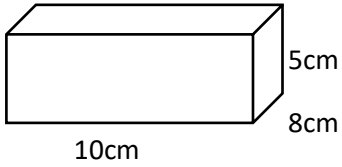
Keyword	Definition	Example
a. Face	Any of the individual flat surfaces of a solid object.	
b. Edge	A line segment on the boundary joining one vertex (corner point) to another.	
c. Vertex	Any corner point where two lines meet on a 2D or 3D shape	
d. 2D shapes	2D shapes have only 2 dimensions and are flat.	
e. 3D Shapes	3D shapes are solid shapes or objects that have three dimensions (which are length, width, and height). 3D shapes are **faces, edges, and vertices.**	
f. Surface Area	The size of a 2-dimensional surface enclosed within a boundary	Units^2 
g. Volume	The amount of space that an object takes up or contains	Units^3 
Sparx Codes	M765 M722 M697 M884 M534 M661 M936	

2. Worked examples

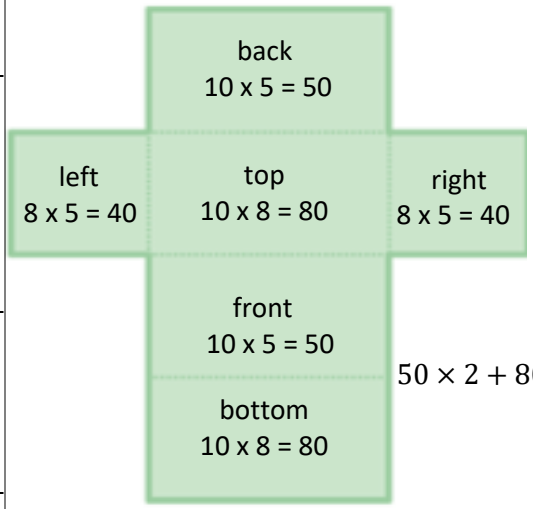
The diagram shows a cuboid of dimensions $10cm \times 8cm \times 5cm$.

a. Work out the volume
b. Work out the total surface area of the cuboid.

State the units with your answer.



a. The volume of a cuboid is
Length x width x height
$10 \times 8 \times 5 = 400cm^3$



b. To work out the **surface area** of a cuboid you must calculate the area of each of the faces.

You can do this by drawing a net of the cuboid to create a 2D shape.

The total surface area will be:

$50 \times 2 + 80 \times 2 + 40 \times 2 = total\ surface\ area$

$100 + 160 + 80 = 340cm^2$

The Bourne Academy

Bourne Scholars Knowledge Organiser: Year 8 Summer Term – Mathematics

1. Mathematical Vocabulary

Define each of the words given.
Give an example for each.

a. Chiliagon
b. Stratified sample
c. Subset

2. Mathematician Research

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

Alan Turing

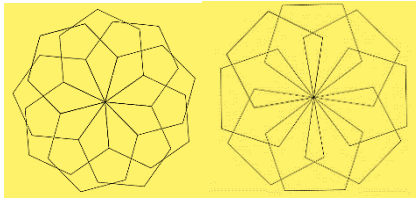
3. Watch

BBC Magic Numbers Mysterious World of Maths 3of3 720p HDTV x264 AAC MVGroup org - YouTube (59 mins 2 secs)

4. Thinking Mathematically

a. Polygon Pictures

Here are some examples of pictures made by taking a regular polygon and rotating it by a fixed angle about one of its vertices.

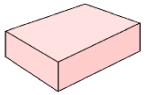


Can you work out the polygon used and the angle of rotation in each picture?

How many other angles in each picture can you calculate?

Create your own polygon picture.

b. Cuboids



i. Find a cuboid (with edges as integer lengths) that has a surface area of exactly 100 square units.
ii. Is there more than one cuboid with a surface area of 100 square units?
iii. Can you find them all?
iv. Can you provide a convincing argument that you have found them all?
v. Repeat for 200 square units.
vi. Repeat for 300 square units.
vii. Are there any similarities between them?

c. Chances Are

Here are five competitions you could enter.
Which one offers you the best chance of winning?

i. You win a prize if a fair coin is flipped 4 times. You get heads at least 3 times in a row.
ii. You win a prize if you flip a fair coin and get twelve heads in a row.
iii. Our gardener has ranked her seven favourite plants in order. If you rank them in the same order, you win.
iv. Choose the top 4 from 10 famous pictures and put them in the correct order to win.
v. Throw five fair dice and get five sixes to win the first prize.
vi. You throw four ten-sided dice and win first prize if you get four sixes.
vii. In a room of 100 pupils, 2 people with the same birthday.
viii. 3 tiles with the letter X on them and 3 tiles with the letter O on them are placed in a row. When the tiles are placed in a random order from left to right, two adjacent tiles will have the same letter on them.

5. Short Problems

a. In Tom's pocket there are 8 watermelon jelly babies, 4 vanilla jelly babies and 4 butter popcorn jelly babies. What is the smallest number of jelly babies he must take out of his pocket to be certain that he takes at least one of each flavour?
b. At Kaynem Daly High School, the Maths Club has 15 members, and the Science Club has 12. If a total of 13 students belong to only one of the two clubs, how many belong to both clubs.
c. Convince yourself that when you roll two dice you are more likely to score 9 than 10 when you sum their values. If I roll 3 dice, which is more likely, a total score of 9, or a total score of 10? What is the least likely score? What is the most likely score?
d. The faces of a cuboid have areas of 12, 18 and 24 square centimetres. What is the volume of the cuboid? Is it possible to have a triangular prism with the same volume and surface area?

1. Keywords and definitions

a. Motif	A short musical idea, melody or rhythm.
b. Riff/Ostinato	Short, repeated musical patterns often used in solo.
c. Chords	2 or more notes played at the same time.
d. Root Note	The note at the bottom of the chord and usually the chord name.
e. Octave	8 notes away from the current note you are playing. For example the note of C then find another C, 8 notes away – that is an octave higher than the last note you played.
f. Tempo	The speed of the music.
g. Improvisation	Music created 'on the spot' (previously unprepared performance)
h. Seventh Chord	A **TRIAD** (root, third and fifth) with a fourth note added which is seven notes about the root/tonic. **C7** = C , E, G (triad) + **B flat**.

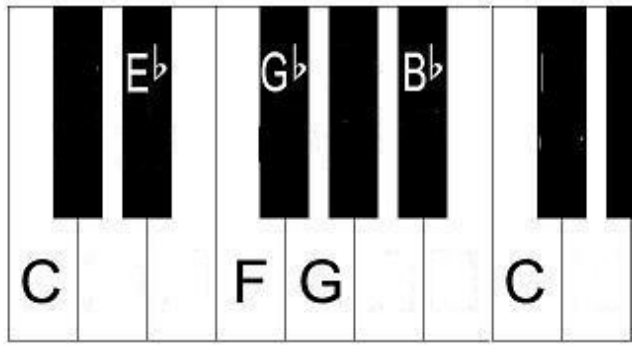
2. Blues chord sequence

This Blues chord sequence is called a 12 bar blues. It lasts for 12 bars in total.

C/// **CHORD I**	C/// **CHORD I**	C/// **CHORD I**	C/// **CHORD I**
F/// **CHORD IV**	F/// **CHORD IV**	C/// **CHORD I**	C/// **CHORD I**
G/// **CHORD V**	F/// **CHORD IV**	C/// **CHORD I**	C/// **CHORD I**

3. Blues Scale

A scale is a set of notes that can be used within a composition. A Blues Scale include flats (b) which make the music sound Blues.



4. Rhythm

Offbeat rhythms – Rhythms that emphasise or stress the weak beats of the bar. In music that is in 4/4 time, the first beat of the bar is the strongest, the third beat is the next strongest and the second and fourth beats are weaker. Emphasising the second and fourth beats of the bar gives a "missing beat feel" to the rhythm and makes the music sound offbeat, often emphasised by the bass drum or a rim shot (hitting the edge of a snare drum) in much Reggae music.

ONBEAT RHYTHM GRID

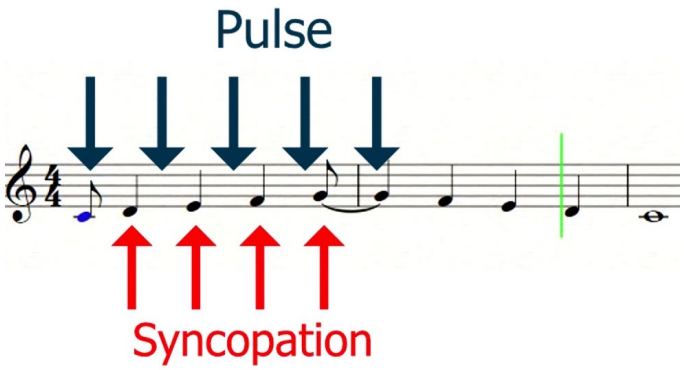
Pulse/ Beat	1	2	3	4	1	2	3	4
"Onbeat" rhythms (strong beats)	♩	𝄽	♩	𝄽	♩	𝄽	♩	𝄽

OFFBEAT RHYTHM GRID

Pulse/ Beat	1	2	3	4	1	2	3	4
"Offbeat" rhythms (weak beats)	𝄽	♩	𝄽	♩	𝄽	♩	𝄽	♩

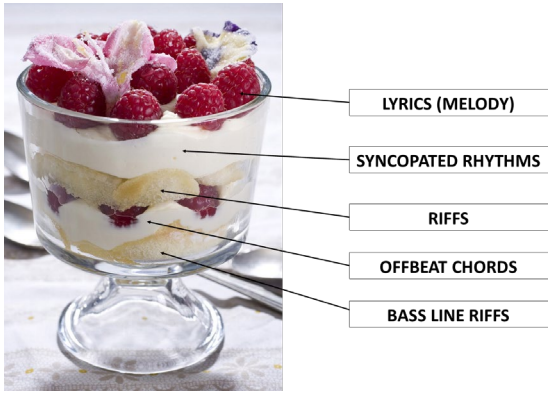
5. Syncopation

Syncopation – A way of changing a rhythm by making some notes a bit early, often so they cross over the main beat of the music giving the music a further offbeat feel – another common feature of Reggae music.



6. Texture

Texture describes the layers of instruments in the music. The more lines of music at the same time, the thicker the texture.



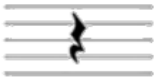
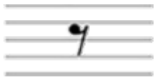
1. Note durations

A note duration means how long a note lasts for when you play it on an instrument.
The basics of notation (written music) shows you the notes pitch (specific note i.e. A or E) and the notes duration (how long it is played for). The chart below shows you the basic note durations and how many beats they are held for.

Note Name	Word	Symbol	Note Duration
Semibreve	Food		4 beats
Minim	Tea		2 beats
Crotchet	Chips		1 beat
Quaver	Bur		½ a beat
Pair of Quavers	Bur-ger		2x½ beat = 1 beat

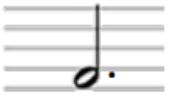
2. Rests

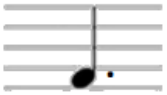
A rest is a note duration of silence. The diagram on the right shows new symbols but instead of a pitched note, this is a period of silence in the music.
They use the same duration names as a pitched note, i.e. minim, but you would call it a 'minim rest'.

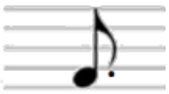
Rest	Name
	Semibreve
	Minim
	Crotchet
	Quaver

3. Dotted notes

If a dot is added to a note (or rest), add on half of what the note is already worth:

 3 beats *2 (+1)

 1 ½ beats *1 (+ 1/2)

 ¾ beat *1/2 (+ 1/4)

Knowledge Organiser: Year 8 Summer Term – Physical Education (Components of Fitness)

[1] Health-Related Components of Fitness	
Cardiovascular Endurance	The ability to perform longer periods of exercise at higher intensity.
Flexibility	The range of movement that you can have around a joint.
Muscular Endurance	The ability to repeatedly use muscles for long periods of time before fatigue.
Muscular Strength	The maximal amount of force against a resistance that a muscle or muscle group can exert in one contraction.
Body Composition	The distribution of fat mass and muscle mass an individual has in the body.

Fitness is the ability to cope with the demands of the environment/activity without suffering fatigue.

[2] Skill-Related Components of Fitness	
Agility	The ability to control the movement of the body or a part of the body to be able to change your body position quickly.
Balance	The ability to keep your centre of mass over a base of support.
Coordination	The ability to use two or more body parts together.
Power	Power acts as the foundation for dynamic movement and generates rapid force. Power = Strength x Speed
Speed	The maximum rate at which an individual is able to perform a movement or cover a distance in a period of time.
Reaction Time	The time it takes a performer to move in response to a stimulus.

[3] Striking and Fielding Technique	
Throwing	**Stance:** • Stand upright, facing sideways to your target. • Make sure your feet are shoulder-width apart. • Lift your non-throwing arm to "point" at your target and shift your weight to your back foot. • Start with the ball near to your ear. **Movement:** • Shift your weight to your front foot. • Drop your pointing arm and twist your torso.
Catching	**Orthodox Cup**  Hands in bucket shape with pinky fingers together. **Reverse Cup**  Hands in web shape with thumbs and index fingers interlocked.
Striking	• Face sideways to your target with feet shoulder-width apart. • Grip the bat firmly and correctly depending on the sport. • Always keep your eyes on the ball. • Shift your weight forward as you swing the bat. • Focus on technique and accuracy over power.

[4] Athletics Technique	
Long Distance Running	• Maintain a tall posture with your head up. • Avoid overstriding when running. • Relax the shoulders releasing any tension. • Find a rhythm to help control your breathing.
Sprinting	• Run tall and straight with body aligned. • Arms move front-to-back, not across the body. • Keep your elbows bent 90 degrees. • Run with a high knee lift generating power.
Long Jump	• Create as much speed as possible in approach. • Swing arms above the head during the flight. • Keep knees up during the flight. • Land with both feet together.
Shot Put	• Place the shot into your fingers and neck. • Keep the elbow high and away from the body. • Push from a low position to a high position. • Shift weight forward as you push.
Discus	• Spread fingers across the discus with fingertips over the lip. • Swing discus back with palm facing down. • Keep the arm 'long and relaxed' during swing.
Javelin	• Stand with feet shoulder width apart. • Hold the javelin back with an extended arm. • Drive the hips forward before the shoulders. • Pull javelin through with elbow close to ear.

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Bourne Scholars Knowledge Organiser: Year 8 Summer Term – Physical Education

1. Challenging Vocabulary:
Describe & explain

What? How? When? Who? Example?

a) What type of bone is the rib?
b) What type of bone is the patella?
c) What type of bone is the Femur?
d) What type of bone is in the lower leg?
e) What type of bone is the cranium?

2. Challenging Vocabulary:
Describe & explain

What? How? When? Who? Example?

a) What type of muscle is the heart?
b) What is the function of a tendon?
c) Name another type of muscle in the body?

3. Application of knowledge:
Explain your answer

- What are the skill related components of fitness?
- Give a definition of each…

4. Apply and Analyse:
Higher order thinking

- Choose an activity in any of the sports shown in the main knowledge organiser and describe the movement of a player in that activity.
- Why is technique important to be successful in these activities? Can you give an example from a sport you play or watch, of good technique?

5. Application of knowledge within specific sporting contexts:

a) Mike is 48 year old man who takes part in lots of cricket. He is a bowler. Explain muscles used when playing his sport?

b) Jamie is 31 year old PT instructor. He does activities to help with bad backs, which core muscles can he train and make stronger to help?

c) Emma is a 30 year old women, she does a park run on a Saturday. Explain how aerobic endurance helps her to run?

d) Jack is a 33 year old man who loves paddle boarding long distances. Explain which are his main paddling muscles? What exercise could he do to train them?

e) Katy is an athletics official for a local club. Explain her role and the scoring systems used in athletics?

The Bourne Academy

Knowledge Organiser: Year 8 Summer - Religious Studies

A. Key Words

1) Creation: Explanation of how the world was created

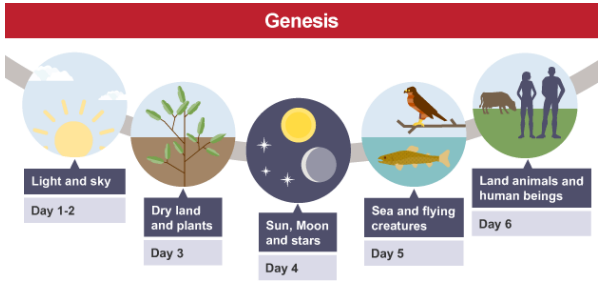
2) Evolution: Process by which different living creatures are believed to have developed from earlier, less complex forms.

3) Big Bang: Explosion which created the universe

4) Literal Christians: Belief – the Bible should be understood word for word

5) Liberal Christians: Belief – people should be free to understand the holy books how they choose.

6) Design Argument: William Paley suggested that the design which can be identified in the world suggests a designer



B. Christian Creation Story according to Genesis 1

God is the only creator.

God existed before he created the world.

The world was well planned and is sustained by God.

God blessed creation, which means that all creation is holy.

God created everything in Heaven and on Earth in six days.

On the seventh day, God rested.

C. William Paley's Watch Analogy

He suggested that if you were walking and found a watch, by accident, you would think that it must have been designed by a watch-maker.

In the same way, when looking at the world with its complex patterns and structures you would come to the conclusion that there must be a cosmic world maker, a designer God.

D. Islam

Allah is the Creator and Sustainer of life.

Muslims believe Allah created the heavens and the earths from formless matter over six long periods of time.

He created humans out of clay, moulding Adam and breathing life and power into him.

He took Adam to paradise and made for him a wife.

E. The Big Bang

About 13.8 billion years ago the whole Universe was a very small, extremely hot and dense region.

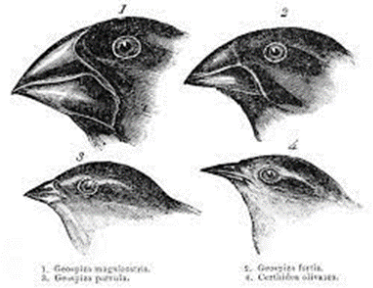
From this tiny point, the whole Universe expanded outwards to what exists today.

Evolution

Charles Darwin observed that although individuals in a species shared similarities, they were not exact copies of each other; there were small differences or variations between them.

He also noticed that everything in the natural world was in competition.

The winners were those that had characteristics which made them better adapted for survival



The Bourne Academy

Knowledge Organiser: Year 8 Summer - Religious Studies

A. Key Words

1) Afterlife: Life after death; the belief that existence continues after physical death

2) Soul: The spiritual aspect of a being; that which connects someone to God. The non-physical part that lives on after death, in the afterlife.

3) Dualism: belief we are made of two separate parts: a physical body and a spiritual body. The soul (spirit) lives in a physical body. The soul is the inner part of us, that lives on.

4) Materialism: View that nothing else exists apart from matter – there is no soul.

5) Ensoulment – moment when the human soul is said to enter the baby's body.

B. Christian attitudes towards life after death

1) Heaven: Heaven is described as eternity in the presence of God, as Heaven is a state of being rather than a physical place. Heaven is the ultimate aim for all Christians, for their soul to be reunited with God and united with Christ

2) Hell: Hell has traditionally been depicted as a place of eternal fire that symbolises pain and suffering. This is seen as the result of the refusal to accept the happiness that God wants people to share with him. Hell is the opposite of Heaven - it is eternity in the absence of God.

3) Purgatory: is the place where Roman Catholics believe the spirits of dead people are sent to suffer for their sins before they go to heaven.

C. Muslim attitudes

1) Akhirah: Is the word Muslims use to refer to life after death. Belief in an afterlife encourages Muslims to take responsibility for their actions. They know God will hold them accountable and reward or punish them accordingly.

2) Jannah: Muslims believe in the concept of Paradise (Jannah), which is where people go if they have lived a good life.

3) Jahannem: Hell is described as a place of fire and torment. Jahannam is a place of scorching fire pits and boiling water, a place of physical and spiritual suffering.

4) Barzakh: is a place of waiting, after death, before Judgement Day comes.

D. Humanist attitudes

Humanists reject the idea or belief in a supernatural being such as God. This means that humanist's class themselves as agnostic or atheist.

Humanists have no belief in an afterlife, and so they focus on seeking happiness in this life. They rely on science for the answers to questions such as creation, and base their moral and ethical decision-making on reason, empathy and compassion for others.

E. Buddhist attitudes

Buddhists believe that people live through lots of cycles of birth and rebirth. This means when you die, you will be born again into another life. This cycle is known as **samsara**. How good or bad the next life will be is decided by how well a person follows their duties on Earth. These duties are called their **dharma**.

Karma is a kind of cosmic judgement system: good actions collect good karma, which help to ensure an enjoyable and happy next life and bad actions collect bad karma, which will result in a future life that is not as positive or joyous.

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. Turn today's learning outcomes into questions

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

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

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

10. If today's lesson were an album or a newspaper heading, what would it be called? What songs would be on it?

11. Include three quotations / arguments to support your answer

12. Add a justified conclusion to your evaluative writing

Research Tasks

B. Life After Death

1) Research Descartes ides on the soul

2) Research different Christian ideas on the afterlife – what is judgement day?

3) Research different ideas on judgement day, does it happen straight away as in the parable of the Rich man and Lazarus or at a set time as in the parable of the Sheep and the Goats

4) Research other ideas on life after death

C. Creation

1) Research Charles Darwin on Evolution

2) Research Stephen Hawkins on the Big Bang

3) Research William Paley and intelligent design

4) Research the primordial soup theory in Islam

5) Who are 'old earth creationists'?

6) Who are 'new earth creationists'?

D. Wider Links Challenge

1) Use the internet to research life after death
2) Evaluate, 'is death the end?'
3) Evaluate, 'Is reincarnation the most convincing idea on the after life?
4) Describe the impact of today's learning on your wider outlook
5) Explain how you might use today's learning outside of school
6) Describe how today's learning relates to another of your subjects

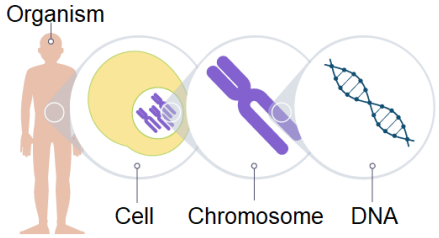
(1) Key Word	Definition
a) Consumer	An animal that eats other animals, or plants
b) Continuous variation	Differences between living things change gradually over a range of values, for example height, or weight.
c) Decomposer	Organism that breaks down dead plant and animal material, allowing nutrients to return to the soil.
d) Discontinuous variation	Differences between organisms can only be a limited number of values, for example sex, or eye colour.
e) DNA	A molecule found in the nucleus of a cell that carries genetic information
f) Ecosystem	The living things (plant, animal etc.) in a given area.
g) Environment	The surrounding air, water and soil where an organism lives.
h) Food chain	Part of a food web. It starts with a producer and ends with a consumer
i) Food web	Shows how food chains in an ecosystem are linked.
j) Gene	A section of DNA that determines an inherited characteristic
k) Inherited characteristics	Features that are passed from parents to their offspring
l) Species	A group of living things that have more in common with each other than with other groups.

(2) Variation

There is **variation** between individuals of the same species. Some variation is **inherited,** and some variation is caused by the **environment**. Variation is important for the survival of a species in a constantly changing environment.

(3) Chromosomes, DNA and genes

The nucleus of all cells (except red blood cells) contains structures called **chromosomes**. Chromosomes are made of long, tightly coiled strands of **DNA**.

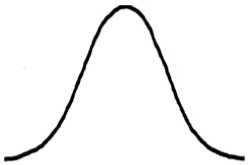


A gene is a section of DNA that is responsible for a particular characteristic, like eye colour. Humans have about 20, 000 genes.

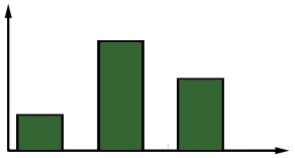
(4) Inherited Characteristics

Human body cells have 23 pairs of chromosomes, half of which are from each parent. Human gametes (sex cells) each contain 23 chromosomes. When fertilisation occurs, the fertilised egg becomes a cell with 23 pairs of chromosomes, half from each parent. This is how characteristics are passed to offspring.

(5) Continuous and discontinuous variation



Continuous variation varies over a range of values, for example weight, height, skin colour. Continuous variation often shows a smooth distribution curve.



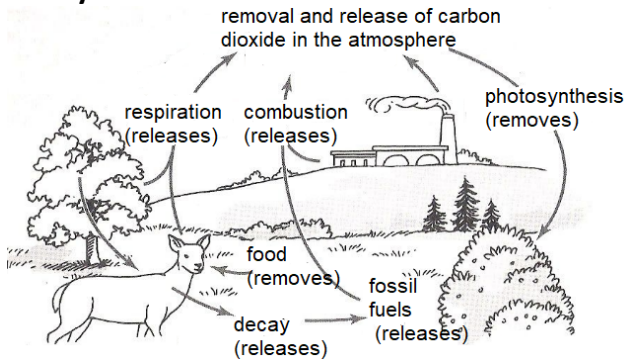
Discontinuous variation can only have certain values, for example tongue rolling, or blood type.

(1) Key Word	Definition
a) Atmosphere	The thin layer of gases that surround the planet
b) Carbon cycle	The processes that remove and release carbon into the atmosphere.
c) Climate	The average weather conditions over long periods and large areas.
d) Combustion	Burning in oxygen.
e) Electrolysis	Breaking apart a substance using electricity.
f) Extraction	Separating a metal from its ore.
g) Finite resource	Finite resources are non-renewable and will eventually run out.
h) Fossil fuels	Remains of dead organisms that are burned as fuel and release carbon dioxide.
i) Global warming	The gradual increase in the average temperature of the Earth.
j) Greenhouse Effect	Energy from the sun is transferred to the gases in the atmosphere
k) Natural resources	Materials that occur naturally (for example wood), that we can make use of.
l) Recycling	Processing materials, so that we can use them again.

(2) Composition of the Atmosphere

Earth's atmosphere contains 78% nitrogen (N_2), 21% oxygen (O_2) and less than 1% carbon dioxide (CO_2) and other gases.

(3) The Carbon Cycle



- Photosynthesis and consuming food remove carbon from the atmosphere.
- Respiration, combustion and decay releases carbon into the atmosphere.

(4) Global Warming and the Greenhouse Effect

Greenhouse gases like CO_2 help to keep the planet warm by absorbing IR radiation and scattering it back to the Earth's surface.

Unfortunately, the levels of CO_2 in the atmosphere have increased, and now much more IR radiation is absorbed and scattered back to Earth. This has led to 'global warming' – an average increase in temperature on the surface of the planet.

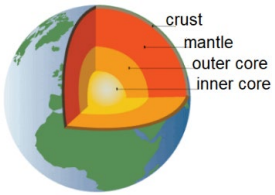
(5) Recycling and Reusing

Recycling materials, such as metals uses less of the Earth's limited resources. It takes less energy to recycle metal than to extract it, so less carbon dioxide is released into the atmosphere. Less rubbish is sent to landfill as well, which means that less methane (CH_4) is released into the atmosphere.

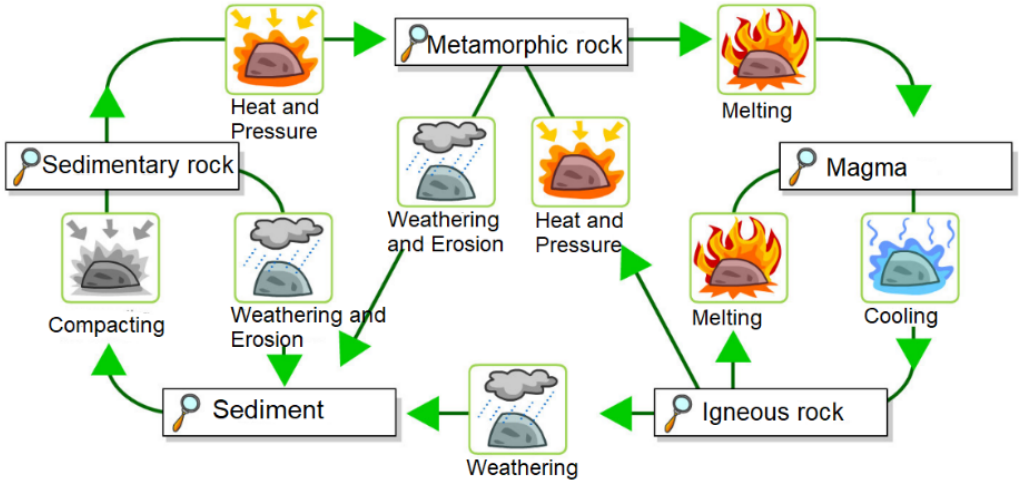
(1) Key Word	Definition
a) Erosion	The movement of rock by water, ice or wind
b) Igneous rocks	Formed from cooled magma
c) Metamorphic rocks	Formed from existing rocks which have been exposed to heat and pressure for a long time.
d) Minerals	The chemicals that rocks are made from.
e) Rock cycle	The processes that change rocks from one type to another
f) Sediment	Small fragments of rock and soil that form layers.
g) Sedimentary rocks	Rocks formed from layers of sediment - they may contain fossils.
h) Strata	Layers of sedimentary rocks
i) Weathering	Wearing down of rocks by weather, or chemical processes

(2) Composition of the Earth

- The **crust** is a hard, thin, rocky layer.
- The **mantle** has some of the properties of a solid but can flow very slowly.
- The **core** is made of liquid iron and nickel. It produces the Earth's magnetic field.



(3) The Rock Cycle



The rock cycle involves changing the three types of rock (igneous, sedimentary and metamorphic) from one to another.

- Igneous rocks are broken down by weathering into sediment, and then compressed by heat and pressure into metamorphic rocks (metamorphic means that there has been a chemical change).
- Metamorphic rocks are deep under the earth and can eventually melt to become magma.
- Magma erupts from volcanoes and cools down to form igneous rock.

The rock cycle is a continuous process that takes millions of years to complete, and never stops.

Weather and other processes break rocks down and build them up into new forms.

(1) Key Word	Definition
a) Artificial satellite	An object, such as a communication satellite
b) Day	The time it takes for the Earth to turn once on its axis
c) Light year	The distance light travels in a year (over 9 million, million km)
d) Orbit	The path taken by a satellite, planet, or star as it moves around a larger body.
e) Satellite	Any object that is in orbit around a larger body
f) Stars	Bodies which emit (give out) light, and which may have a solar system of planets.
g) Weight	The force acting on an object due to the gravitational field strength (GPS) of a large body like the Earth, or the Sun.
h) Year	The time it takes for a planet to make a complete orbit around the sun

(2) Gravity and the Universe

The Sun is a star at the center of our Solar System. Its gravitational field holds the planets in orbit around it. The more mass an object has, the stronger its gravitational field.

The Sun is one of millions of stars in the Milky Way – our galaxy. All the stars in the Milky Way are held together by gravitational forces.

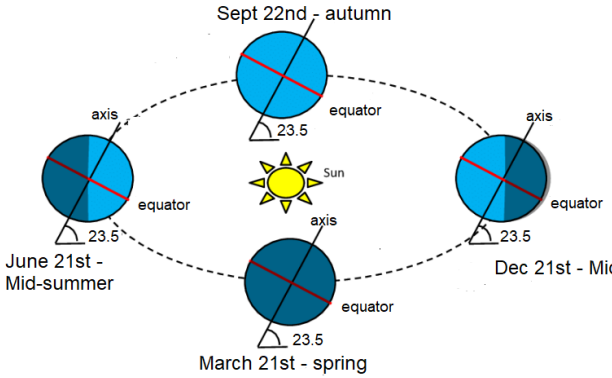
(3) Gravity and Weight – Revision

W (N) = mass (kg) x g (N/kg)

On Earth, gravitational field strength is 10 N/kg

(4) The rotation of the Earth on its axis

The Earth takes 24 hours to complete one rotation on its axis. The Earth has a tilt on its axis which causes the seasons.
In the summer, the northern hemisphere (half of the Earth) is tilted towards the sun but in the winter, it is tilted away from the



In summer…
The Earth spends more time in sunlight.
More sunlight is focused on a smaller area
Warmer, longer days

In winter…
The Earth spends less time in sunlight.
Less sunlight is focused on a larger area.
Colder, shorter days

(5) Light travels at 300, 000 km/s but it takes over 8 minutes for light to travel from the Sun to the Earth. We measure distances in space in 'light years' – the distance light can travel in one year (9.46 trillion km). Space is huge!

(1) Key Word	Match the Definitions to Key Words
a) Consumer	A section of DNA that determines an inherited characteristic
b) Continuous variation	Part of a food web. It starts with a producer and ends with a consumer
c) Decomposer	The surrounding air, water and soil where an organism lives.
d) Discontinuous variation	Differences between organisms can only be a limited number of values, for example sex, or eye colour.
e) DNA	The living things (plant, animal etc.) in a given area.
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g) Environment	A group of living things that have more in common with each other than with other groups.
h) Food chain	A molecule found in the nucleus of a cell that carries genetic information
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k) Inherited characteristics	Differences between living things change gradually over a range of values, for example height, or weight.
l) Species	Shows how food chains in an ecosystem are linked.
m) Variation	An animal that eats other animals, or plants

(2) Variation

a) State the different types of variation.

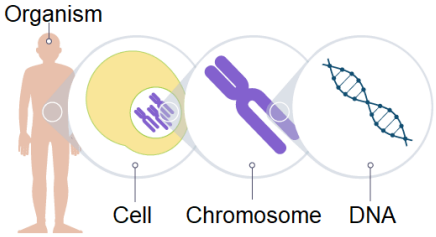
b) Give an example of the different types of variation

c) How can identical twins show variation? What type of variation is this?

(3) Chromosomes, DNA and genes

a) Give the definition of chromosome.

b) How many pairs of chromosomes are in each human cell?



c) How many pairs of chromosomes are in gamete cells?

d) State the definition of gene and describe how it is different from a chromosome

(4) Inherited Characteristics

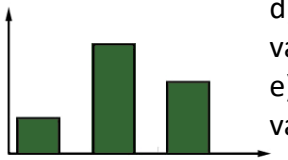
a) Where do organisms inherit their chromosomes from?

b) How many do they inherit?

c) How does inheritance of genes give rise to variation?

d) Give an example of 4 inherited characteristics.

(5) Continuous and discontinuous variation



a) State the definition of continuous variation.

b) Give 3 examples of continuous variation.

c)Describe how to record continuous variation.

d) State the definition of discontinuous variation.

e) Give 3 examples of discontinuous variation.

(1) Key Word	Match the Definitions to Key Words
a) Atmosphere	The gradual increase in the average temperature of the Earth.
b) Carbon cycle	Materials that occur naturally (for example wood), that we can make use of.
c) Climate	Remains of dead organisms that are burned as fuel and release carbon dioxide.
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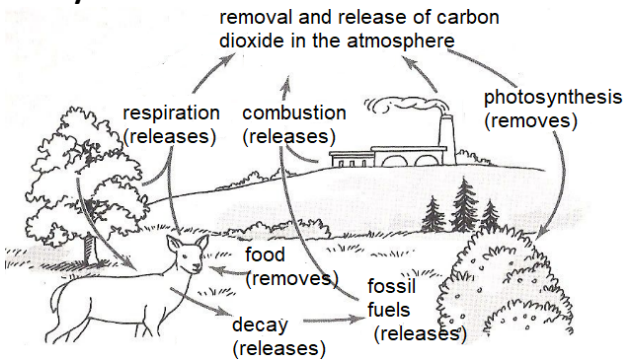
k) Natural resources	The thin layer of gases that surround the planet
l) Recycling	Energy from the sun is transferred to the gases in the atmosphere

(2) Composition of the Atmosphere

a) What is the percentage composition of oxygen in our atmosphere?

b) During the early years of the earth there was a lot of volcanic activity and very little plants or animals.
Describe how you think the composition of oxygen in our atmosphere has changed over time.

(3) The Carbon Cycle



a) Describe the ways in which carbon is removed from the atmosphere.
b) Describe the ways in which carbon is put into the atmosphere.
c) Too much carbon in the atmosphere can be dangerous for life on earth. Explain why, include the name of the gas containing carbon.

(4) Global Warming and the Greenhouse Effect

a) Draw and label a diagram depicting the process of the greenhouse effect.
b) Why is the greenhouse effect important for life on earth?
c) Explain what is meant by the term global warming.
d) Describe the ways in which humans are impacting the rate of global warming.

(5) Recycling and Reusing

a) What is a benefit of recycling in t rth's resources?
b) What is a benefit of recycling in terms of global warming?
c) Why is it important to recycle now for the benefit of future generations?
d) Find and write the definition for sustainable development.
e) How is reusing different to recycling?

(1) Key Word	Match the Definitions to Key Words
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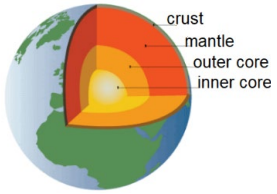
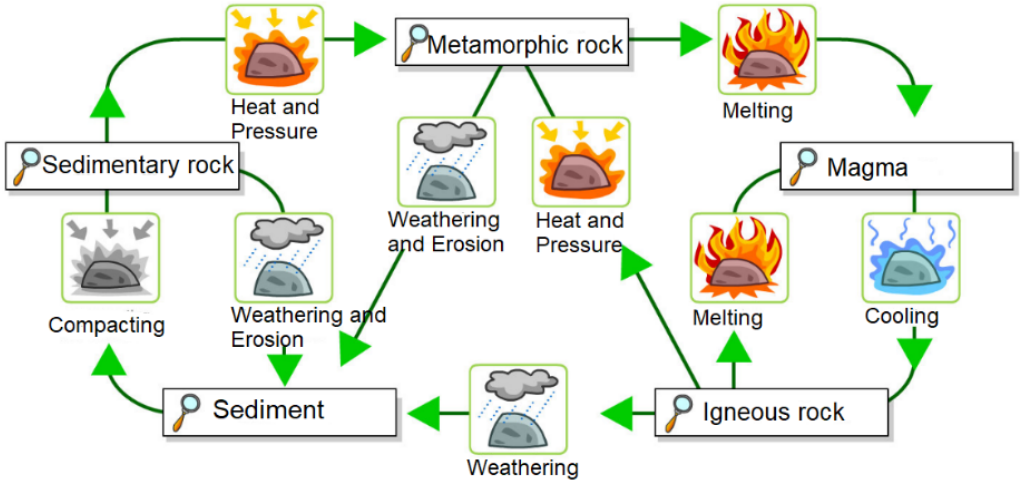
f) Sediment	The movement of rock by water, ice or wind
g) Sedimentary rocks	Formed from existing rocks which have been exposed to heat and pressure for a long time.
h) Strata	Formed from cooled magma
i) Weathering	The chemicals that rocks are made from.

(2) Composition of the Earth

a) Describe the composition of the earth. (Include what each layer is made up of).
b) The mantle is a liquid, although it has some properties of a solid. Why is it considered to be a liquid?
c) Describe what produces the earth's magnetic field?



(3) The Rock Cycle



a) State the 3 types of rock.

b) Explain how each type of rock is formed.

c) Rocks are a good way of understanding the properties of the earth from millions of years ago. Explain how.

d) Describe the process of weathering.

e) Costal areas, for example Kent and Dorset, have cliffs made from chalk. Costal erosion is happening at a rate of 0.4 meters per year. Explain what local councils can do to reduce the rate of costal erosion and why it is important to do so.

f) Explain how burning fossil fuels increase the rate of weathering?

g) Describe ways in which the rates of weathering can be reduced.

(1) Key Word	Match the Definitions to the Key Words
a) Artificial satellite	The path taken by a satellite, planet, or star as it moves around a larger body.
b) Day	The force acting on an object due to the gravitational field strength (GPS) of a large body like the Earth, or the Sun.
c) Light year	Any object that is in orbit around a larger body
d) Orbit	An object, such as a communication satellite
e) Satellite	The time it takes for a planet to make a complete orbit around the sun
f) Stars	The distance light travels in a year (over 9 million, million km)
g) Weight	The time it takes for the Earth to turn once on its axis
h) Year	Bodies which emit (give out) light, and which may have a solar system of planets.

(2) Gravity and the Universe

a) Compare the relative gravitational field strength of earth and Jupiter.

b) Name the planets in order from the sun.

c) How would the gravitational field strength of the sun change the further away you get?

(3) Gravity and Weight – Revision

a) Recall the equation to calculate weight.

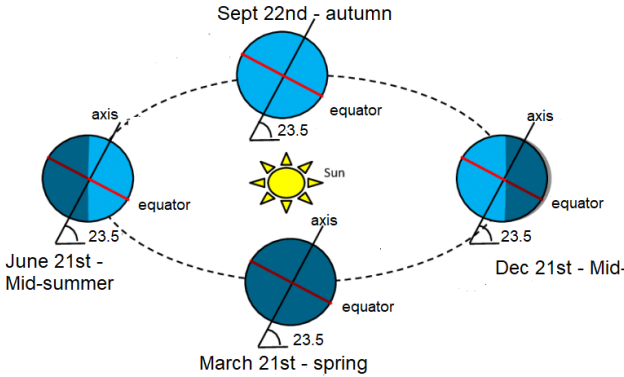
b) Calculate the weight of an object on earth with a mass of 40 kg

c) Calculate the mass of an object on earth with a weight of 2300 N.

(4) The rotation of the Earth on its axis

a) If the northern hemisphere of the earth was pointing towards the sun, what is the season? Explain why.

b) How many rotations on its axis will the earth make in 2 years? Explain your answer.



c) Explain the difference in the earth tilt, relative time in sunlight, temperature and length of day in the summer and the winter. What causes the difference?

d) Planets and moons are not the only type of satellite. State the definition for artificial satellite and give an example.

(5) Speed of Light

a) Give the value for the speed of light and provide the units.

b) Recall the equation to calculate speed.

c) A planet emits a light from the surface. It takes 60 days for the light to travel to earth. How far away is the planet?

The Bourne Academy

Knowledge Organiser: Year 8 Summer Term - Spanish

	Unit 8: Describing my street				
a	¿Qué hay en tu calle?	*What is there on your street?*	**aa**	a la derecha	*on the right*
b	¿Dónde está tu casa?	*Where is your house?*	**ab**	a la izquierda	*on the left*
c	¿Qué sitios hay en tu barrio?	*What places are there in your neighbourhood?*	**ac**	al lado	*next to*
d	En mi calle hay…	*In my street there is…*	**ad**	cerca	*near*
e	Cerca de mi casa hay…	*Near my house there is…*	**ae**	delante	*in front*
f	…un aparcamiento	*…a carpark*	**af**	detrás	*behind*
g	…un campo de fútbol	*…a football pitch*	**ag**	enfrente	*in front*
h	…un centro comercial	*…a shopping centre*	**ah**	en la esquina	*on the corner*
i	…un edificio	*…a building*	**ai**	lejos	*far*
j	…un polideportivo	*…a leisure centre*	**aj**	a diez minutos a pie	*ten minutes on foot*
k	…un parque pequeño	*…a small park*	**ak**	a diez minutos en coche	*ten minutes by car*
l	…un restaurante chino	*…a Chinese restaurant*	**al**	de la biblioteca	*to/from the library*
m	…un supermercado	*…a supermarket*	**am**	de la carnicería	*to/from the butcher*
n	…un teatro	*…a theatre*	**an**	de la panadería	*to/from the bakery*
o	…una tienda de ropa	*…a clothes shop*	**ao**	de la piscina	*to/from the swimming pool*
p	…una biblioteca	*…a library*	**ap**	de la tienda de música	*to/from the music shop*
q	…una carnicería	*…a butcher*	**aq**	del campo de fútbol	*to/from the football pitch*
r	…una estación de tren	*…a train station*	**ar**	del centro commercial	*to/from the shopping centre*
s	…una iglesia	*…a church*	**as**	del colegio	*to/from the school*
t	…una mezquita	*…a mosque*	**at**	del estadio	*to/from the stadium*
u	…una panadería	*…a bakery*	**au**	del museo	*to/from the museum*
v	…una piscina municipal	*…a local pool*	**av**	del parque	*to/from the park*
w	…una sinagoga	*…a synagogue*	**aw**	al final de la calle	*at the end of the Street*
x	…una zapatería	*…a shoe shop*	**ax**	entre el cine y la piscina	*between the cinema and the pool*
y	Mi casa está…	*My house is (+location)*	**ay**	no hay ningún polideportivo	*there aren't any leisure centres*
z	Mi edificio está	*My building is (+location)*	**az**	no hay ninguna tienda buena	*there aren't any good shops*
			ba	cerca de donde vivo	*near to where I ive*

bb	en barrio	*in my neighbourhood*	y	un sótano	*a basement*
bc	por aquí	*around here*	z	un garaje	*a garage*
Unit 9: Describing my home and furniture			aa	un jardín	*a garden*
a	¿Cuántas habitaciones hay en tu casa?	*How many rooms are in your house?*	ab	me gusta mi casa porque	*I like my house because*
b	¿Te gusta tu casa? ¿Por qué?	*Do you like your house? Why?*	ac	no me gusta mi casa porque	*I don't like my house because*
c	¿Qué hay en la cocina / el salón?	*What is there in your kitchen?*	ad	es acogedor(a)	*it is cosy*
d	Vivo en una casa	*I live in a house…*	ae	es antiguo/a	*it is old*
e	Vivo en un piso	*I live in a flat…*	af	es bonito/a	*it is pretty/nice*
f	Vivo en un edificio	*I live in a building…*	ag	es feo/a	*it is ugly*
g	en el campo	*…in the countryside*	ah	es espacioso/a	*it is spacious*
h	en el centro de la ciudad	*…in the centre of the city*	ai	es grande	*it is big*
i	en la costa	*…on the coast*	aj	es luminoso/a	*it is well lit*
j	en la montaña	*…in the mountains*	ak	es pequeño/a	*it is small*
k	en las afueras	*…on the outskirts*	al	está bien amueblado/a	*it is well furnished*
l	En mi casa hay…	*In my house there is…*	am	está limpio/a	*it is clean*
m	…cinco habitaciones	*…five rooms*	an	está sucio/a	*it is dirty*
n	por ejemplo	*for example*	ao	En la cocina hay	*In the kitchen there is*
o	como	*like*	ap	un horno	*an oven*
p	el dormitorio de mis padres	*my parents' bedroom*	aq	un lavaplatos	*a dishwasher*
q	mi dormitorio	*my bedroom*	ar	una despensa	*a pantry*
r	una cocina	*a kitchen*	as	una mesa	*a table*
s	una sala de juegos	*a gameroom*	at	una nevera	*a fridge*
t	un comedor	*a dining room*	au	una silla	*a chair*
u	un cuarto de baño	*a bathroom*	av	En el salón hay	*In the living room there is*
v	un salón	*a living room*	aw	un sillón	*an armchair*
w	también hay	*there is also*	ax	un sofá	*a sofa*
x	un desván	*an attic*	ay	una alfombra	*a rug*

az	una mesita	*a coffee table*
ba	En mi dormitorio hay	*In my bedroom there is*
bb	un armario	*a wardrobe*
bc	un escritorio	*a desk*
bd	una cama	*a bed*
be	un espejo	*a mirror*
bf	un ordenador	*a computer*
bg	estantería	*a bookshelf*
bh	cortinas	*curtains*

Unit 10: Saying what I did my neighbourhood

a	¿Adónde fuiste el fin de semana pasado?	*Where did you go last weekend?*
b	¿Con quién fuiste?	*With whom did you go?*
c	¿Qué hiciste el sábado?	*What did you do on Saturday?*
d	Anteayer…	*The day before yesterday…*
e	Ayer…	*Yesterday…*
f	Hace tres días…	*Three days ago…*
g	El fin de semana pasado…	*Last weekend…*
h	El viernes pasado …	*Last Friday…*
i	…compré…	*…I bought…*
j	…una camiseta de fútbol	*…a football shirt*
k	…un videojuego	*…a videogames*
l	…ropa nueva	*…new clothes*
m	…fui…	*…I went…*
n	…a la pista de patinaje	*…to the skating rink*
o	…a un concierto de Rosalía	*…to a Rosalía concert*
p	…de paseo al parque	*…for a walk in the park*
q	…de compras	*…shopping*

r	…hice…	*…I did…*
s	…equitación	*…horse riding*
t	…footing	*…jogging*
u	…natación	*…swimming*
v	…pesas	*…weights*
w	…senderismo	*…hiking*
x	…turismo	*…sightseeing*
y	…jugué…	*…I played…*
z	…al fútbol	*…football*
aa	…al golf	*…golf*
ab	…al rugby	*…rugby*
ac	…al tenis	*…tennis*
ad	…toque…	*…I played (+instrument)…*
ae	…el piano	*…the piano*
af	…el violin	*…the violin*
ag	…la batería	*…the drums*
ah	…la guitarra	*…the guitar*
ai	…vi…	*…I saw/watched…*
aj	…un espectáculo de circo	*…a circus*
ak	…un partido de fútbol	*…a football game*
al	…una comedia	*…a comedy*
am	…una película de acción	*…an action film*
an	…visité…	*…I visited…*
ao	…un castillo	*…a castle*
ap	…una galería de arte	*…an art gallery*
aq	…un museo	*…a museum*
ar	…un palacio histórico	*…a historic palace*

as	…unas ruinas romanas	*…some Roman ruins*
at	…en el bosque	*…in the woods*
au	…en el casco antiguo	*…in the old town*
av	…en la calle peatonal	*…in the pedestrian street*
aw	…en la plaza mayor	*…on the town square*
ax	…cerca de mi casa	*…near my house*
ay	…de mi barrio	*…in my neighbourhood*

Gramática

Key verbs and time phrases in three tenses.

	Past			**Present**			**Future**		
Time phrases	Ayer/ Anteayer/ La semana pasada El fin de semana pasado/ Anoche/ El miércoles pasado			Normalmente/ los lunes/ Cuando hace calor/ Los fines de semana/ A veces/ De vez en cuando			Mañana/ La semana que viene/ El martes que viene/		
	I	**He/She**	**We**	**I**	**He/She**	**We**	**I**	**He/She**	**We**
Jugar (to play)	jugué	jugó	jugamos	juego	juega	jugamos	voy a jugar	va a jugar	vamos a jugar
Hacer (to do)	hice	hizo	hicimos	hago	hace	hacemos	voy a hacer	va a hacer	vamos a hacer
Llevar (to wear)	llevé	llevó	llevamos	llevo	lleva	llevamos	voy a llevar	va a llevar	vamos a llevar
Ver (to watch)	vi	vio	vimos	veo	ve	vemos	voy a ver	va a ver	vamos a ver
Gustarse (to like)	me gustó/ me gustaron	le gustó/ le gustaron	nos gustó/ nos gustaron	me gusta/ me gustan	le gusta/ le gustan	nos gusta/ nos gustan	me gustará/ me gustarán	le gustará/ le gustarán	nos gustará/ nos gustarán
Visitar (to visit)	visité	visitó	visitamos	visito	visita	visitamos	voy a visitar	va a visitar	vamos a visitar

The verbs for "To be"

SER	**Estar**
Description – Soy muy grande – *I am very big*	**P**osition – Están al lado de la mesa – *They are next to the table*
Occupation – Eres enfermera - *You are a nurse*	**L**ocation – Estoy en el banco – *I am in the bank*
Characteristics – Es simpático – *He is kind*	**A**ction – Está comiendo – *He/She is eating*
Time – Son las dos y cuarto – *It is quarter-past two*	**C**ondition – Está sucio - It is dirty
Origin – Somos de España – *We are from Spain*	**E**motion – Estás contento – *You are happy*
Relation – Sois primos – *You are cousins*	

The Bourne Academy

Bourne Scholars Knowledge Organiser: Year 8 Summer Term - Spanish

1. Grammatical theory	**2. Spanish/Hispanic Cultural Research: Use one of the tablets in HU6 to find out the following information and write a paragraph.**	
i. What is the difference between changing verbs in the present tense and changing them in the past (preterite) tense?	i. Who is he? ii. What is he famous for? iii. Where did his family come from originally?	Lin Manuel Miranda

3. Dictionary corner

Look up 5 adjectives that are different to the ones that we have studied in the lesson to describe where you live.

1_____ 2_____ 3_____ 4_____ 5_____

Write an extended sentence to include each one.

4. Key Verbs

What are the verb endings for the three different kinds of verbs in Spanish in the ***preterite*** tense? Write them out below.

Personal pronoun	AR verbs – e.g. hablar		ER verbs – e.g. Comer		IR verbs – e.g. Vivir	
Yo (I)	hablé	I talked				
Tu (you sing)			comiste	you ate		
él/ella (he/she)					vivió	he/she/it lived
nosotros (we)						
vosotros (you pl)						
ellos/ellas (they)						

5. Understanding grammar

Find the answers to the following questions

a. Why is the following sentence incorrect? Ayer voy a la playa.

b. Research the verb "to go" in the preterite. How would you change it to say "Yesterday my brother went to the beach" (NB – to go is irregular)

6. Idioms

Find out the meanings of these idioms.

1) Ver todo color de rosa _____

2) Encontrar tu media naranja _____

3) Tener memoria de pez _____

1. Ergonomics and Anthropometrics

Ergonomics relates to how people comfortably and effectively use products, the 'fit' between the users and products they use.

An ergonomic phone would be easy to hold, have buttons shaped to be comfortable and easy to press, its edges will be rounded, and the ear and mouth pieces will be at suitable distances from your ear and mouths.

Anthropometrics are human body measurements. We use average measurements such as height, finger lengths and hand spans to ensure products are the correct size and safe to use. Anthropometric data is different for different ages, user groups and cultures.

2. Usability

Products must be designed to provide a workable solution to the primary user. It is important designs consider all of the primary user needs and provide a solution that is accessible.

The primary user is the person who will use your product most.

A stakeholder is someone who provides, sells or helps control the use of the product. This could include a teacher, a shop keeper, a sports coach or a parent.

3. New Technologies

These technologies often disrupt current design and manufacturing techniques and force industry to change.

These include:

Laser cutter

3D Printer

CAD Software

CNC Lathe

Robotics

Automated Manufacture

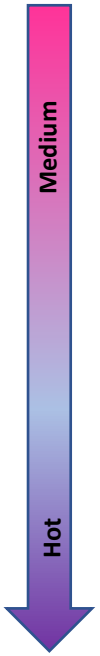
4. Life-cycle Assessment (LCA)

LCA evaluates the environmental impact of a product from 'cradle to grave': from the extraction of raw materials required to manufacture the product to end of use and disposal. It allows change to be instigated.

5. 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….



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? Why Are their properties suitable for the product?
6. How would you improve the product? What would you develop further? Why would you make that change?

6. Sustainability

Sustainability is the measure of how much manufacturing, materials and use of energy damages the environment.

Sustainable Materials can be recycled, reused and disposed of with minimal impact on the environment.

Sustainable Energy is energy that is created and used without a big negative impact on the environment.

Sustainable Design and Manufacturing is the planning for products to be manufactured to have a minimal negative effect on the environment.

Sustainability aims to reduce the impact products have on the environment. Designers and manufacturers can do this by following the rules of the **6 R's**:

Reduce, Reuse, Recycle, Repair, Rethink, Refuse.

7. Electronic Components

Different components have different functions:

Input Components: sets an electrical circuit in action. (Switch, LDR, Sensor)

Process Components: work together to ensure current and signals are sent between input components and output components. (Transistor, PIC Chip, Resistor)

Output components: is what the circuit results in and ultimately does. (LED, Motor, Buzzer, Speaker)

8. 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 heat or electricity to pass through.

Insulator: Does not conduct heat or electricity.

Corrosion resistance: Resistance to rust, chemicals and UV light.

Malleable: Can be shaped, bent and pressed into shape under pressure/force.

9. Risk Assessments

A **risk assessment** helps you work safely in the workshop. It evaluates how safe a task is.

Hazards are accidents that can occur.

Risk is how likely the hazard will happen.

Control measures are what you can do to avoid being injured.

10. Forces

Force is when pressure is applied to an object. A force can be a push or a pull.

Shear A good example of shear force is seen with a simple scissors. The two handles put force in different directions.

Tension is a pulling force.

Compression is a force that presses against an object from opposite directions.

Torsion is a twisting force.

11. 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 and copper.

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, brass and bronze.

The Bourne Academy

Knowledge Organiser: Year 8 Summer Term - TED

12. PPE

PPE stands for Personal Protective Equipment. This equipment keeps you safe during practical work. PPE includes:

Goggles **Aprons**

Protective footwear **Visors**

13. CAD/CAM

CAD stands for **C**omputer **A**ided **D**esign, it is used in lots of different industries such as construction, engineering and product design.

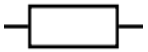
It is used because it is accurate, gives realistic 3D views of designs, is easy to correct mistakes without having to draw a drawing all again, and CAD drawings can be sent all over the world via email.

CAM stands for **C**omputer **A**ided **M**anufacturing, it is when machines are controlled by computers to make/produce/manufacture products.

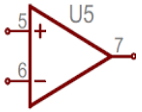
It is used because it is quicker, more accurate, reduces waste, never needs a break and can produce thousands of the same identical product per hour day in day out.

14. Electronic Circuit symbols

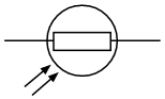
Resistors control the flow of current within a circuit. They stop high rates of current damaging electronic components.



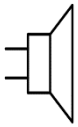
PIC Chips are programmed to send signals. Between inputs and outputs. They control circuits.



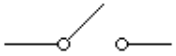
An **LDR** is a resistor which senses light. It allows current to run through it when it is dark.



Speakers turn electrical signals into sound waves.

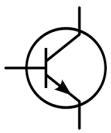


Switches are used to turn circuits on and off. They control when power enters a circuit and either complete or break the flow of current.



An **LED** is a type of bulb and emits light when current runs through it. LED stand for Light Emitting Diode.

Transistors act as a switch or latch within a circuit.



15. Biomimicry

This is where designs mimic naturally occurring designs found in nature.

Divers use flippers inspired by animals with webbed feet.

Kayak oars are designed to be aerodynamic like the fins on dolphins.

16. Design Iteration

Iteration means to develop. When we iterate a design we develop it to become better. Every time we iterate an idea we will improve it. Iteration creates products that are developed to be better for the primary user, easier to use and perform better.

17. Quality control

We carry out regular checks to ensure mistakes are not made. Mistakes lead to wasted materials which impacts landfill (Pollutes the environment), wasted time and loss of profits. QC checks lead to higher quality products.

Bourne Scholars Knowledge Organiser: Year 8 Summer Term - TED

1. Knowledge and Understanding applied to the wider world.

Sustainability

Designers must try to make products environmentally friendly.

Research global companies who are making big changes to be as environmentally friendly as possible.

In your report explain the impact their industry has on the environment and explain the steps they are taking to be more sustainable.

New technologies

New technologies change engineering and design industries. Technology like robotics and automated manufacture impact industries both positively and negatively.

Write a report which highlights the advantages and disadvantages of using modern manufacturing techniques.

Be sure to comment on:

Manufacturing processes

Impact to quality and volume of production

Negative impacts on employees

2. Describe and Explain

Pick a manufacturing process to discuss. Research and describe the process step by step. Support the description with a diagram.

Injection Moulding, Extrusion

Blow Moulding, 3D Printing

Rotational Moulding

Vacuum Forming

3. Careers

Consider all of the skills used in your lessons across the academy and for each job sector say how different skills you have used link to different engineering and design jobs:

Product Designer, Mechanical Engineer

Fashion Designer, Graphic Designer

Environmental Engineer, Chemical Engineer

4. 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

5. 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?
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