



Y8 Knowledge Organiser Booklet

Autumn Term 2021

SAPIENTIA DUCET AD ASTRA
WISDOM LEADS TO THE STARS

NAME: TUTOR GROUP:

Please bring this booklet to school every day. Respect it and keep it safe.

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Useful resources:

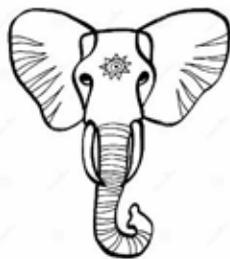
<https://www.youtube.com/watch?v=MYn15yDBvxM>

A short history of Tattoos around the world



Key Words

Theme	In the visual arts, a theme is a broad idea or a message conveyed by a work, such as a painting, photograph or sculpture.
Blending	The act of blending water with your paint to achieve the desired consistency and vibrancy
Pacing	Planning your time effectively to ensure your work is finished by the end of the project deadline.
Composition	The term usually refers to the arrangement of elements within a work of art. An artist arranges the different elements of an artwork so as to bring them into a relationship satisfactory to them
Proportion	Also describes how the sizes of different parts of a piece of art or design relate to each other.
Subject	This describes a topic or focus point in a piece of art



Colour Theory

Primary Colours
3 pigment colours that can not be mixed or formed by any combination of other colours. All other colours are derived from these 3 hues.

Secondary Colours
These are the colours formed by mixing two primary colours.

Tertiary Colours
These are the colours formed by mixing a primary and a secondary colour. That's why the colour is a two-worded name, such as blue-green, red-violet, and yellow-orange.

Analogous
Analogous colours sit next to one another on the colour wheel. These colours are in harmony with one another.

White, black and gray are considered to be neutral.

Cold Colours
They give an impression of calm, and create a soothing impression. They remind us of cold water.

Warm Colours
They are vivid and energetic, they are visually and emotionally exciting. They remind us of fire and heat.

Tone
Tone refers to the relative lightness or darkness of a certain area.

Tint
A tint describes a colour that is mixed with white.

Shade
A shade describes a colour that is mixed with black.

Monochromatic
The term monochrome refers to the use of one colour or various shades and tints of one colour in a single form.

The generic meaning of colour (Western Culture)
RED: Passion, Love, Fire, Anger, Blood
ORANGE: Energy, Happiness, Vitality, Stimulation
YELLOW: Sunshine, Happiness, Hope, Decor
GREEN: New Beginnings, Abundance, Nature
BLUE: Sky, Calm, Responsible, Sadness, Sea
VIOLET: Creativity, Royalty, Wealth, Ambition
BLACK: Mystery, Elegance, Evil, Death, Power
GRAY: Moody, Conservative, Formality
WHITE: Purity, Cleanliness, Virtue, Innocence
BROWN: Nature, Wholesomeness, Dependability
TAN OR BEIGE: Conservative, Play, Fun
GREYISH OR BROWN: Calm, Regrets, Party

Complementary Colours
Colours that are opposite each other on the colour wheel are considered to be complementary colours (example: red and green).
When put together, they appear more vivid than when apart.

Triadic colour scheme

Rectangle (tetradic) colour scheme

Split-Complementary colour scheme

Square colour scheme

Useful resources:

Use the youtube link to watch a video about the painting 'Starry Night'. Watch the video and practice writing for your exam using the writing prompts below: <https://www.youtube.com/watch?v=oz908BHg55Y&t=8s>



Formal elements	
Tone	How light and dark an area is
Gradient	A range of tones from light to dark
Line	Defines the outer edge of something
Mark-making	The different lines and textures we use to create art in any media
Primary colours	The primary colours are red, blue and green. They cannot be mixed
Secondary colours	A colour that results in mixing together two primary colours
Blending	Gradually merging 2 different colours or tones.

How to structure your writing	
Introduction	What is the name of the artist and what is the piece you are looking at called? When was it made? What is the first thing you think about when you look at the work?
Description	What types of colours and shapes has the artist used? How would you describe the textures in this image? How do you think it was made? What techniques and media did the artist use? Is there anything unusual that you have noticed about this work?
Interpretation	What do you think the meaning of the work is? Does it remind you of anything? Does it remind you of other artists? If you were the artist, what would you have named this piece and why? Who was the audience for this piece?
Evaluation	What do you like the most about this art? How does it relate with what you have done in art lesson at school? Was this piece successful? Do you think the artist achieved their goal? Why or why not?

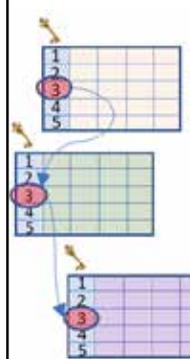
Use these words to help structure your written work and annotation

Firstly, to begin with, secondly, in contrast, on the other hand, however, alternatively, in comparison with, particularly, especially, in particular, most importantly, equally, identically, likewise, coupled with, together with, similarly, for example, such as, specifically, in particular, including, evidence of this, to illustrate this, to give an example.



Keywords	Explanations
Data	When we store data in a database, it is in a format that the computer can understand and might not make much sense to us. When we collect and use the data in a database so that it is meaningful to us, we say that the data becomes information
Database	A structured collection of data, on a computer, that allows people to perform complex sorting and searching of the data to find the information they need. The Police Criminals Database is a good example
Flat file	A flat file database is a database that comprise a single table. These are often created from a single spreadsheet. If a single spreadsheet was sufficient to contain all the information needed, a flat file database may also suffice
Table	A structured collection of data in a table format (a bit like a spreadsheet) that normally stores data about a particular entity – like patients in a hospital or students in a school or customers of a business
Record	A record is a row in a database table that describes a single entity – such as one customer or one student or one patient. All the relevant data about a single customer or patient in a table will be contained in a single record
Report	A document that presents the results of a query formatted so that people can understand and make use of the data. We can print database reports or save them electronically
Field	A field is the same as a column in a databases table. Each field describes one characteristic of a record – such as a student’s name or a customer’s phone number. Fields have different field types: text, currency, Yes/No, numbers
Primary Key	A primary key is a unique identifier in tables that enables a database to find related information across more than one table. Examples are a bank customer’s unique account number and a workers unique National Insurance Number
Form	An object in the database that allows you to add, edit and delete the data in one or more databases tables. Forms make it easier to work with data in a database because they hide the data you don’t need to see
Query	When we request data from the database, we do so by creating and running a query. A query can also sort and order data when it is presented to us
Query Operators	Query operators determine the range or conditions applicable to a query. For example: :>=, BETWEEN, AND, OR, NOT and the wildcard * in queries.
Validation	We can provide rules for the database to check that information being entered by a user is correct. The database can provide a message to say why the data entered cannot be accepted

Keys and relationships



- Primary keys are unique items of data that establish the relationship between tables in a database.
- Without a primary key, a database can’t reliably locate related data in other tables.
- For example, a customer’s unique account number must be the same in every table with related information about a customer.

Common data types

- Number
- Text (short or long)
- Yes/No (Boolean)

Primary key
AutoNumber is used to create a primary key of numbers in order 1, 2, 3, 4, 5 etc

Field Name	Data Type
School ID	AutoNumber
School	Short Text
Town	Short Text
Postcode	Short Text

Short text is text that is limited – usually to 255 characters

A primary key identifies each car uniquely

The Primary Key

Car ID*	Make	Model	Class	Seats	Price	Date
356	Kia	Picanto	Mini	4	£29.80	18/01/2013
357	Vauxhall	Corsa	Economy	4	£31.50	14/04/2013
358	Peugeot	308 Estate	Compact	5	£94.79	20/11/2013
359	BMW	E-Class	Luxury	5	£150.56	27/11/2013

A record describes each car in the table – such as a Peugeot

A field describes a shared characteristic of every car – such as the date.

Cars are a distinct entity. Every car is stored in the same table because all cars share common characteristics such as a model and make, and number of seats.

Key words	Definition
Social media	Websites/applications that allow users to digest, create, and share content
Digital Footprint	The information about a person that exists online
Privacy Settings	The settings on social media which allow users to limit who sees what of their profile/activities
Cyberbullying	A form of bullying using an electronic device
Blackmail	Encouraging someone to do something against their wishes or else...
User Agreement	The written agreement that a user agrees to before using a website's/application's services
Online Gaming	Any type of gaming that takes place online
Sexting	Sending/receiving sexual messages/media through an electronic device
Online Abuse	Cyberbullying, cyberstalking, trolling, and creeping are forms of online abuse
Online Friends	The group of friends that you have online
Passwords	Writing down passwords is unsafe and will eventually be found out. Would you leave your house key outside the front door?
Phishing	A fraudulent attempt to obtain sensitive information
https://www.childline.org.uk/	
https://www.thinkuknow.co.uk/	
https://www.ceop.police.uk/	



**Don't Ask,
Don't send!**



**Respect your
privacy!**



Useful Resources:

<https://www.bbc.co.uk/bitesize/guides/zbstng8/revision/3> : Website that gives more examples of workshop safety



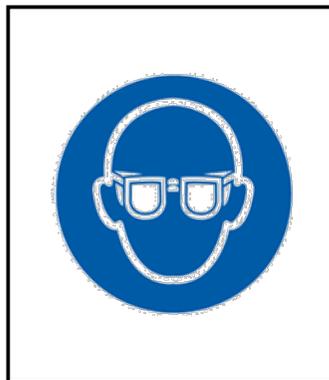
KEY WORDS		DEFINITION	Health and Safety in the Workshop	Health and Safety Rules
PPE		Personal Protective Equipment Worn to protect you in the workshop	<ul style="list-style-type: none"> The workshop is an area where we use tools and equipment to manufacture a range of different products. All activities will involve wearing some safety equipment or PPE. It is important we are all safe and responsible in order to protect scholars and staff at all times. Bad health and safety can result in the workshop becoming a hazardous place which is dangerous to work in. It is the responsibility of everyone in the workshop to keep it safe. 	<p>Basic Workshop Health and Safety rules</p> <ul style="list-style-type: none"> Always wear an apron No running Behave in a sensible manner Only use tools you have been shown how to use Only use tools in the way you have been shown Be careful when using and carrying tools All bags and coats must be put away Keep the workshop clean and tidy
Scroll Saw		A power saw for cutting curves		
Belt Sander		A power sander used to remove material		
Pillar Drill		A power drill used to make holes		
Tenon Saw		Hand saw for making straight cuts		
Coping Saw		Hand saw for making curved cuts		
Try Square		Accurately marks out right angles 90°		
			<p>Health and Safety when using a Power Tool</p> <ul style="list-style-type: none"> Always wear eye protection (goggles) Make sure all the guards are in place One person at a time on the machine Give people room to work on the machine Make sure work is held correctly in the machines Never touch any moving parts Make sure you have stopped the machine after you have used it 	



Ear defenders / ear protection



Protective gloves



Eye protection



Face protection

Useful Resources:

<https://www.bbc.co.uk/bitesize/guides/zbt26yc/revision/1> : Website that shows mechanisms in more detail



KEY WORDS	DEFINITION
Driver	The gear powered by hand or a motor
Driven	The gear that needs to be powered
Idler	Transfers the power between gears
Torque	The amount of power in a rotary motion
Chain and sprocket	Gears connected by a chain to transfer rotary motion over a distance
Effort	The energy used to move a lever
Load	The weight you want to lift or the force you want to apply to something

Gear Trains

They transmit or change rotary motion using toothed wheels that interlock, called gears. They can be used to change the direction of motion or to change the power of the input force

Types of Movement	
Some mechanisms turn one type of motion into another. There are various types of motion.	
Linier Motion 	Moving one way in a straight line
Reciprocating Motion 	Moving backwards and forwards in a straight line
Oscillating Motion 	Moving backwards and forward in an arc
Rotary Motion 	Moving in a circle

Levers

Levers make it easier to move and lift things

- Levers move and lift loads by giving a mechanical advantage
- The move around a fixed point called a Pivot or Fulcrum
- The longer the lever the less effort is needed to move the load
- Levers can be connected together to form linkages

First Order Lever If the load is closer to the pivot than the effort, it makes it easier to lift.	Second Order Lever The closer the pivot and load are, the easier it is to lift.	Third Order Lever Moving the effort and pivot further apart makes it easier to move or lift a load.

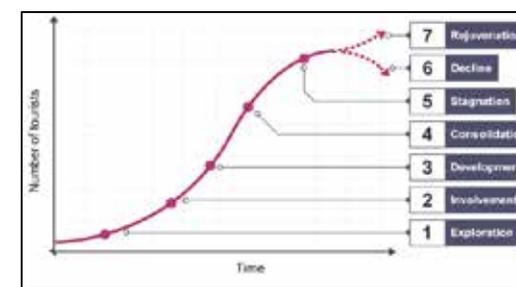
Plot Summary		Who loves Whom	Characters	
<p>Act 1: Hermia and Lysander love each other but are not allowed to marry so decide to run away to the forest to get married in secret. Demetrius wants to marry Hermia. Helena loves Demetrius. They follow Hermia and Lysander into the forest.</p>			<p>Theseus The duke of Athens. He is a strong and strict ruler of the city.</p>	<p>Oberon The king of the fairies who controls the love potion.</p>
<p>Act 2: In the forest, Oberon and Titania are arguing. Oberon sees Demetrius and Helena arguing and commands Puck to use the potion on the Athenian man to make him fall in love with Helena. However, the first Athenian man Puck sees is Lysander, so he puts the love potion on him. Lysander falls madly in love with Helena.</p>			<p>Hippolyta Theseus's bride. She was a fearless warrior.</p>	<p>Titania The fierce queen of the fairies who falls in love with Bottom when the love potion is put on her.</p>
<p>Act 3: Puck sees Bottom in the forest and transformed his head into a donkey's head. He puts the love potion on Titania, who falls in love with Bottom. Puck puts the love potion on Demetrius so that he falls in love with Helena. As a result, both men love Helena so there is chaos. Puck eventually drops a herb in Lysander's eyes to put him back to normal.</p>			<p>Egeus Hermia's stubborn father who wants her to marry Demetrius or be put to death.</p>	<p>Bottom A weaver and actor who has his head turned into a donkey. Titania falls in love with him when she is under the love potion's influence.</p>
<p>Acts 4 and 5: Oberon finds Titania and Bottom and decides that he has had enough fun. Puck drops a herb in her eyes, she wakes and leaves with Oberon. The lovers return to Athens where Bottom and the other actors perform their play at the wedding of the three happy couples: Theseus and Hippolyta, Lysander and Hermia and Demetrius and Helena.</p>			<p>Hermia Egeus's daughter who is in love with Lysander.</p>	<p>Puck Oberon's mischievous servant who puts the potion on people's eyes.</p>
<p>Acts 4 and 5: Oberon finds Titania and Bottom and decides that he has had enough fun. Puck drops a herb in her eyes, she wakes and leaves with Oberon. The lovers return to Athens where Bottom and the other actors perform their play at the wedding of the three happy couples: Theseus and Hippolyta, Lysander and Hermia and Demetrius and Helena.</p>			<p>Lysander He is in love with Hermia and runs away to the forest with her.</p>	<p>The Love Potion</p>
<p>The Three Character Groups: The characters in <i>A Midsummer Night's Dream</i> can be divided into 3 distinct groups:</p>				
<p>The Athenian Nobles The Royalty and upper class in the play. Theseus' wedding plans begin the play and the four Lovers come from this group.</p>	<p>The Mechanicals Working class humans. They come together to perform a play for the Duke's wedding. They are clownish and speak in prose, not verse.</p>	<p>The Fairies The Fairies exist in a magical realm, away from humans. They have magical powers and the conflict between the King and Queen affects the natural world.</p>	<p>Demetrius He wants to marry Hermia and is disgusted by Helena's love for him.</p>	<p>The love potion is made from a flower in the forest. The flower is magical because Cupid hit it with his arrow when he was aiming at a young girl. When the potion is put on characters' eyes, they fall in love with the first person they see. It is very powerful.</p>
<p>Useful Resources:</p>	<p>https://www.sparknotes.com/Shakespeare/msnd https://shmoop.com/study-guides/literature/midsummer-nights-dream</p>			

Key Vocabulary	Definitions	Key Quotations
Benevolent	Kind and fair.	'As she is mine, I may dispose of her; which shall either be to this gentleman or to her death.' <i>Egeus explaining what he wants to happen to Hermia.</i> ”
Chaos	A situation where there is no order, and everyone is confused	'The course of true love never did run smooth.' <i>Lysander comforting Hermia after Theseus' ultimatum.</i> “
Conflict	A serious disagreement, battle or struggle between two sides or ideas.	'I am that merry wanderer of the night. I jest to Oberon and make him smile.' <i>Puck introducing himself.</i>
Elopement	To run away secretly, often to get married	'I am your spaniel; the more you beat me I will fawn on you. Use me but as your spaniel: spurn me, strike me, neglect me, lose me.' <i>Helena explaining her love to Demetrius.</i>
Grotesque	Unnatural and unpleasant. Ugly (often comically).	'Thou art translated!' <i>Quince on seeing Bottom transformed into the donkey's head.</i>
Hierarchy	A system of organizing people in rank according to status or power.	Hermia: 'Oh me, you juggler, you canker-blossom, you thief of love!' 'How low am I, thou painted maypole [...] I am not yet so low but that my nails can reach unto thine eyes.'
Malevolent	Deliberately trying to cause harm or evil.	Helena: 'She was a vixen when she went to school, and though she be but little, she is fierce.'
Mock	To mock someone is to make fun of them, often in a cruel way.	<i>Hermia and Helena insult each other after Puck administers the love potion.</i>
Patriarchy	A society in which the men have most, or all, of the power and importance.	'If we shadows have offended, think but this, and all is mended: that you have but slumber'd here while these visions did appear.' <i>Puck's epilogue at the very end of the play.</i>
Resolve	To solve a problem or difficulty.	Context
Rude	When something is simply and roughly made.	Setting: the play is set in Ancient Greece and follows the conventions (rules) of an Ancient Greek Comedy. Shakespeare was taught Ancient Greek and Grammar school which influenced his work. Greece was seen as an exotic and intriguing location by the Elizabethans. 
Severe	Very strict or harsh.	English Traditions and Fairy Lore: Elizabethans (especially the lower classes) believed that fairies and mischievous spirits (like Puck) existed. They often appeared in stories and were well-known figures in English folklore. On Midsummer Eve, English men and women would tell supernatural stories around bonfires in the woods. It was believed that you would dream of your true love that night.
Soliloquy	A speech in a play that the character speaks to himself or herself, or to the audience, rather than to the other characters.	The Role of Women: Women belonged to their fathers (or their brothers if their father died), and then to their husbands. Elizabethan society was patriarchal, meaning that men were considered to be the leaders and women their inferiors. Women proved their honour through their chastity (maintaining their virginity and purity). We see this in the play when Hermia insists that she cannot sleep next to Lysander. Their elopement to get married, in itself, would have been very shocking and scandalous to the Elizabethan audience.
Unrequited Love	If a person loves someone who doesn't love them back, the person's love is unrequited.	

Grammar definitions:		Subject definitions:	
Subject	<i>The <u>subject</u> of a sentence is who or what is doing the <u>main</u> action.</i>	Methods	Methods is any writer's technique that the author uses to make their readers think or feel something. Examples of methods include: similes, repetition, alliteration, metaphors, foreshadowing etc.
Pronoun	<i>A pronoun is a word that you use to replace a noun, often because the noun has been mentioned in the sentence before. <u>Examples</u> are 'it', 'she' and 'me'.</i>	Essay	An essay is a piece of non-fiction written on one topic. In English, essays usually have 5 paragraphs: <i>an introduction, 3 analytical paragraphs and a conclusion.</i>

Mastery Writing Rules		Analytical paragraphs
1	<ul style="list-style-type: none"> If there are two men in a sentence, you can't start the next sentence with He. If there are two women in a sentence, you can't start the next sentence with She. If there are two objects in a sentence, you can't use it in the next sentence. If there are two groups in a sentence, you can't use they or them in the next sentence. 	<p>An analytical paragraph analyses the choices that an author has made and usually includes the following:</p> <ul style="list-style-type: none"> ✓ A topic sentence ✓ A quotation/evidence ✓ Say what the quotation/evidence suggests ✓ Use the word because to show your workings out ✓ Zoom in on a key word/phrase/method/punctuation mark and explain why it's important ✓ Comment on the impact on the reader / authorial intention
2	When you start with <u>when/where it happened</u> , you put a comma right after <u>when/where it happened</u> . You don't use a comma if <u>when/where it happened</u> is at the end.	
3	<ul style="list-style-type: none"> If the subject is a single person or thing, use was. If the subject is more than one person or thing, use were. Words that describe a group of people or things use was. 	
4	If the part that starts with <u>although, unless or if</u> is at the start of the sentence, it is followed by a comma. You don't put a comma after this part if it is at the end of the sentence.	
5	If a word is the name used for a specific person, place, organisation or thing, you should start each word in the name with a capital letter.	
6	<ul style="list-style-type: none"> If the sentence starts with the words someone said, put a comma before the final inverted commas. If the speech at the start of a sentence is a question, replace the comma with a question mark. The next word only has a capital if it is a name. If the speech at the start of a sentence is an exclamation, replace the comma with an exclamation mark. The next word only has a capital if it is a name. 	<p>Punctuating speech:</p> <ul style="list-style-type: none"> • Say who said it • Use a comma • Open inverted commas • Use a capital letter • Write the speech • Use punctuation • Close inverted commas
7	When you combine two sentences with the word but, you put a comma before the word but.	
8	Only one person can speak in each paragraph. If a new person speaks, start a new paragraph.	
9	In a list, replace all the ands with commas, except the last one.	

KEY WORDS		DEFINITION	WHY HAS TOURISM INCREASED?	CASE STUDY: BLACKPOOL
Tourism		Is travel for pleasure or business; also the theory and practice of touring, the business of attracting, accommodating, and entertaining tourists, and the business of operating tours.	<ul style="list-style-type: none"> • People have greater disposable income. This is money left over once they have paid for essentials. • People have more paid holidays. In the UK, the number of weeks we have off work has increased from about two weeks in the 1950s to four to six weeks now. • Travel has become easier and cheaper. More people have cars and our roads and motorways are better quality, making it easier to travel further in less time. Also, flights are cheaper and the internet makes it easy to plan and book a holiday. • People are visiting a wider range of places - partly because they have a better knowledge and understanding of places. As well as learning about different places at school, we watch television programmes and browse the internet. This awareness increases people's expectations. • There is a greater variety of holidays to choose from. All-inclusive package holidays have become very popular. • People have more leisure time. • Many countries have invested money in facilities and infrastructure that make it easier for tourists, such as roads, airports and hotels. • Ageing populations - people are able to travel in the free time that they have when they retire. 	<p>Blackpool is an iconic tourist resort and its coastal location was the main reason for its development as a tourist resort.</p> <p>Attractions include:</p> <ul style="list-style-type: none"> • the Pleasure Beach - a theme park which is the UK's most visited tourist attraction • a sandy beach • the Blackpool Illuminations - a spectacular light show during the autumn months to prolong the tourist season • concerts and shows <p>Decline in tourism:</p> <ul style="list-style-type: none"> • foreign travel to the Mediterranean growing in popularity in the 1960s and 1970s due to its more reliable hot weather and sandy beaches • the expansion of package holidays and cheaper flights • the growth of budget airlines and cheaper accommodation from the 1990s onwards • overcrowding in Blackpool and a shift in the market to late night drinking, stag and hen parties
Tourist		A person who travels to and stays in a place that is not their normal place for a short period of time.		
Profit		The amount of income left over after all the necessary and matched expenses are subtracted for the period.		
Disposable income		The income available for spending after paying bills, mortgage, rent and tax.		
Consumer		A person who purchases goods and services for personal use.		
Cultural heritage		An expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expressions, and values.		
Honey-pot site		A popular visitor attraction or area, where large numbers of people visit.		
National Park		An area that is protected by law to ensure its conservation.		
Conflict		A disagreement over something.		
Mass tourism		A form of tourism that involves tens of thousands of people going to the same resort often at the same time of year.		
Ecotourism		The responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education.		
Sustainability		To meet our own needs without compromising the ability of future generations to meet their own needs.		



Butler's model of tourism development

What are the impacts of tourism?

Tourism can provide jobs and improve the wealth of an area. Many developing countries are keen to develop tourism in order to become richer and to improve the quality of life for their people. However, when large numbers of visitors go to one place it is called **mass tourism**. This can have both positive and negative impacts on the area.

Positive	Negative
Jobs created	Jobs are often seasonal (based on the time of year) and are poorly paid
More money for the country	Most money goes out of the area to big companies, not locals
Local traditions and customs are kept alive because tourists enjoy traditional shows, e.g. Flamenco dancing	Culture and traditions change as outsiders arrive
Money from tourists can be used to protect the natural landscape	Damage to the natural environment, e.g. footpath erosion (the wearing away of footpaths), litter, habitats destroyed to build hotels
New facilities for the tourists also benefit locals, e.g. new roads	Overcrowding and traffic jams
Greater demand for local food and crafts	Prices increase in local shops as tourists are often more wealthy than the local population

UK national parks and conflicts

Some places are very popular with visitors. They attract such large numbers of visitors that they have become known as **honeypot sites**.

National parks are areas of great natural beauty that give the opportunity for recreation. Some parts of national parks contain many honeypot sites. They need to be looked after to prevent the large numbers of visitors destroying the attraction.

National parks were introduced in the UK in 1949. They have two key aims:

- to preserve the countryside
- to promote the public's enjoyment of the area

Many different types of people use the UK national parks. Managing these different groups in terms of land use and conflict can sometimes be very difficult.

There are many conflicts within national parks. For example:

- Too many visitors in an area can destroy the environment that they have come to see.
- Much of the land within the national parks is privately owned - and the owners may not like people roaming across their land.
- People may buy second homes within national parks because they like the environment offered. This pushes up house prices for locals.

Ecotourism

The main concept of ecotourism is **sustainability** to enable future generations to experience places which have been relatively untouched by humans.

Ecotourism is quickly becoming an important industry for many **developing countries** to bring in **foreign income** while at the same time, preserving some of their most fragile environments.

Ecotourism sets out guidelines for how tourists should behave when visiting fragile environments:

- Protect the environment - keep to footpaths, don't leave litter or start fires.
- Don't interfere with wildlife - don't scare or feed the animals.
- Protect resources - don't take too many showers or use air conditioning.
- Support local communities - stay in locally owned accommodation and buy produce from local people.
- Eat local food and drink - avoid products that have been imported from HICs.
- Respect local customs and traditions.



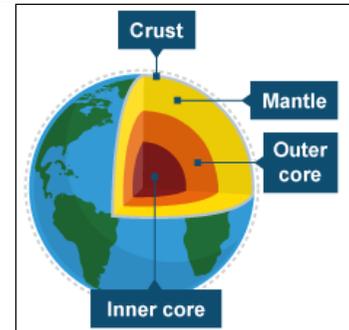
UK's National Parks

KEY WORDS	DEFINITION
Continental drift theory	Explains how continents shift position on Earth's surface.
Plate tectonics	A scientific theory describing the large-scale motion of the plates making up the Earth's lithosphere.
Volcano	An opening in the Earth's crust. It allows hot magma, ash and gases to escape from below the surface.
Plate margin	Where the edges of two plates meet.
Subduction	The sideways and downward movement of the edge of a plate of the earth's crust into the mantle beneath another plate.
Earthquake	A sudden violent shaking of the ground, typically causing great destruction, as a result of movements within the earth's crust.
Seismic wave	A rapid flow of energy that is sent through the earth after an earthquake.
Focus	The point within the Earth's crust where an earthquake starts.
Epicenter	The point on the Earth's surface directly above the focus of an earthquake.
Active	Volcanoes which erupt frequently.
Dormant	Volcanoes which have not recently erupted by which can still erupt.
Extinct	A volcano which is unlikely to ever erupt again.

The earth's structure

The Earth has four main layers - the **inner core**, the **outer core**, the **mantle** and the **crust**.

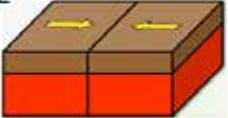
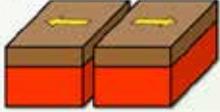
- The **inner core** is 5,500°C - extremely hot. It is a very dense solid made from iron and nickel.
- The **outer core** is 2,000 km thick and is a liquid.
- The **mantle** is **semi-molten** and about 3,000 km thick.
- The **crust** is the rocky outer layer. It is thin compared to the other sections, approximately 5 to 70 km thick. The crust is made up of pieces called plates. There are two types of crust: **oceanic** and **continental** crust. The oceanic crust is found under the sea and is **thinner** and more **dense** than the continental crust.



The layers of the Earth

Plate margins

There are four types of plate margin (the edges where two plates meet).

Destructive margin	Destructive margin (oceanic and continental plate) - the oceanic plate subducts (sinks) beneath the lighter continental plate and is destroyed in the mantle. Earthquakes and volcanoes found here.	
Collision margin	Collision margin (two continental plates) - the plates collide and are forced upwards. Mountain belts and earthquakes are found here.	
Constructive margin	Constructive margin —two plate move apart and magma rises. Volcanoes found here.	
Conservative margin	Conservative margin —plates moves alongside each other either in the same direction at different speeds, or in the opposite direction.	

Features of a volcano

Volcanoes can be found on destructive and constructive margins.

- **Magma chamber** - large underground pool of magma
- **Lava** - magma, once it reaches the surface
- **Crater** - bowl-shaped basin in the top of the volcano
- **Vent** - central tube which magma travels through
- **Secondary cones** - eruptions from other vents may build up secondary cones on the flanks
- **Ash, steam and gas** - material thrown out by the volcano
- **Volcanic bombs** - larger material thrown out by the force of eruption
- **Pyroclastic flow**—a dense, fast-moving flow of solidified lava pieces, volcanic ash, and hot gases.

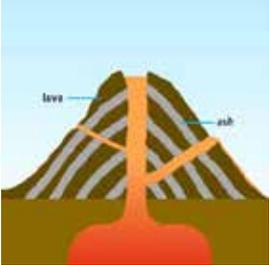
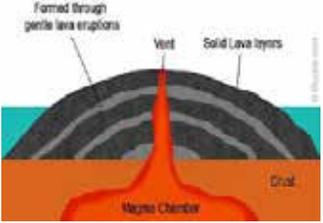
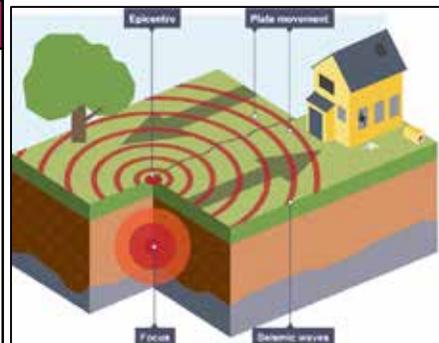
TYPES OF VOLCANO			VOLCANIC ERUPTION CASE STUDIES	
There are a number of key differences between composite and shield volcanoes.			La Soufrière, St Vincent (LIC)- April 9th 2021	
	Composite	Shield	Effects of eruption were exacerbated by Covid-19. Northern part of the island was the most severely affected.	
Diagram			Effects:	
Shape	Steep sides	Gentle sides	<ul style="list-style-type: none"> • 20,000 people evacuated • Zero casualties • 80% of their root crops, 90% of their tree crops and 100% of their vegetable crops were destroyed • 23,000 displaced people • \$150m of infrastructural damage and \$150m of damage comes from agricultural failure 	
Plate boundary	Form at destructive plate margins	Form at constructive plate boundaries	Effects:	
Lava	Thick lava	Thin, runny lava	<ul style="list-style-type: none"> • Zero casualties • The people living in the rural areas 'downwind' of the volcano had to wear goggles and facemasks as the ash was so thick. • 500 local cattle farmers had to be evacuated from the area. • Airlines lost a combined £130 million per day in lost revenues • Europe's biggest tourism businesses lost between £5 million and £6 million per day. • The eruption on 14 April set off a major flood in Iceland, prompting authorities to order 700 people to evacuate. 	
Eruptions	Eruptions happen less often but are usually violent. The eruption consists of ash, pyroclastic flow and lava	Eruptions happen often but they are usually quite gentle. The eruption is mainly lava, with little pyroclastic flow	Responses and PPP:	
Example	Mount Vesuvius in Naples, Italy Mount St. Helens, USA	Mauna Loa in Hawaii La Cumbre, The Galapagos Islands	<ul style="list-style-type: none"> • As the last eruption was recorded on 22nd April, on 6 May the Government of SVG decided to lower the volcanic alert level from red to orange. • \$30 million will be needed to remove all that ash, and \$15 million will be needed each month to feed and shelter the thousands of people who fled the eruption. • The UK issued £800,000 since the eruption began on 9th April. 	

PLATE MARGINS AND EARTHQUAKES

- Earthquakes can happen at any plate margin.
- Plates do not always move smoothly alongside, under or beside each other.
- They sometimes get stuck. When this happens pressure builds up and, when this pressure is released, an earthquake occurs.
- Every earthquakes has an epicentre and a focus.



Conservative margin

EARTHQUAKES ON CONSERVATIVE PLATE MARGINS

- Earthquakes can occur at all plate boundaries. However, conservative plate margin clearly show how earthquakes happen.
- The **San Andreas Fault** is part of the plate margin between the Pacific plate and the North American plate.
- The Pacific plate moves slightly faster than the North American plate. This means that, even though the plates are moving in the same direction, they can get stuck, causing a build up of pressure.
- This build up and release of pressure caused two major earthquakes during the last century, in 1906 and in 1989.
- However, this area experiences constant small earthquakes, with Los Angeles experiencing 10 earthquakes per day on average!
- Because of this movement, Los Angeles should be in line with San Francisco in roughly 20 million years.

Understanding the Richter Scale:

Richter Magnitude	Fetch like KG of TNT	Extra Information
0-1	0.0001 kilograms of dynamite	We cannot feel these
2	100 kilograms of dynamite	Smallest Quake people can normally feel
3	10,000 kilograms of dynamite	People near the epicentre feel the quake
4	10,000 kilograms of dynamite	This will cause damage around the epicentre. It is the same as a small atomic bomb
5	10,000,000 kilograms of dynamite	Damage done to weak buildings in the area of the epicentre
6	10,000,000 kilograms of dynamite	Can cause great damage around the epicentre
7	10 billion kilograms of dynamite	Creates enough energy to heat New York City for one year. Can be detected all over the world. Causes serious damage
8	10 billion kilograms of dynamite	Causes death and major destruction. Destroyed San Francisco in 1906
9	10 billion kilograms of dynamite	Rare, but would cause unbelievable damage!

The Richter Scale

EARTHQUAKE CASE STUDIES

Chile, 2010: (MDC)

In 2010, Chile experienced an earthquake measuring 8.8 on the Richter scale originating from the boundary between the South American and Nazca plates.

Effects:

- 500 people died.
- 500,000 buildings were destroyed, including minor damage to a major airport.
- Communication networks and power went down after the earthquake.

Responses and PPP:

- Chile has a history of earthquakes, meaning that most buildings were 'earthquake proof' and people were trained in how to survive earthquakes.
- Within 10 days power was restored to affected areas.
- Roads were repaired very quickly.
- Chile put in place a house rebuilding scheme which was paid for by the Chilean government.

Christchurch 2011 (HIC)

The earthquake happened on a conservative plate boundary between the Pacific Plate and the Australian Plate.

Effects:

- 181 people were killed.
- 2,000 injured.
- Over 50% of the city's buildings were damaged.
- The city's cathedral spire collapsed.
- Water and sewage pipes were damaged.
- Businesses were closed for a long time.
- Christchurch couldn't hold five Rugby World Cup matches.
- Schools were closed for two weeks due to the damage.

Responses and PPP:

- International aid was provided (around \$6-7 million).
- Aid workers from charities such as the Red Cross came to help.
- Areas were zoned to assess damage.
- 300 Australian police officers were flown in.
- \$898 million in building insurance claims.
- Water and sewerage was restored to the city by August 2011.
- Temporary housing was provided.

Useful resources: <http://www.bbc.co.uk/history/forkids/>

Key word	Definition
Reign	The period of time a monarch ruled a country
Church	A Christian organisation (capital C), place of worship (small c)
Behead	Executing someone by removing their head
Reform	To completely change
Dissolution	The dissolving/getting rid of something
Compromise	An agreement reached between different groups
Extremist	Someone who has very strict and extreme beliefs
Armada	A large group of warships
Portrait	A drawing/painting of a person



Catholic or Protestant?

- Before 1517, the majority of Europe belonged to the Catholic Church. But, in that year, a German priest called Martin Luther started protesting about the Catholic Church.
- His protests led to the formation of a different type of Christian Church – the Protestants.
- Protestants believed that the Bible and church services should be in the local language, whereas Catholics believed it should be in Latin.
- Protestant churches were plain and simple, whereas Catholic churches were heavily decorated.
- Protestant priests could marry and go to prison, whereas Catholics believed their priests could not.

Henry VIII

- Henry VIII is mainly known for two things: 'The Reformation' and his six wives.
- He was married to his first wife, Catherine of Aragon, for 20 years, but he divorced her to marry Anne Boleyn.
- She was eventually beheaded and replaced by Jane Seymour.
- When she died, Henry married Anne of Cleves, then divorced her, then married Catherine Howard, beheaded her, and finally married Katherine Parr.
- Luckily for her, Henry died before he could end that marriage too!
- In 1533, Henry VIII asked the Pope if he could divorce his first wife. The Pope refused. Therefore, Henry passed a law in 1534 called the Act of Supremacy – this made him the leader of the Church in England.
- He then got rid of all forms of Catholic worship across England and replaced it with Protestant beliefs.
- All monasteries and nunneries were closed down and their possessions were taken by the King – this was called the 'Dissolution of the monasteries'.
- Catholic churches were torn down and replaced with Protestant churches and the Bible was printed in English for the first time.
- This great change in the country made Henry VIII more powerful than any previous English monarch!

Edward VI and Mary I

- After Henry VIII died, his only son, Edward became King of England at 10 years old.
- He continued his father's reformation of England into a Protestant country. He ensured that all Catholic churches and decorations were replaced with Protestant ones.
- All church services were to held in English and the Protestant 'Book of Common Prayer' was used in every church.
- He also arrested and hanged any Catholics who refused to follow the new Church.
- When he died at 16, he was replaced by Mary I, who was a Catholic.
- She immediately returned the country to the old Catholic ways by making the Pope the Head of the Church again and having all church services in Latin.
- She also burned hundreds of Protestants alive!

Elizabeth I

- Elizabeth I became Queen of England after the death of her sister, Mary. She was determined to put an end to the confusion about religion and so introduced her 'Religious Settlement'.
- This was a compromise between both Catholic and Protestant beliefs.
- For example, the church services were again in English, but the Catholic decorations were kept.
- Also, the 'Book of Common Prayer' was printed in Latin and English.
- Only religious extremists were arrested and executed.
- In 1588, the Catholic King of Spain, Phillip II, decided he would invade England – he didn't think that the Catholics there were being treated well enough by Elizabeth I.
- An armada of 130 warships attacked England in May that year. The English navy was massively outnumbered, yet they still managed to defeat the Spanish.
- There were many reasons for this, including the British ships were smaller and faster, they used the tactic of 'hell burners' to attack the Spanish ships, the Spanish were also too arrogant and didn't prepare well enough and were not as well organised as the English sailors.



Useful resources: <http://www.bbc.co.uk/history/forkids/>

Key word	Definition
Persecute	To treat someone unfairly
Treason	A crime that betrays an entire country
Parliament	The elected representatives of the country
Parliamentarian	A supporter of Parliament's right to rule
Royalist	A supporter of the King's right to rule
Civil	A war fought between people in the same country
Propaganda	Information designed to influence people
Trial	The examination of evidence to decide someone's guilt
Testify	The evidence given by witnesses during a trial



The Gunpowder Plot

- After the death of Elizabeth I in 1603, her nephew James became King of England.
- He was a Protestant who persecuted Catholics who failed to follow the rules of the Church of England. This led to many Catholics plotting against him.
- One such group filled the cellars underneath the Houses of Parliament with gunpowder. Their plan was to blow up the building when the King was visiting.
- However, their plot was discovered on 5th November 1605. The plotters were all executed.

Causes of the Civil War

- There are many reasons for the English Civil War, but they can be summed up into three main themes.
- Money: Charles I raised taxes to pay for his lifestyle and kept dissolving Parliament if they refused to help him do this.
- Religion: the vast majority of Parliament were Protestant and they didn't like the fact that Charles I had many Catholic friends, including his wife!
- Power: both Parliament and the King wanted the power to rule the country by themselves and kept attacking the other. Charles arrested five MPs who he said had insulted him. And Parliament even executed two of Charles' advisers!

The Civil War

- The two sides in the English Civil War were the Royalists and the Parliamentarians – they each had their own type of soldier.
- The Royalist soldiers were called Cavaliers. They were mostly Catholic and were made up of the King's wealthy, land-owning supporters and their servants. They wore fine cloth, a hat with a feather, and a red sash. They were based out of Oxford and had skills in horse-riding and battle tactics.
- The Parliamentarian soldiers were called Roundheads. They were more Protestant and were made up of merchants and businessmen. They wore leather coats, a metal helmet, and a yellow sash. They were based out of London and were very well disciplined. There were also more of them than the Cavaliers.

Why did Parliament win?

- The fighting between the Royalists and the Parliamentarians lasted for seven years! During this time, 200,000 people were killed (4% of the population of England!) Half of this number were civilians who died from either starvation or disease caused by the battles.
- Both the Roundheads and the Cavaliers stole from people during the fighting and thousands of pounds worth of damage was caused by the fighting.
- Parliament, eventually, won the English Civil War – there are many reasons for this.
- One reason was that the Roundheads were led by a man called Oliver Cromwell, who used clever tactics and strict discipline to win battles.
- Another reason is that the Parliamentarians had more money than the Royalists as they were supported by wealthy businessmen and merchants.
- Furthermore, Parliament used propaganda to make Charles I and the Cavaliers look bad, which meant they got more support from the people of England (80% by 1648).
- Also, Charles I believed that he had the 'Divine Right of Kings' and that God would protect him and ensure his victory. This made him arrogant and therefore he made many mistakes.



Ex-King

Charles I was captured by the Parliamentary forces and put on trial for treason.

From 20th to 26th January 1649, Parliament heard many people testify to the King's guilt. Charles I refused to defend himself – he claimed that they had no right to accuse him or crimes against the country because he *was* the country!

The trial was not very fair and he was found guilty and sentenced to death.

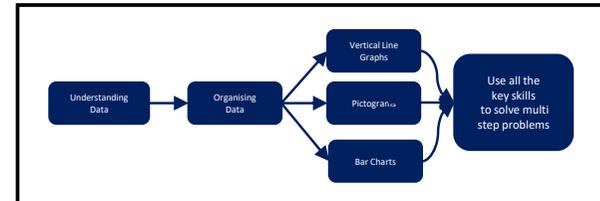
On 30th January, King Charles I was beheaded. This was the first and only time in England's history where a ruling monarch was executed.



Important Ideas	
Understanding Data	Know the difference between discrete and continuous data • Know the different ways to collect data
Organise data	Organise data in tally and frequency tables • Organise grouped data in frequency tables
Displaying Data	Construct and interpret Pictograms, Vertical Line Charts, Bar Charts, and Compound Bar Charts

Important Vocabulary	
Data	There are two different types of data, Discrete and Continuous. Discrete data is countable data: shoe size, number of pets, age; Continuous data is measurable data: Height, Temperature, Time to run a race.
Grouped Data	Grouped data is used when dealing with continuous data, we make a class interval to show all possible value in that range, $1cm < x \leq 5cm$
Bar Chart	A bar chart is a way to display discrete data, it has individual bars that don't touch, with the data on the x-axis and the values on the y-axis.
Picto - Gram	A pictogram is another way to display data, it used images or pictures to represent an amount, again this is for discrete data.

Learning objectives knowledge structure

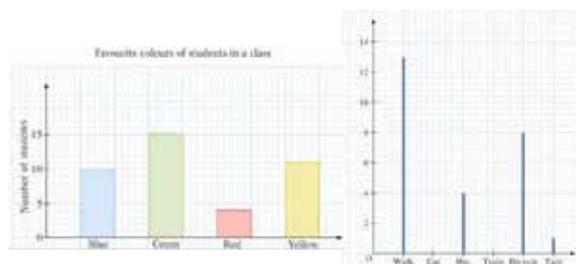


Key facts to memorise – Bar Charts and Vertical Line Graphs

Bar charts and Vertical Line Graphs are a more formal way to show discrete data, they have each category given on the x-axis and then show how many of each on the y-axis. There needs to be gaps between each bar. Here are two examples, with their frequency tables

Favourite colour	Number of students
Blue	10
Green	15
Red	4
Yellow	11

Method of transport	Number of students
Walk	13
Car	10
Bus	4
Train	6
Bicycle	8
Taxi	1



Key facts to memorise – Organising Data

Here is a list of data about how long it took students to complete homework (hrs). As this is time we are dealing with continuous so our frequency table needs to have class intervals

2.5	1.3	2.6	2.4	1.8	3.7	0.8	2.6	1.2	3.2
3.3	1.7	2.0	3.8	2.9	1.1	2.1	1.0	2.4	2.8
0.7	1.4	0.9	2.5	2.1	1.8	1.3	3.9	2.8	3.0

Time (x hours)	Tally	Frequency
$0 < x \leq 1$	////	4
$1 < x \leq 2$	### //	9
$2 < x \leq 3$	### ## //	12
$3 < x \leq 4$	###	5
Total		30

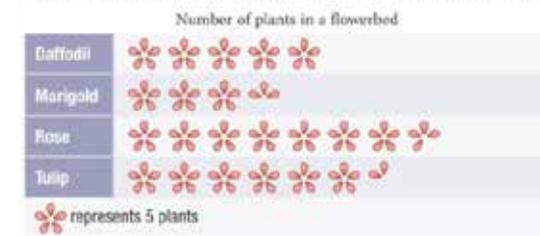
Historic Importance

Data has been record by many civilisations, even in a primitive manner to make sure they could keep track of everyday life tasks. Tally or marking was used to track agriculture and crop rotations. Then simple machines and equipment like the abacus helped this. One of the first formal ways to represent this data was in 1786 by William Playfair, who worked as an Economist for England. Others since built on his ideas of graphics like Florence Nightingale during the Crimean War, John Snow in 1854, and Charles Minard in 1845.

Key facts to memorise – Displaying Data

Pictogram use images to display the data they are showing, they will always need to have a key to show what the image represents. The image will always have symmetry as well to make sure it can be split up to show the full range of values.

The pictogram below shows the number of plants in a flowerbed.



A question that could be asked here is how many Marigolds are in the garden?

Notice our key has 5 petals to represent 5 plants. That means that is 15 plants from the full image and an extra 3 plants from the section. So there are 18 Marigolds in this flower be.

Another question could be how many more Roses are there than Daffodils. Could you work that out?

Important Ideas	
Data	A collection of facts, such as numbers, words, measurements, observations or even just descriptions of things.
Data Collection	Data can be collected by questionnaires, surveys, observation, testing and measurement.
Line Graph	A graph with points connected by lines to show how something changes in value: <ul style="list-style-type: none"> • as time goes by, • or as something else changes.
Scatter Graph	A graph of plotted points that show the relationship between two sets of data.
Line of best fit	A line on a graph showing the general direction that a group of points seem to follow.
Correlation	When two sets of data are strongly linked together we say they have a High Correlation.
Pie Chart	A Pie Chart is a special chart that uses "pie slices" to show relative sizes of data. The chart is divided into sectors, where each sector shows the relative size of each value.

Historic Importance

Data has tremendously changed over time – particularly the amount, collection, types, and analysis of it. Data has also progressed to what it is today by impacting everyone and every industry. The future of data and that of market research are also interrelated. As a result, it's important to understand its history, especially as the next shift in data is happening now. The first forms of early data were in the form of tally or tick marks. These were collected in order to keep track or record inventories such as food for ancient civilizations. Later the abacus was invented to help with the calculations of such records. Then, other data related to astrological studies and time-keeping resulted in scientific discoveries. Ultimately, as more forms of data were discovered, the need for tools to collect, analyse, and store it also quickly resulted – even in the earliest of times of data history.

Key facts to memorise – Scatter Graph

Data can be presented in a scatter graph. For example;

The axes require a scale representing each related set of data. Each cross represents a data point, such as a person plotted against their height and IQ.

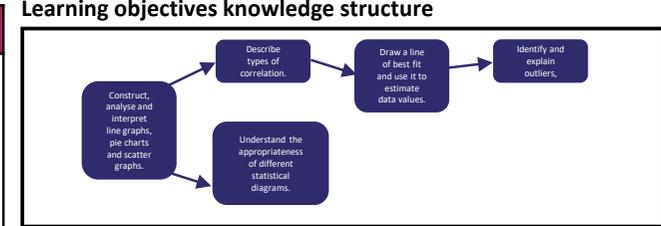
A line of best fit can be drawn to show a general trend in the data. This line can then be used to estimate values for other data points.

The relationship between the two sets of data can be said to have positive, negative or no correlation. Positive correlation involves an increase in one data set as the other increases also. Meanwhile, negative correlation involves one data set increasing while the other decreases.

(a) Positive correlation

(b) Negative correlation

(c) No correlation



Key facts to memorise – Pie Chart

To calculate the angle required for a portion of a pie chart, express the frequency as a fraction of the total, then multiply this by 360°.

For example, if 12 out of 30 people walk to school;

$$\frac{12}{30} \times 360^\circ = 144^\circ$$

Key facts to memorise – Line Graph

Data can be presented in a line graph. For example,

The axes must use a scale.

Important Ideas	
Types of Quadrilateral	• Classify Special Quadrilaterals on the basis of their properties
Properties of Quadrilaterals	• Recognise the properties of special quadrilateral
Types of Polygons	• Recognise the properties of polygon including symmetrical properties.
Interior and Exterior Angles	• Understand interior and exterior angles of polygon and their relationship

Historic Importance	
10 th Century BC – 3 rd Century BC	Many polygons appear in nature, this meant that early civilisations would investigate shapes and their meaning from their environment without understanding the mathematical properties behind them
3 rd Century BC	Most ideas of geometry come from early Greek mathematicians. Mainly Euclid who did extensive work on shape relationship and angles, This meant that shapes could be identified by a common property to all of them

Key facts to memorise – Types of Quadrilaterals

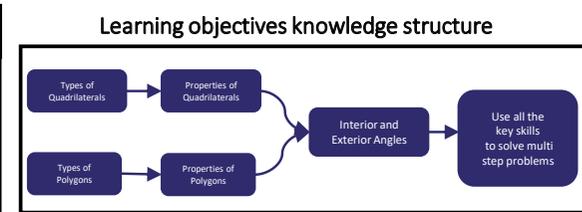
A **parallelogram** is a quadrilateral with two pairs of parallel sides.

A **rectangle** is a parallelogram with four right angles.

A **rhombus** is a parallelogram with four equal sides.

A **square** is a parallelogram with four right angles and four equal sides.

A **trapezium** is a quadrilateral with one pair of parallel sides.



Important Vocabulary

Quadrilaterals	Quadrilaterals are any 4 sided shape, either regular or irregular. The names for the common quadrilaterals are: Square, Rectangle, Rhombus, Parallelogram and Trapezium.
Polygons	A polygon is a closed 2d shape made up of straight line segments. They are usually named after the number of sides they have
Interior and Exterior Angles	Interior angles are the angles that are on the inside of a 2d shape, exterior are those bounded by a straight line from the shapes vertex.

Key facts to memorise – Types of Polygons

triangle (3-sided)

quadrilateral (4-sided)

pentagon (5-sided)

hexagon (6-sided)

heptagon (7-sided)

octagon (8-sided)

nonagon (9-sided)

decagon (10-sided)

dodecagon (12-sided)

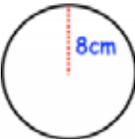
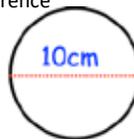
Key facts to memorise – Interior Angles

Polygon	Triangle	Quadrilateral	Pentagon	Hexagon	Heptagon
Number of sides	3	4	5	6	7
Number of dissected triangles	1	2	3	4	5
Sum of interior angles	$180^\circ = (3 - 2) \times 180^\circ$	$2 \times 180^\circ = (4 - 2) \times 180^\circ$	$3 \times 180^\circ = (5 - 2) \times 180^\circ$	$4 \times 180^\circ = (6 - 2) \times 180^\circ$	$5 \times 180^\circ = (7 - 2) \times 180^\circ$

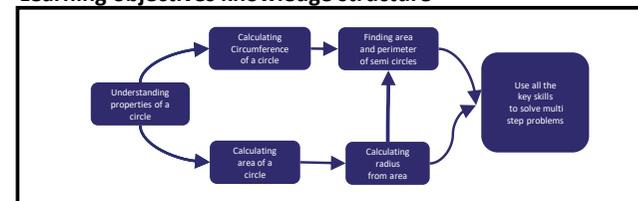
Important Ideas	
Understand properties of a circle	• To be able to label the different parts of a circle • Understand the relationship between radius and diameter
Calculate the circumference and area of a circle	• Understand π and its meaning • Learn the relationship between the diameter and the circumference of a circle • Know how to calculate the area of a circle
Find perimeter and area of semi and quarter circles	• Using knowledge of a circle find the perimeter of semi circles • Understand the different in calculations between circles, semi-circles and quarter circles
Reverse area and perimeter	• To be able to find a missing length from either circumference or diameter
Work with complex shape	• Consolidate the knowledge learnt into complex 2D shapes.

Historic Importance	
	The circle has been known since before the beginning of recorded history. Natural circles would have been observed, such as the Moon, Sun. The circle is the basis for the wheel, which, with related inventions such as gears. In mathematics, the study of the circle has helped inspire the development of geometry, astronomy and calculus.
1700 BCE	The Rhind papyrus gives a method to find the area of a circular field. The result corresponds to $\frac{256}{81} = 3.16049 \approx \pi$
300 BCE	Book 3 of Euclid's Elements deals with the properties of circles. In Plato's Seventh Letter there is a detailed definition and explanation of the circle (to write out all they did for circles would take up a lot of pages)
1880 CE	Lindemann proves that π is transcendental,

Important Vocabulary	
Diameter	The diameter of a circle is the distance from one point on its edge to one at the opposite side, crossing through the center of the circle
Radius	The radius of a circle is the distance from the center of a circle to its edge. It is exactly half the diameter
Circumference	The circumference of a circle is the distance around the edge of the circle. You can calculate this with the formula $c = \pi \times d$, where c is the circumference and d is the diameter
Area	The area of a circle is the space inside its circumference, to calculate this we need to use the formula $A = \pi \times r^2$
Semi-Circle	Semi-circles are circle that have been cut exactly in half through their diameter, these have half the original circumference and the base. Quarter circles are semi-circles in half again

Key facts to memorise – Area and Circumference	
Area	The formula for the area of a circle is $A = \pi r^2$ To calculate the area in this question replace r for 8cm $A = \pi \times 8^2$ $A = \pi \times 64$ $A = 201.1cm^2$ 
Circumference	The formula for the circumference of a circle is $c = \pi d$. To calculate the circumference replace d for 10cm $C = \pi \times 10$ $C = 31.41cm$ 

Learning objectives knowledge structure



Key facts to memorise – Reverse Area

If the area is $36\pi cm^2$ and we need to find the radius, we have to use the formula in reverse

$$A = 36\pi cm^2$$

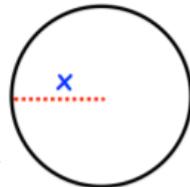
$$36\pi = \pi \times r^2$$

$$36\pi \div \pi = r^2$$

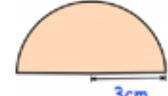
$$36 = r^2$$

$$6cm = r$$

Area = $36\pi cm^2$



This gives us the radius of 6cm, remember if it want the diameter it would be 12cm

Key facts to memorise – Area and Perimeter of Semi-Circles	
Area	To work out the area of a semi circle we use a similar method. The radius here is 3cm so use the formula πr^2 $A = \pi \times 3^2$ $A = 9\pi$  $A = \frac{9\pi}{2}$ As it's a half a circle, we need to half the area so
Perimeter	For the perimeter of the same semi circle we need to find the circumference again, $C = \pi \times d, C = \pi \times 6, C = 6\pi$ As it's a semi circle we want half this so $C = 3\pi$ We also need to add in the base of 6cm so perimeter $P = 3\pi + 6$

Important Ideas	
Surface Area	The total area of the surface of a three-dimensional object. Example: the surface area of a cube is the area of all 6 faces added together. The surface area can be found by calculating the area of the shape's net.
Volume	The amount of 3-dimensional space something takes up. Imagine how much water could be in it. Also called Capacity.
Net	A pattern that you can cut and fold to make a model of a solid shape.
Plan	A drawing of something as viewed from above.
Elevation	A drawing of something as viewed from the side or front.

Historic Importance	
3,000 BC	The History of Geometry. Geometry's origins go back to ancient Egypt. Ancient Egyptians used an early stage of geometry in several ways, including the surveying of land, construction of pyramids, and astronomy.
240 BC	A spectacular landmark in the history of mathematics was the discovery by Archimedes that the volume of a solid sphere is two-thirds the volume of the smallest cylinder that surrounds it, and that the surface area of the sphere is also two-thirds the total surface area of the same cylinder.
1642 AD	Girard Desargues invented perspective geometry in his most important work titled "Rough draft for an essay on the results of taking plane sections of a cone"(1639). In 1648, he published his famous "Desargues' Theorem" for two triangles in perspective, which later evolved into projective geometry.

Important Vocabulary	
Prism	A solid object with two identical ends and flat sides. The shape of the ends give the prism a name, such as Triangular Prism. There are also Square Prisms, Pentagonal Prisms and more. <ul style="list-style-type: none"> • The cross section is the same all along its length • The sides are parallelograms (4-sided shape with opposite sides parallel) • It is also a polyhedron
Cylinder	A solid object with: <ul style="list-style-type: none"> • two identical flat ends that are circular or elliptical • and one curved side. It has the same cross-section from one end to the other.
Dimension	A measurement of length in one direction. Examples: width, depth and height are dimensions.

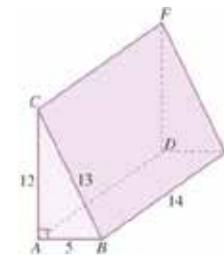
Key facts to memorise – Volume of prisms and cylinders

To calculate the volume of a prism or cylinder calculate the area of its cross-section, then multiply this by its length.

For example;

Area of cross-section
 $= \frac{1}{2} \times 5 \times 12$
 $= 30$

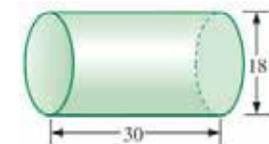
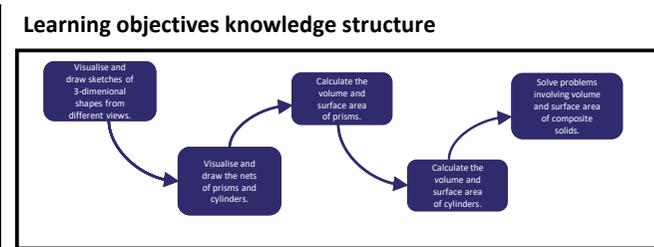
Volume
 $= 30 \times 14$
 $= 420$



For example,

Area of cross-section
 $= \pi \times 9^2$
 $= 81\pi$

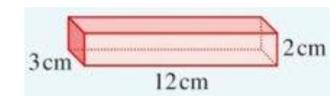
Volume
 $= 30 \times 81\pi$
 $= 2430\pi$

Key facts to memorise – Surface area of prisms and cylinders

To calculate the surface area of a prism or cylinder, calculate the total area of all its faces. It may help to think of this as calculating the area of its net.

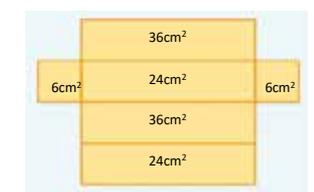
For example;



$3\text{cm} \times 12\text{cm} = 36\text{cm}^2$
 $12\text{cm} \times 2\text{cm} = 24\text{cm}^2$
 $2\text{cm} \times 3\text{cm} = 6\text{cm}^2$
 $36\text{cm}^2 + 24\text{cm}^2 + 6\text{cm}^2 = 66\text{cm}^2$
 $66\text{cm}^2 \times 2 = 132\text{cm}^2$

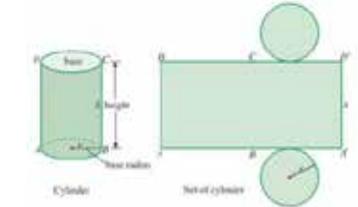
You multiply by 2 at the end because the opposite faces of the cuboid are the same. Multiplying by 2 takes account of the faces you cannot see in the picture.

You can think of the surface area as the total area of the net of the cuboid;



To calculate the surface area of a cylinder;

You need to add the area of two circles and a Rectangle. The dimensions of the rectangle are the circumference of the circle by the length of the prism.



Key skills	
Ready position	Balanced position, side on, racket up and ready, on toes.
Grip	Shake hands with the racket sideways on. Wrap fingers round the tape.
Serving	There are several types of serve – short/backhand, long, flick. A backhand serve should land close to the service line on your opponents side of the net. The racket head must start from below the waist.
Underarm clear (long serve)	This shot is played high to the back of your opponents court. Start sideways on and use a whip action with the wrist to create power.
Overhead clear	Played to the back of your opponents' court and is a defensive shot. Start sideways on, racket up and behind you, focus on making contact with the shuttle in front of you.
Drop shot	A shot played with finesse to land the shuttle as close as possible to the net on your opponent's side.
Net shot	A delicate shot in the game of badminton. This is used to the shuttle just drops over the other side of the net making it very difficult for your opponent to return the shot.
Smash	Is the most attacking of all the badminton shots. This should be aimed mid court and low with power on your opponents side of the court. This shot is very difficult to return.
Tactic	Hitting into space – moving partner around the court - shot selection – selecting the right shot for the right situation - targeting opponents weaknesses
<p><u>Key Components of fitness required</u></p> <ul style="list-style-type: none"> <i>Agility to be able to move around the court in different directions quickly.</i> <i>Power to perform shots with a high burst of energy.</i> <i>Speed to allow shots to be performed correctly and powerfully.</i> 	

Questions

1. Which component(s) of fitness do you think are most important for a Badminton player?

To answer this question you must:

- Name a component of fitness
- Explain what the component of fitness does and why it would be important
- Give an example of when a player would use it in relation to Badminton.

2. Which method of training do you think is most important for a Badminton player?

To answer this question you must:

- Name the method.
- Explain what the method of training involves.
- Give an example of why it would be use it in relation to Badminton.



Key terminology

- Grip
- Ready position
- Drop shot
- Rally
- Serve –backhand/short, long, flick
- Overarm clear
- Underarm clear
- Smash

Rules of Badminton

- The game is played up to 21 points. If the score reaches 20-20, the winner is the player or team with a two point advantage
- If the score goes up to 29-29, the winner is the first person to reach 30 points.
- The service must be made diagonally across court.
- The server must serve the shuttlecock with the head of the racket below waist height.
- A shuttle landing on the line is in.
- If a shuttle hits the net either on service or during a rally, play continues.
- A player may not make contact with the net with either the racket or their body.
- The shuttle must be contacted on the player’s own side of the net.
- One touch of the shuttle on your own side



Grips



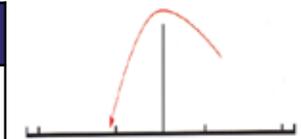
Servings

Low serve

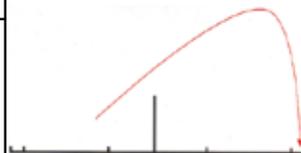
The **Low Serve** is a way to start a game of badminton. This shot needs to cross the oppositions service line and can be used to Outwit an Opponent by varying the depth of the shot.

High serve

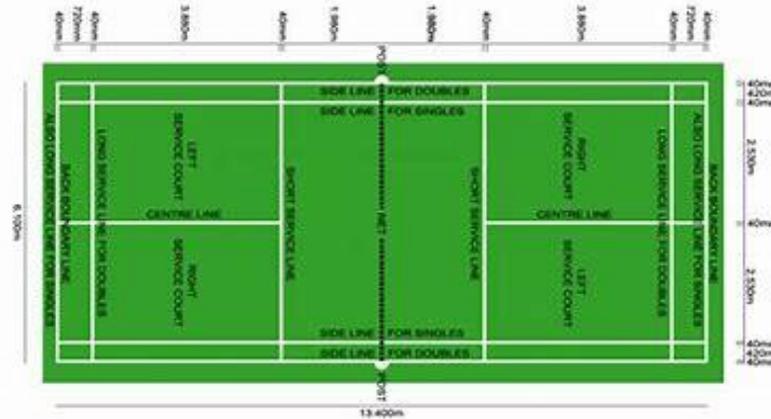
The **High Serve** is an alternative to the low serve. This choice of serve can be used to Outwit an Opponent by pushing them to the back of the court and following this up with a drop shot.



Low Serve



High Serve



Task: Draw a badminton court and label it correctly with the lines that are in/out for both singles and doubles.



Key Terminology	Key Skills	
Dribbling	Dribbling	Head up, spread fingers and fingertips, waist height.
Chest pass		
Set shot	Chest Pass	W grip, step, chest to chest, follow through, short distance.
Lay up	Bounce Pass	W grip, step, chest to chest, follow through, bounce before player, short distance.
Pivot		
Attacking	Pivoting	Footwork and jump stop: Landing on alternative feet- first foot to land is the static pivoting foot. Landing on simultaneous feet- either foot can become static pivoting foot/can be used at the end of a dribble or when receiving a pass.
Defending		
Free throw		
Release	On the move	Release ball before third step. Set shot: Knees bent, dominant foot slightly in front of other, strong hand at bottom, supporting hand on side, and elbow at 90 degrees.
Jump shot		
Back board	Defending	Man to man- knees bent, back straight, head up, arms out, watch opponent's belly-button.
Slam dunk		
	Attacking	Dribble into space, screen defenders, dribble out wide and quick inward passes, drive towards ball to receive pass losing defender, overload zone defence.



Shooting: B.E.E.F

Basketball- Set Shot

Balance: Feet shoulder width apart, knees bent.

Elbow: 90 degree angle, hand under the ball with other supporting at the side.

Eyes: Always looking at the ball (target).

Follow through: Shooting arm parallel to the basket, flick of the wrist as the ball is released.

Double dribble

Double dribble. occurs when a player ends his/her dribble by catching or causing the ball to come to rest in one or both hands and then dribbles it again with one hand or when a player touches it twice before the ball hits the ground.

Basic Rules

- Played with two teams of five
- Score by shooting through a hoop
- A side line ball is taken from the opposite team who touched it last
- Outside of the three point arc a basket is scores 3pts and inside scores 2pts
- Once the offense has brought the ball across the mid-court line, they cannot go back across the line during possession
- Personal fouls include hitting, pushing and holding
- Fouling a shooter results in one, two or three free throws, worth 1pt each, depending on where and how they were fouled
- Players cannot travel with the ball or double dribble
- Players cannot hold the ball for longer than 5 seconds

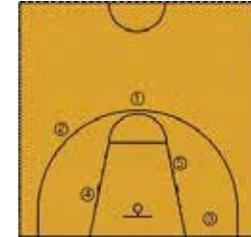
Stage one	Dribble to the side of net. When a few metres away from the basket, hold the ball with both hands on the shooting hands side of the body. Place the non-shooting hand on the side of the ball, and shooting hand on top of the ball.
Stage two	The last step before the lay-up jump should ensure that take off foot is opposite to the shooting hand (left foot/right hand). Flex the knee at takeoff.
Stage three	Whilst jumping, extend the shooting knee and raise the ball up. Bring the ball between the shoulder and ear. Direct the wrist and fingers straight at the basket and release the ball at the highest point. Complete the follow through with the arm up and palm facing down, and hold until the ball has reached the basket.

Stretch and Challenge task

Stretch and Challenge Task: Research and draw a basketball court in your homework book and label it correctly with the lines that are the 3-point line and the free throw line.

Learn about the different positions and write them down.

- 1.
- 2.
- 3.
- 4.
- 5.



Questions

Questions:

1. Which component(s) of fitness do you think are most important for a Basketball player?

To answer this question you must:

- a) Name a component of fitness
- b) Explain what the component of fitness does and why it would be important
- c) Give an example of when a player would use it in relation to Basketball.

2. Which method of training do you think is most important for a Basketball player?

To answer this question you must:

- a) Name the method.
- b) Explain what the method of training involves.
- c) Give an example of why it would be use it in relation to Basketball.

Techniques

Dribbling:

- Touch the ball with your fingertips, not your palm
- Bend your knees and get in a low stance
- Push down firmly onto the ball and release
- Use your wrist to control the bounce of the ball and power within the bounce
- Keep your head up and look for team mates, space and opposition players
- Move on the balls of your feet Use your agility, dribbling skills and speed to get past defenders.

Catching:

- Create a W with your hands
- Fingers spread wide and elbows bent
- Weight on the front foot and knees slightly bent

Throwing:

- Weight always on front foot
- The ball is gripped in your fingers and thumb, never your palm
- The arm is raised, with the throwing elbow above the shoulder
- Throw forward your arm and release the ball
- Remember to aim at your partner's W

Shooting:

1. Receive the ball on the move
2. Attack open space using your three steps
3. Raise the throwing arm backwards, the ball should be above your head and elbow above your shoulder
4. Transfer your weight onto your front foot
5. Aim at your target, and follow through your throwing arm and release the ball

Jump shot technique

1. Follow the first three steps from the technique above
2. When attacking the open space, jump past the 6M line through the space into the D
3. Before landing throw forward the throwing arm and release ball



Questions

Questions:

1. Which component(s) of fitness do you think are most important for a Handball player?

To answer this question you must:

- a) Name a component of fitness
- b) Explain what the component of fitness does and why it would be important
- c) Give an example of when a player would use it in relation to Handball

2. Which method of training do you think is most important for a handball player?

To answer this question you must:

- a) Name the method.
- b) Explain what the method of training involves.
- c) Give an example of why it would be use it in relation to Handball.



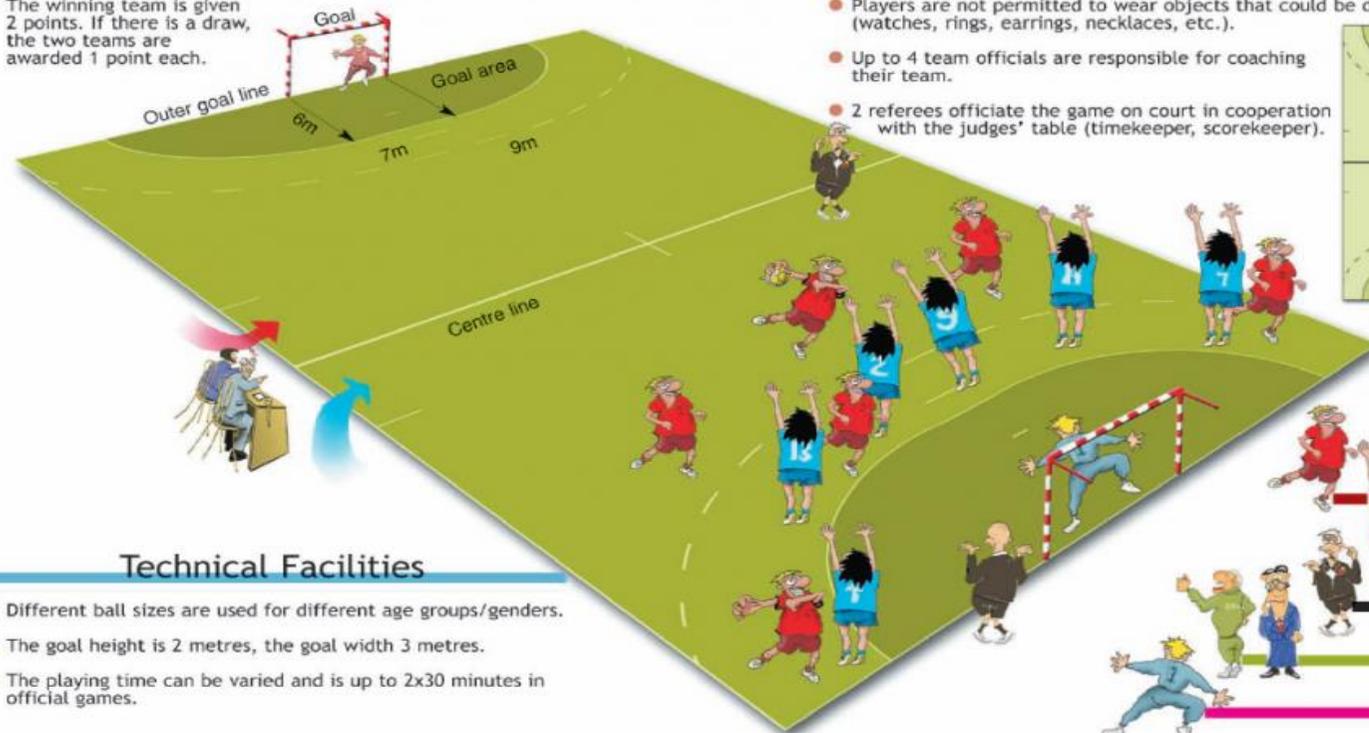
Key Terminology

Handball Court Rules and Regulations

Block
 Shot
 Jump shot
 Defence
 Attack
 Passing
 Dribbling
 Centre line
 Goal line
 Official
 Goal keeper
 Referee
 Attacker
 Defender
 Court
 Crease/Zone
 Rolling substitutes
 Outer field player
 Fouls
 Free-throws
 Penalty throws
 Throw-ins
 Corners
 Goal throws
 Shoot out

The Basic Principles of Handball

- Handball is a team sport based on "fair play" principles.
- On court there are two male or female teams playing against each other, both trying to score goals with a handball.
- The team that has scored the most goals when the playing time is over is the winner.
- The winning team is given 2 points. If there is a draw, the two teams are awarded 1 point each.



Teams/Players/Team Officials/Referees

- Each team consists of up to 14 players. On court a team has 6 field players and 1 goalkeeper.
- Within each team the players are interchangeable during the game.
- All field players of a team wear identical, coloured uniforms. Goalkeepers wear uniforms that differ from those of the field players.
- Players are not permitted to wear objects that could be dangerous (watches, rings, earrings, necklaces, etc.).
- Up to 4 team officials are responsible for coaching their team.
- 2 referees officiate the game on court in cooperation with the judges' table (timekeeper, scorekeeper).

Technical Facilities

- Different ball sizes are used for different age groups/genders.
- The goal height is 2 metres, the goal width 3 metres.
- The playing time can be varied and is up to 2x30 minutes in official games.

Subject: PE

Topic: Netball

Term: Autumn

Key terms

- Centre pass
- Co-ordination
- Agility
- Penalty pass
- Positions
- Create the space
- Outwitting opponents
- Contact
- Over a third

Key skills

- Bounce pass
- Chest pass
- Overhead pass
- Shoulder pass
- Footwork
- Attacking
- Defending
- Dodging
- Shooting

Positions

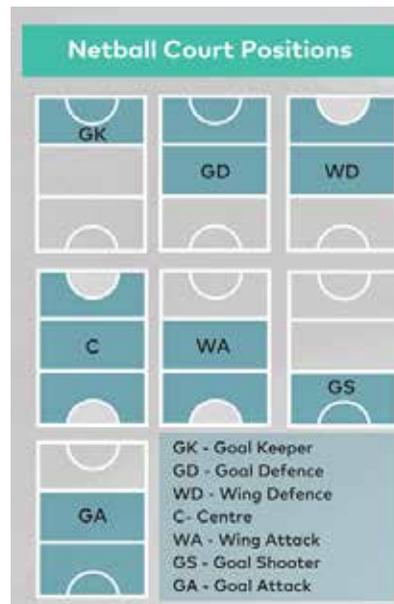
- GK**- Goal Keeper (Defends GS on the opposite team)
- GD**- Goal Defence (Defends GA on the opposite team)
- WD**- Wing Defence (Defends WA on the opposite team)
- C**- Centre (Defends C on the opposite team)
- WA**- Wing Attack (Defends WD on the opposite team)
- GA**- Goal Attack (Defends GD on the opposite team)
- GS**- Goal Shooter (Defends GK on the opposite team)

Questions

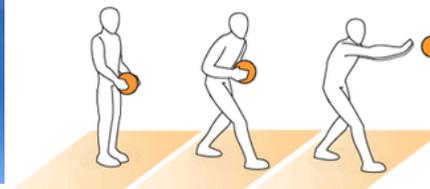
- 1) **Identify** a component of fitness used by netball players and explain how this would be used in a game situation.
- 2) **Analyse** a method of training that would be suitable for a netball players regular training program.
- 3) **Design** a specific warm up and cool down suitable for a netball player.

Teams

- The netball court is split into thirds.
- Each player has their own starting position
- Each player has their own area that they are allowed on court.
- Teams consist of 7 players on court at any one time.
- Substitutes can be made at $\frac{1}{4}$ or $\frac{1}{2}$ time.
- Each player plays a different position and has a different role on court.



This shows the position on the court that each netball player must start at for every centre pass.



Key terminology		Rules & regulations
Attacking team	The attacking team in netball terms refers to the ones who are in possession of the netball ball and the attackers are attempting to score a goal.	<p>Match Play</p> <ul style="list-style-type: none"> The aim of a game is for the ball to be passed down the court between team players, to the GA or GS, who are able to take a shot. A goal is successfully scored if it goes through the net of the goal post. The winning team is the team who score the most goals in 1 full game. The game begins with a center pass and teams alternate this every time a goal is scored. The center pass must be received inside the center 3rd. If a rule is broken, the opposite team get possession of the ball. <p>The Main Rules</p> <ol style="list-style-type: none"> No contact- You can't touch a player or the ball. Footwork- Can't travel with the ball. Over a third – The ball has to travel in each 3rd. Obstruction- You need to be 1m away when defending.
Back-line throw in	The netball expression 'back-line throw in' refers to the procedure of returning the ball to the court from the back-line after it has gone out of play.	
Center circle	The small netball center circle marks the spot in the center of the court where play begins and restarts following a goal.	
Center court	The center court is the middle third of the court playing area.	
Center pass	The netball center pass is the initial passing movement which begins and restarts play following a goal. So, the start of a netball match is called a center pass (not kick off).	
Defending team	The defending team is the one without possession of the ball. They defend their goal area from the other team who is attempting to score a goal.	
Free pass	A free pass is awarded to the opposing team for an incurred penalty.	<p>Netball shooting</p> <ol style="list-style-type: none"> Stand in a balanced position facing the goal Ball held high above head (away from defenders arms) Ball sits on one hand (fingers) with other hand supporting Bend your knees and elbows keeping your hands high and focus on the goal. Keep you shoulders still Extend knees and elbows and flick the ball off your fingers – push the ball high to allow it to fall into the net End the shot with arms high and hands following the ball
Held Ball	The term 'held ball' refers to holding the ball for longer than you are allowed to.	



What is Physical Theatre?	
Physical theatre	Theatre in which the physical quality of performance is emphasised
Dance	Move rhythmically to music, typically following a set sequence of steps.
Acting	Playing different characters or roles in performance
Mime	A theatrical technique of suggesting action, character, or emotion without words, using only gesture, expression, and movement
Clown	A comic entertainer
Circus	A travelling company of acrobats, clowns, and other entertainers which gives performances, typically in a large tent, in a series of different places
Practitioner	A person actively engaged in an art, discipline, or profession. A theatre practitioner.

Ways of moving	
	Actors train their bodies to prepare for live performance and to help them play different characters They also use their bodies in much more creative, abstract ways to express emotion or play unusual objects.
Neutral	A standing position that is relaxed and comfortable. The actor is ready to move and make choices about their character. of the character
Body Language	The body constantly communicates our state of mind. Actors will study, imitate and practice body language in order to play different characters.
Posture	the position of the body.
Gesture	A movement that has a meaning.
Status	the 'Power' a character has, we talk of 'high status' and 'low status' characters.
Tempo	In acting, tempo can describe the internal or external speed
Eye contact	Focus is an extremely important tool for an actor.
Gait	the specific way a character walks.



Mime



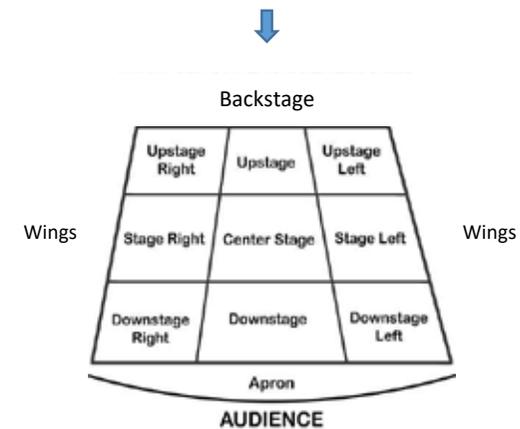
Clown



Contemporary dance

Stage craft	
<u>Blocking</u> means two different things in performance	
1. To stand in front of another actor	2. The places an actor moves to on stage during a scene
"Don't stand there, you're blocking him"	"I'm just trying to remember the blocking for this scene"

Remember, Stage Left and Stage Right are from the performer's point of view – not the audience's!



Laban's Eight Efforts

Rudolf Laban was a dance artist, theorist and pioneer of modern dance. He defined human movement into **Eight Efforts**. He used this work to develop a movement language and to train dancers and actors.

The Eight Efforts

Punch, slash, Dab, Flick, Press, Wring, glide, Float.
Each movement has Four Components

- **Direction:** Direct or Indirect (*You can go directly for something, or you can meander*)
- **Speed:** Quick or Sustained (*is it sustained like a feather falling, or darting like a lizard's tongue?*)
- **Weight:** Heavy or light
- **Flow:** Bound or Free (*Is it full of tension or is it effortless?*)



	DIRECTION	SPEED	WEIGHT	FLOW
PUNCH	Direct	Quick	Heavy	Bound
SLASH	Indirect	Quick	Heavy	Free
DAB	Direct	Quick	Light	Bound
FLICK	Indirect	Quick	Light	Free
PRESS	Direct	Sustained	Heavy	Bound
WRING	Indirect	Sustained	Heavy	Bound
GLIDE	Direct	Sustained	Light	Free
FLOAT	Indirect	Sustained	Light	Free

Frantic Assembly – Chair Duets

Frantic Assembly are a Physical Theatre company, famous for their brave, high energy performances. They have devised and choreographed the movement for award winning, "The Curious Incident Of the Dog in the Night-Time" by The National Theatre.

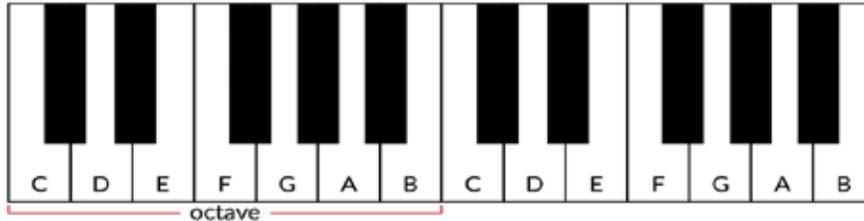
- Frantic Assembly's "Chair Duets" offer performers a simple physical theatre method to explore relationships between characters and to spontaneously create stories.
- Performers sit side by side and build a sequence of simple hand movements.
- The longer the sequence, the more the movements begin to have meaning, they represent ideas and signify details about the relationship of the characters in the chairs.
- Frantic assembly train performers not to try to create relationships or stories – rather they should focus on the movement and allow the rest to happen naturally.



Physicality	The focus and quality of the body	Sequence	An order in which things follow each other
Relationship	The way in which things are connected	Devise	To plan or invent
improvise	Create spontaneously without preparation	Structure	The arrangement and relationship between parts of something

The Layout of the Keyboard

A. Layout of a Keyboard/Piano



A piano or keyboard is laid out with **WHITE KEYS** and **Black Keys** (see section G). C is to the left of the two Black Keys and the notes continue to G then they go back to A again. Notes with the same letter name/pitch are said to be an **OCTAVE** apart. **MIDDLE C** is normally in the centre of a piano keyboard.

Functions and Fingers

D. Keyboard Functions



E. Left Hand/Right Hand (1-5)



Exploring Treble Clef Reading and Notation

B. Treble Clef & Treble Clef Notation

A **STAVE** or **STAFF** is the name given to the five lines where musical notes are written. The position of notes on the stave or staff shows their **PITCH** (how high or low a note is). The **TREBLE CLEF** is a symbol used to show high-pitched notes on the stave and is *usually* used for the right hand on a piano or keyboard to play the **MELODY** and also used by high pitched instruments such as the flute and violin. The stave or staff is made up of 5 **LINES** and 4 **SPACES**.



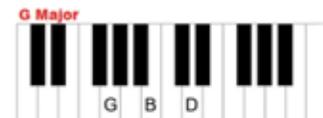
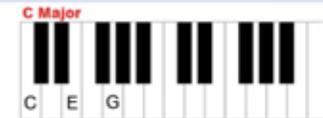
Every Green Bus Drives Fast. Notes in the **SPACES** spell "FACE"



Notes from **MIDDLE C** going up in pitch (all of the white notes) are called a **SCALE**.



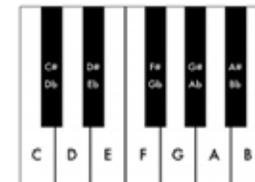
C. Keyboard Chords



Play one - Miss one - play one - miss one - play one

F. Black Keys and Sharps and Flats

There are five different black notes or keys on a piano or keyboard. They occur in groups of two and three right up the keyboard in different pitches. Each one can be a **SHARP** or a **FLAT**. The # symbol means a **SHARP** which raises the pitch by a semitone (e.g. C# is higher in pitch (to the right) than C). The b symbol means a **FLAT** which lowers the pitch by a semitone (e.g. Bb is lower in pitch (to the left) than B). Each black key has 2 names - C# is the same as Db - there's just two different ways of looking at it! Remember, black notes or keys that are to the **RIGHT** of a white note are called **SHARPS** and black notes to the **LEFT** of a white note are called **FLATS**.



Key Words	Definition
Allah	The Arabic word for God.
Caliph	Leader of the Islamic community after Muhammad.
Caliphate	Islamic community ruled over by the caliph.
Jahannam	Hell.
Jannah	Paradise, or heaven.
Ka'aba	A key holy site in Mecca.
Mosque	Place of worship for Muslims.
Prophet	A messenger of God.
Revelation	A message revealed by God to humans.
Tawhid	Belief in the oneness of God.

Key People	Definition
Abu Bakr	1 st caliph (632-634 CE)
Ali	4 th caliph (656-661 CE)
Ibrahim	A prophet; Abraham in English.
Isa	A prophet; Jesus in English.
Khadija	Muhammad's wife.
Muhammad	The final prophet, received revelations.
Umar	2 nd caliph (634-644 CE)
Uthman	3 rd caliph (644-656 CE)

Life of Muhammad

- Islam is the second-largest and fastest-growing religion in the world. It is a monotheistic faith that began in Arabia in the lifetime of the Prophet Muhammad, who was born in Mecca in 570 CE. Islam means 'submission'.
- Muslims (followers of Islam) believe that Muhammad received revelations over 23 years from God about how people should live.
- The first revelation was received from the angel Jibril in 610 CE while Muhammad was praying in a cave. This event is known as the Night of Power. The revelations received by Muhammad were memorised by his followers and recorded in a book called the Qur'an after his death.
- Muhammad was a religious and political leader as well as a warrior, who fought against the persecution of early Muslims. He gained wide recognition as a prophet and brought previously warring tribes under Islamic rule.

Islam After Muhammad

- After Muhammad's death, Islam continued to spread under the rule of caliphs, and a large Caliphate (empire) was established. However, Muslims disagreed over who should succeed Muhammad as leader, which caused Islam to split between Sunni and Shi'a Muslims.
- Modern versions of the Qur'an are based on an official Qur'an compiled under the rule of the third caliph, Uthman. The Qur'an is written in Arabic and is split into 114 surahs (chapters). It is believed to be the word of God and is treated with great respect by Muslims.
- *Tawhid* – the belief that God is one – is the most important Islamic belief. Anything that goes against this is considered shirk. Muslims often describe God using 99 names, but ultimately Muslims believe that God is beyond anything that humans can describe or imagine.
- Muslims believe that Muhammad was the final prophet sent by God, but they also believe that God revealed himself to earlier prophets found in Jewish and Christian scriptures, such as Ibrahim (Abraham), Musa (Moses) and Isa (Jesus).
- Muslims believe that there will be a Day of Judgement, when God will send people to Jannah (paradise) or Jahannam (hell) depending on their faith or deeds.

Key Words	Definition
Adhan	The call to prayer.
Hadith	The reported sayings of Muhammad.
Hajj	A pilgrimage to Mecca.
Halal	Permitted for Muslims.
Haram	Forbidden for Muslims.
Ihram	A state of purity and holiness.
Imam	Leader of prayers (Sunni); Ali's 11 descendants (Shi'a).
Islamophobia	Dislike of and discrimination against Muslims.
Jihad	'Struggle'; either physical or spiritual.
Muezzin	Person responsible for performing the adhan.
Patriarchal	When men have more power/control than women.
Pilgrimage	Journey taken to a place of religious importance.
Salah	Islamic prayer five times a day.
Shahadah	Declaration of faith that there is one God.
Shari'a Law	Guidance on all aspects of Muslim life.
Wudu	Ritual washing before prayer.

The Five Pillars of Islam

- There are five practices, known as the Five Pillars of Islam, that are central to life as a Muslim. The first and most important is the Shahadah.
- The second pillar is salah, which is prayer five times a day.
- In mosques, a muezzin gives the adhan from either inside the mosque or from one of the towers so that people know it is time to pray. Muslims perform wudu before praying and pray facing the direction of Mecca.
- During the month of Ramadan, Muslims fast from sunrise to sunset. The 30 days of fasting are followed by a celebration called Eid ul-fitr. Those who are ill, elderly, young, pregnant or travelling do not have to fast.
- Hajj is a pilgrimage to Mecca that every Muslim tries to undertake during the course of his or her lifetime. Before arriving in Mecca, pilgrims enter the state of ihram and wear white cotton clothes. Pilgrims must circle the Ka'aba, walk or run between the hills of Marwah and Safa, pray for forgiveness on Mount Arafat and stone Satan at Mina. Approximately three million Muslims go on hajj each year. The pilgrimage lasts for five days in the last month of the Islamic year.

Islamic Ethics

- Despite many similarities, Sunni and Shi'a Muslims have different beliefs and practices. Over the course of history, there have been violent clashes between Sunni and Shi'a Muslims, and these continue today.
- Shari'a law (which is based on the Qur'an, Hadith and Sunnah) teaches Muslims what is halal, meaning permitted for Muslims, and what is haram, forbidden for Muslims.
- The question of whether Muslim women should wear a hijab, niqab, burqa or burkini causes much controversy, both within and outside Islam.
- The majority of Muslims view jihad – which means struggle – as a personal struggle to live life as a good Muslim. This is referred to as the 'greater jihad'. They condemn the views and actions of Islamic militants.
- Six per cent of people in Britain follow Islam. Most of these moved to Britain in the second half of the twentieth century. Muslims face a number of challenges, such as Islamophobia.

Key words	Definition
Group	A column in the Periodic table
Period	A row in the Periodic table
Reactivity	How easily it forms new products in chemical reactions
Element	Substances made up of only one type of atom
Compound	Substances made up of two or more types of atoms which are chemically joined
Mixture	Different elements and/or compounds together which are not all chemically joined
Atom	The smallest part of a chemical element
Molecule	Made up of two or more atoms
Malleable	An object which can easily be deformed (ability to change its shape)
Ductile	An object which can be stretched into shape
Brittle	An object which is delicate and easily broken
Sonorous	An object which makes a loud ringing noise when hit

Metals and non-metals

- Metals are found on the **left-hand side** of the Periodic table. An example of a metal would be Sodium (Na).
- Non-metals are found on the **right-hand side** of the Periodic table. An example of a non-metal would be Chlorine (Cl).

Properties of metals

- Shiny
- Hard
- Malleable
- Ductile
- Good conductors
- Sonorous

Properties of non-metals

- Dull
- Soft
- Brittle
- Poor conductors

Groups in the Periodic table

Group 1 – The Alkali metals

- Melting point – **decreases** down the group
- Boiling point – **decreases** down the group
- Reactivity – **increases** down the group
- metal + water → metal hydroxide + hydrogen gas

Group 7 – The Halogens

- Melting point – **increases** down the group
- Boiling point – **increases** down the group
- Reactivity- **increases** down the group
- The halogens undergo displacement reactions; where the most reactive changes place with the least reactive (it displaces it).

Group 0 – The Noble Gases

- Melting point – **increases** down the group
- Boiling point – **increases** down the group
- Noble gases are **inert** – they are almost **unreactive**

Chemical and Physical Reactions

Chemical reactions

- A change in the arrangement of the atoms to create new products.
- A chemical reactions cannot be easily reversed.
- For example; when baking a cake, lots of ingredients (reactants) are combined together to create something new, the cake (the product).

Physical reactions

- A change which does **not** create new products. The substance will however look different.
- Physical reactions can be reversed.
- For example; when solid ice water is melted it becomes liquid water, this can be reversed by freezing. Causing the liquid water to once again be solid ice water.

Key words	Definition
Speed	The rate at which someone or something moves
Distance	The length of the space between two points
Average speed	The total distance travelled divided by the total time taken
Acceleration	An increase in speed.
Stationary	Not moving
Relative motion	The motion of an object with regard to another moving object
Correlation	The relationship between two other variables

Atmospheric and Liquid Pressure

Gas Pressure

- Gas pressure is caused when the gas particles hit the walls of their container.
- The more often the particles hit the container walls and the quicker they are moving when they do this, the **higher** the gas pressure.
- Increasing the temperature** of the gas (heating) and **reducing the container size** will cause an **increase** in the gas pressure.

Atmospheric Pressure

- The **density** (amount of particles in a given area) decreases as height.
- The higher you go, the less particles there are. Due to this atmospheric pressure **decreases** with height.

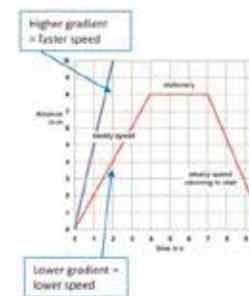
Liquid Pressure

- As you **increase the depth** of the liquid, the **pressure also increases**.
- The particles get closer together, so more collisions occur, which increase the pressure.

Distance-time graphs

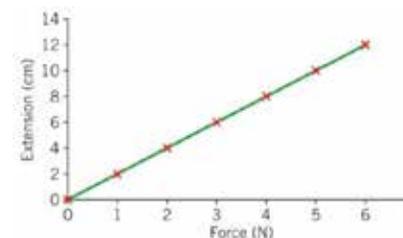
A distance-time graph allows us to compare the distance an object has moved in a given time.

- If an object is **stationary** the line will be **horizontal**.
- If the object is moving at a **constant** speed the line will be **diagonal**.
- The **steeper** the line the **faster** the object is moving.
- If the line is going back towards the **x axis** then the object is returning to the **start point**.



Hooke's Law

- Reaction force – if a compression force is applied to an object, the object will push back with the same force.
- Tension force – if an extending force is applied to an object, the object will pull back with the same force.
- Extension = new size of the object – old size of the object
- Hooke's law** states that if you **double** the size of the force on the spring, the extension will also **double** in size. We say that the force and the extension are **proportional**.



Formulas

It is important that you can use and also **rearrange** the formula's below;

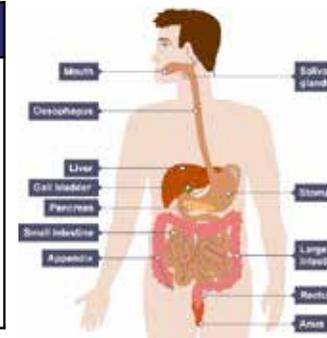
- speed(m/s) = distance(m)/time(s)
- power(W) = energy(J)/time(s)
- pressure(N/m²) = force(N)/area(m²)
- moment(Nm) = force(N) x distance(m) – The turning effect of a force is called a **moment**.

Key words	Definition
Medicinal drugs	Drugs which can be used to benefit health, for example antibiotics and painkillers.
Recreational drugs	Drugs which have no benefit to health and are taken purely for 'enjoyment', often having a negative impact, for example, cocaine and alcohol.
Specialised cells	Cells which have a specific function or job, for example the specialised cell of the digestive system is the villi .
Joules (J)	Energy is measured in this. 1000J = 1kJ.
Mouth	This is the organ which contains the teeth, allowing us to chew our food into smaller pieces. It is also where food is mixed with saliva.
Oesophagus	The tube which connects the mouth to the stomach. Food passes down this tube.
Stomach	A muscular bag which mixes broken down food with stomach acid and enzymes.
Enzymes	Molecules in the body which speed up reactions.
Small intestine	A long, thin muscular tube which nutrients pass through, entering the blood stream.
Large intestine	A slightly shorter muscular tube which allows water to be absorbed by the body, leaving a solid mass of undigested food.
Rectum	A area of storage in the body. The rectum stores the faeces ('poo') before it leaves the body.
Anus	A muscular ring that faeces ('poo') passes through to exit the body.

Types of nutrients

The body requires different nutrients to remain healthy, these include;

1. Carbohydrates – to provide energy
2. Lipids – to provide energy, also used as insulation to keep warm
3. Proteins – for growth and repair
4. Vitamins – needed in small amounts to remain healthy
5. Minerals – needed in small amounts to remain healthy
6. Water – needed to maintain fluid levels in the body and its cells
7. Fibre – to keep the food moving through the intestines



Food tests

Different chemicals can be used to determine what nutrients are present in food. The table below shows the nutrient identified, along with the colour change and the chemical used to cause this change in colour.

Nutrient	Colour change if nutrient present	Chemical used
Starch	Orange/yellow → Blue/black	Iodine
Lipids	Clear → Cloudy	Ethanol
Sugar	Blue → Orange/red	Benedict's solution
Protein	Pale-blue → Purple	Biuret solution

Food consumption

Consuming too **much** or too **little** food can have negative effects on our bodies;

Too much high energy food

- Heart disease
- Stroke
- Type 2 diabetes

Too little food

- Poor immune system
- Lack of energy
- Vitamin/mineral deficiencies, leading to problems such as scabies and rickets

Enzymes

- **Carbohydrase** – breaks down carbohydrates into smaller sugar molecules.
- **Protease** – breaks down proteins into amino acids.
- **Lipase** – breaks lipids down into fatty acids and glycerol.

SECTION 1 – MI MÓVIL (MY MOBILE)

Chateo.	I chat online.
Comparto mis vídeos favoritos.	I share my favourite videos.
Descargo melodías.	I download tunes.
Descargo aplicaciones.	I download apps
Hablo por Skype.	I talk on Skype.
Juego.	I play.
Leo mis SMS.	I read my texts.
Mando SMS.	I send texts.
Saco fotos.	I take photos.
Veo vídeos o películas.	I watch videos or films.

SECTION 5 – LA TELEVISIÓN (TELEVISION)

Me gusta el telediario	I like the news
Me gustan los programas de música	I like music programmes
los programas de deporte	sports programmes
los concursos	game / quiz shows
los documentales	documentaries
los realitys	reality shows
las comedias	comedies
las series policíacas	crime shows
las telenovelas	soap operas

SECTION 2 – LA MÚSICA (MUSIC)

el rap	Rap
el R'n'B	R'n'B
el rock	rock
la música clásica	classical music
la música electrónica	electronic music
la música pop	pop music
Escucho rap.	I listen to rap.
Escucho la música de...	I listen to ...'s music.
Escucho de todo.	I listen to everything.
la letra	the lyrics
la melodía	the tune
el ritmo	the rhythm

SECTION 6 – ¿QUÉ HICISTE AYER? (WHAT DID YOU DO YESTERDAY?)

Bailé en mi cuarto.	I danced in my room.
Fui al cine.	I went to the cinema.
Hablé por Skype.	I talked on Skype.
Hice gimnasia.	I did gymnastics.
Hice kárate.	I did karate.
Jugué en línea.	I played online.
Jugué tres horas	I played for three hours.
Monté en bici.	I rode my bike.
Vi una película.	I watched a film.
Salí con mis amigos.	I went out with my friends.
Hice los deberes.	I did my homework.

SECTION 3 – ¿CON QUÉ FRECUENCIA?

todos los días	every day
dos o tres veces a la semana	two or three times a week
a veces	sometimes
de vez en cuando	from time to time
nunca	never

SECTION 7 – PALABRAS MUY FRECUENTES (HIGH-FREQUENCY WORDS)

así que	so (that)
más... que...	more... than...
menos... que...	less... than...
mi / mis	my
su / sus	his / her
normalmente	normally
no	no / not
o	or
porque	because
también	also
y	and
pero	but
sin embargo	however
luego	then / later
ayer	Yesterday
por la mañana	in the morning
por la tarde	in the afternoon
un poco más tarde	a little later

SECTION 4 – LAS OPINIONES (OPINIONS)

Me gusta(n) mucho	I really like
Me encanta(n)	I love
No me gusta(n) nada...	I don't like ... at all
Odio / Detesto	I hate
Mi canción favorita es...	My favourite song is...
Mi cantante favorito es...	My favourite singer is...
Mi grupo favorito es...	My favourite band is...
Mi programa favorito es...	My favourite programme is...
porque es guay / triste / horrible	because it's cool / sad / terrible

SECTION 8 – LOS NÚMEROS (NUMBERS)

1	uno	11	once
2	dos	12	doce
3	tres	13	trece
4	cuatro	14	catorce
5	cinco	15	quince
6	seis	16	dieciséis
7	siete	17	diecisiete
8	ocho	18	dieciocho
9	nueve	19	diecinueve
10	diez	20	veinte

FORMAL AND INFORMAL

Use 'tú' if you are talking to someone that you know well.

Use the polite you singular 'usted' (3rd person) if you are talking to someone that you don't know well.

Use the polite 'you' plural 'ustedes' (3rd person plural) if you are talking to more than one person that you don't know well.

¿Cómo estás? How are you? (informal)

¿Cómo está? How are you? (formal)

¿Cómo están? How are you? (formal, plural)

REFLEXIVE VERBS

Reflexive verbs include a reflexive pronoun because they are often actions that you do to yourself. Once you choose the correct pronoun, they are conjugated as regular verbs.

e.g. ducharse = to have a shower

Me ducho

Te duchas

Se ducha

Nos duchamos

Os ducháis

Se duchan

ADJECTIVES

Adjectives describe nouns. The adjective endings change to agree with the nouns. They fall into three main groups. They also are mostly placed after the nouns in the sentence.

	Masculine singular	Feminine singular	Masculine plural	Feminine plural
Ending in o/a	divertido	divertida	divertidos	divertidas
Ending in e	importante	importante	importantes	importantes
Ending in a consonant	útil	útil	útiles	útiles

THE COMPARATIVE

Use the comparative when you want to compare two things. The adjective needs to agree with the noun.

más + adjetivo + que (More + adjective + que)

menos + adjetivo + que (Less + adjective + que)

Examples:

El telediario es **más aburrido que** el tiempo.

Los documentales son **más informativos que** las telenovelas.

Las telenovelas son **menos divertidas que** las películas.

NEGATIVES

To make a sentence negative, put 'no' before the verb. e.g. No tengo (I don't have).

Nunca means never, it usually comes before the verb: **Nunca bebo café = I never drink coffee**

No...nada means nothing/not anything. The two parts go around the verb: **no como nada = I don't eat anything.**

THE INFINITIVE

When two verbs are placed side by side in a sentence, the second verb MUST be in the infinitive.

- Me gusta **mandar** SMS = I like **to send** messages.
- Mando SMS = I send messages (No infinitive).
- Me encanta **salir** con mis amigos = I love **to go out** with friends.
- Salgo con mis amigos = I go out with friends. (No infinitive).
- Necesito **hablar** con mi abuela = I need **to speak** to my grandma.
- Hablo con mi abuela = I talk to my grandma (No infinitive).

REGULAR PRETERITE TENSE VERBS

You use the preterite tense to talk about completed actions/events in the past.

Steps to conjugate a verb in the preterite tense:

1. Identify what kind of verb it is (-ar, -er, -ir). Ejemplo: hablar (to speak)
2. Remove the infinitive ending to get the stem of the verb. Ejemplo: habl-
3. Pick the right ending for the right person and add it to the stem. Ejemplo: They spoke = Hablaron

	AR	ER	IR
YO (I)	-É	-Í	-Í
TÚ (YOU SG.)	-ASTE	-ISTE	-ISTE
ÉL/ELLA (HE/SHE)	-Ó	-ÍÓ	-ÍÓ
NOSOTROS (WE)	-AMOS	-IMOS	-IMOS
VOSOTROS (YOU PL.)	-ASTEIS	-ISTEIS	-ISTEIS
ELLOS/ELLAS (THEY)	-ARON	-IERON	-IERON

Examples:

bailar = to dance

I danced = bailé (remove the **ar** and add 'é')

beber = to drink

We drank = bebimos (remove the **er** and add 'imos')

asistir = to attend

They attended = asistieron (remove to **ir** and add 'ieron')

NOTICE THAT FOR "-ER" AND "-IR" VERBS WE USE THE SAME ENDINGS

IRREGULAR PRETERITE TENSE VERBS

There are many verbs in the preterite tense that are irregular. Note that 'ir' (to go) and 'ser' (to be) have the same endings in the preterite tense.

	ir = to go	ser = to be	tener = to have	ver = to see / watch	hacer = to do/to make
yo (I)	fui	fui	tuve	vi	hice
tú (you sg.)	fuiste	fuiste	tuviste	viste	hiciste
él/ella/ usted (he/she/i t/you formal)	fue	fue	tuvo	vio	hizo
nosotros (we)	fuimos	fuimos	tuvimos	vimos	hicimos
vosotros (you pl.)	fuisteis	fuisteis	tuvisteis	visteis	hicisteis
ellos/ellas /ustedes (they/yo u pl. formal)	fueron	fueron	tuvieron	vieron	hicieron

Examples:

Vimos una película = We watched a film.

Fue muy guay = It was very cool.

Fue al parque con sus amigos = She went to the park with her friends.



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