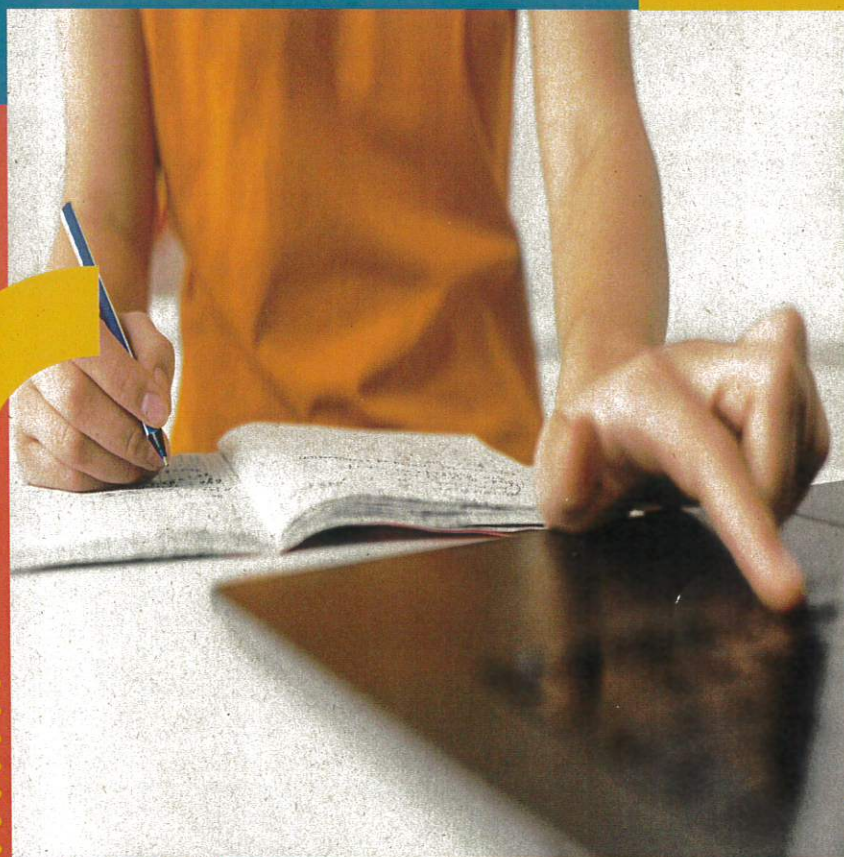




SMITHILLS SCHOOL
SUCCESS FOR ALL

HOMework BOOKLET



YEAR 8
AUTUMN TERM 1

www.smithillsschool.net



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Subject Knowledge Organisers and Tasks:

YEAR 8

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Homework Timetable:

	Monday	Tuesday	Wednesday	Thursday	Friday
Green	English	Maths	Science	English	Maths
	Geography	History	MFL Spanish/ Urdu French	RE	
	Music	Dance	PE	Food	
	Sparx Reader	Sparx Reader	Sparx Reader	Sparx Reader	Sparx Reader
Orange	Science	English	Maths	Science	English
	Geography	History	MFL Spanish/ Urdu French	RE	
	Art	Drama	Des Tech	Computing	
	Sparx Reader	Sparx Reader	Sparx Reader	Sparx Reader	Sparx Reader

Instructions on how to complete your homework:

1. Write the subject and date in your homework exercise book.
2. If you have been given tasks to complete, please do this in your exercise book. If you have been asked to recall information from a knowledge organiser, please use the steps below.



- Look at box/es that your teacher has assigned to you. Repeatedly read the information until you are confident you can remember it. You might find saying them out loud helps you.



- Cover each box so that you cannot see the text.



- Next, in your homework exercise book, write down everything you can remember from each box.



- Uncover the box and check your answers, correct any you got wrong or missed.
- Repeat this one more time as you should be able to remember more from each box on the second round.

3. Rule a line under the homework you have completed.

4. Repeat the process for your next subject/s.

5. Use the QR link below if you would prefer a visual reminder of how to complete this.



Student Guide to Logging In

1

Go to **sparxmaths.com**

2

Select **Student Login**

3

Carefully select your school from the list

4

Select **New Sparx user**

5

Enter your:

- First Name
- Last Name
- Date of Birth

6

Click **Submit**

7

You will be prompted to set your own password. The password must be at least 6 characters long and you will need to remember it

8

Confirm your username and password, then click **Check your details**

9

You can now log in to Sparx using your username and password

10

If a password is lost, you can select the option to request a new password from your teacher

Use your Sparx login

Username:

Password:

[Show](#)

[Forgotten Sparx login details?](#)

[New Sparx user?](#)

Fill in your details below to create your account

Your first name:

David

Your last name:

Smith

Your date of birth:

01 February 2010

Submit

Now set a password, make sure you choose one that you will remember

Choose your password

.....

[Show](#)

Your password needs to:

✓ Be 6 or more characters

[Back](#)

Confirm your details >

Let's check you have remembered your log in details

Enter your username:

David Smith

Enter your password:

.....

[Show](#)

[Back](#)

Check your details >

Year 8 – Autumn Term 1 – Renaissance			
Overview: Renaissance art		Key Vocabulary	
The Renaissance was a period of time from the 14th to the 17th century in Europe. This era bridged the time between the Middle Ages and modern times. The word "Renaissance" means "rebirth". Coming out of the Dark Middle Ages began with the fall of the Roman Empire. Much of the advances in science, art, and government that had been made by the Greeks and Romans were lost during this time. Part of the Middle Ages is actually called the Dark Ages because so much of what was learned earlier was lost. The Renaissance was a time of "coming out of the dark". It was a rebirth of education, science, art, literature, music, and a better life for people in general. It began in Italy. The Renaissance started in Florence, Italy and spread to other city-states in Italy. Part of the reason it began in Italy was because of the history of Rome and the Roman Empire. Another reason it began in Italy was because Italy had become very wealthy and the wealthy were willing to spend their money supporting artists and geniuses. City-states played a big role in the rule of Italy at the time. They were often ruled by a powerful family. Some important city-states included Florence, Milan, Venice, and Ferrara.	Perspective	Drawing or painting a picture such that it looks like there are three dimensions. It gives the illusion that some objects in the painting are further away than others.	
	Balance and proportion	Drawing subjects such that they are the correct size when compared to each other.	
	Foreshortening	Another technique that added perspective and depth to paintings, foreshortening is a way of shortening lines to give the illusion of depth.	
	Chiaroscuro	Use of Light and Dark - Many artists starting using light and shadows in their works to add drama, perspective, and timing to their art.	
	Sfumato	This was a technique used by Leonardo da Vinci to add additional perspective and dimension to paintings. It was a way of blurring the lines between subjects. This technique was used in Leonardo's Mona Lisa.	
Key concept 1		Key concept 2	
<u>Timeline</u> Renaissance art is often divided up into two periods: Early Renaissance (1400-1479) - Artists learned by trying to emulate classical artists focusing on symmetry and creating the perfect form. This era featured such artists as Giotto, Masaccio, and Donatello. High Renaissance (1475-1525) - A rising interest in perspective and space gave the art even more realism. Great artists such as Michelangelo, Leonardo da Vinci, and Rafael flourished during this period.		A Cultural Movement A big part of the Renaissance was a cultural movement called humanism. Humanism was a philosophy that all people should strive to be educated and learned in the classical arts, literature, and science. It looked for realism and human emotion in art. It also said that it was okay for people to pursue comfort, riches, and beauty. Many of the new ideas and attitudes that marked the Renaissance times were portrayed in art. Humanism put a focus on human interests, needs, and abilities. This new idea changed how artists painted their subjects as well as the choice of subjects they painted. Many new techniques were introduced during the Renaissance. These techniques helped to enhance the quality and realism of the art.	
  		Artists There were many great artists during the Renaissance. Perhaps the most famous are Leonardo da Vinci and Michelangelo. Other artists, however, had great influence both during Renaissance times and later, even influencing modern day artists.	
		Leonardo da Vinci (1452 - 1519)	Often called the true "Renaissance Man", Leonardo was an artist, scientist, sculptor, and architect. As an artist, his paintings are some of the most known paintings in the world including the Mona Lisa and The Last Supper .
		Michelangelo (1475 - 1564)	Michelangelo was a sculptor, artist, and architect. He was considered to be the greatest artist during his time. He is famous for both his sculptures and his paintings. His two most famous sculptures are the Pietà and David . His most known paintings are frescos on the ceiling of the Sistine Chapel.

1. Your Data	2. Social Engineering	3. Hacking
- Key Concepts: - Definition: Your data includes any personal or private information you share or store online (e.g. name, address, passwords, photos). - Types of Data: - Personal: Name, age, school - Sensitive: Passwords, bank info - Why It Matters: Stolen data can be used for fraud, identity theft, or sold online. - Examples: - Signing up for a game with your real name and email. - Saving photos or contact info to cloud storage.	- Key Concepts: - Definition: A method used by cybercriminals to trick people into revealing personal data. - Techniques Include: - Phishing: Fake emails or messages asking for login details. - Impersonation: Pretending to be someone you trust. - Baiting: Tricking users into clicking a fake link or downloading a virus. - Examples: - A fake email pretending to be your teacher asking for your login. - A pop-up saying you won a prize and asking for your details.	- Key Concepts: - Definition: Gaining unauthorised access to computers, networks, or data. - Types of Hackers: - Black Hat: Criminals who steal or damage data. - White Hat: Ethical hackers who test systems to find weaknesses. - Why It Matters: Hacking can lead to loss of privacy, stolen files, or broken systems. - Examples: - A hacker breaking into a school network to change grades - An ethical hacker testing a new app for security flaws.
4. Malware	5. Cyber Protection	6. Under Attack
- Key Concepts: - Definition: Malware stands for malicious software — it is designed to harm or damage devices and data. - Types of Malware: - Viruses: Attach to files and spread. - Trojans: Disguise as useful programs but secretly harm your system. - Ransomware: Locks your files and demands payment. - Examples: - Clicking a link that installs a virus on your computer. - Opening a game that secretly sends your data to a hacker.	- Key Concepts: - Definition: Steps and tools to keep your data and devices safe online. - Protection Techniques: - Use strong passwords and don't reuse them. - Install antivirus software. - Turn on two-factor authentication (2FA). - Be careful what you click or download. - Examples: - Using 2FA for your email account. - Running a virus scan after downloading a file.	- Key Concepts: - Definition: Signs and consequences of a cyberattack, and how to respond. - Common Signs You're Under Attack: - Computer suddenly slows down - Files disappear or are locked - You receive a ransom message or strange emails - What to Do: - Tell a trusted adult or teacher - Disconnect from the internet - Run antivirus software - Examples: - Your screen locks and shows a ransom demand — it's likely ransomware. - You notice strange apps or files you didn't download — possible malware attack.

Big Picture: In Year 8 we will begin our dancing journey by exploring dance technique. Dance technique is the basis of fundamentals of dance from holding your body correctly while performing to executing dance skills properly in a dance routine. In this topic we will be exploring the elements of dance with a focus on the physical skills required. For example, when a dancer rolls to and from the floor, they need to be able to demonstrate good mobility and have full control of the body during this locomotor action. You will be taught several motifs with a focus on understanding the physical demands of each one.

1. Key concept – Dance Skills

- Dance skills are the range of technical movements that are incorporated into a dance routine.
- Dance skills add visual excitement and artistic flair to a dance and performance.
- To demonstrate dance skills effectively a dancer will require a high level of dance technique.

2. Key concept – Dance Technique

- Dance technique is the way in which the dancer uses basic physical movements in a dance routine and performance to effectively demonstrate the movement content.
- Correct dance technique helps the dancer to execute the dance skills properly.

Smithills
School
Performing Arts

3. Key vocabulary

Technical Dance Skills

Relationship Content	The way in which dancers move with other dancers. Counterpoint - Action reaction
Action Content	What the body does. Use and development of different body parts Floor work – movement based on the dance floor Transfer of body weight – shifting our body weight in the space
Dynamic Content	How the body moves. Accelerate – speed up decelerate – slow down
Spacing Content	Where the body moves. Size of movement (small, medium and large movement) Spatial designs (where each dancer is in the dance space)

Physical Dance Skills

Balance and coordination	The ability to hold a steady position and to use a combination of parts of the body together efficiently.
Extension	The lengthening of body parts outwards, for example, straight arms and pointed toes.
Strength	The dancers' body muscular power.
Posture	The way the dancers' body is held.
Alignment	Correct placement of body parts in relation to each other.

Stanislavski

Berkoff

Brecht

Frantic Assembly

Big Picture: This year you will begin to learn about key practitioners of drama who have influenced styles of theatre. You will develop an understanding of the minority voices in theatre and demonstrate the way their theories evolved theatre and the way it was perceived. The three practitioners that will be studied are Stanislavski, Berkoff, Brecht and Frantic Assembly, which show contrasting views on theatre and the methods that should be used when rehearsing and performing on stage.

1. Key concept - Stanislavski		4. Key concept - Steven Berkoff	
Konstantin Stanislavski: A Russian theatrical practitioner. He believed in naturalistic performances that were as realistic as possible Naturalism: Acting as realistically as possible - as close to 'real life' as an actor can perform.		- Berkoff is a British practitioner whose career has spanned from 1965 to today. - His physical, exaggerated style of theatre is both popular and controversial, defying the norms of naturalistic theatre. - Berkoffian actors use techniques such as background movement, repetitive actions, and mime to explore further the ways in which Berkoff approaches exchanges between two characters.	
2. Key concept - Soap Opera		5. Total Theatre	
- A soap opera is a type of radio or television serial that deals with domestic situations and often features melodrama, ensemble casts, and sentimentality. - The name "soap opera" comes from the fact that many of these serials were sponsored by soap manufacturers in the past.		- The theory of Total Theatre is key to Berkoff and stemmed from Artaud's theatre style - Total Theatre maintains that every aspect of theatre must have purpose: every movement, that is choreographed; to each line, that is learned perfectly; to each lighting effect, that is used to convey a mood or message; to each sound effect, that enhances the audience's experience; to each prop that has a use.	
3. Key Vocabulary		6. Key Vocabulary	
The fourth wall	An imaginary fourth wall separating the actors from the audience.	Stylised movement	Slow motion/robotic movements of the body, usually repetitive.
Objective	The reason for a characters' actions.	Exaggerated facial expressions	Over exaggerated, almost grotesque facial expressions to convey stereotypes and meaning.
Super Objective	An over-reaching objective that acts as a through-line for a character over the course of a play.	Direct address	Breaking the fourth wall and talking directly to the audience.
Hooking the audience	Begin at a pivotal moment - By starting at an important moment in the story, your viewer is more likely to want to continue so they can discover what will happen next.	Ensemble playing	Working as a small group of actors using unison movement and choral speaking.
Cliffhanger	A dramatic and exciting ending to an episode of a serial, leaving the audience in suspense and anxious not to miss the next episode.	Minimalistic set	Little to no set, using physical theatre to create objects.
Dramatic Irony	A situation in a drama that is understood by the audience but not grasped by the characters in the play.	Exaggerated and stylised mime	The actors are exaggerated and larger than life.

Year 8 Woodwork: Knowledge Organiser - Autumn 1

Key Outcome 1	
What is a Design Brief? A design brief is a document that outlines the requirements and constraints of a project, providing the designer with clear goals and objectives. ACCESS - FM acronym for design considerations Aesthetics: How it looks. Cost: How much it costs to make. Client: Who it's for. Environment: Impact on the environment. Safety: Is it safe to use? Size: Dimensions and weight. Function: What it does. Materials: What it's made from.	

Key Outcome 2	
What is a Product Design Engineer? A product design engineer is a professional who designs and develops new products or improves existing ones to meet market demands. Famous Inventor James Dyson is a renowned British inventor and industrial designer, best known for creating the first bagless vacuum cleaner, the Dyson Cyclone, transforming the home cleaning industry. Dyson's innovative designs extend to bladeless fans, hand dryers, and hair dryers, making him a leading figure in engineering and product design.	

Key Outcome 3	
The importance of studying existing products - Provides reference points for new designs - Helps identify strengths and weaknesses in current products - Reveals areas for improvement - Informs market trends and consumer preferences What is a pull along toy A pull-along toy is a type of children's toy that can be dragged along the ground using a string or handle.	

Keywords	
RSPB	The Royal Society for the Protection of Birds
Conservation	Protection of natural resources and environments
Existing	Something that is already made or currently available
Inventor	Someone who creates something new
Analysis	To study something in detail
Strengths	What makes it successful
Weaknesses	What are the faults of the product

The Design Process	
Design Brief	A statement outlining what is to be designed and made
Specification	A list of design criteria
Ideas	A range of potential solutions to the problem
Manufacture	Making the outcome
Evaluation	Reviewing strengths and weaknesses of the design work and final product

Career Links	
Carpenter: Make and install wooden structures, fittings and furniture. Design Engineer: Designs and develops new products. CAD Technician: Creates detailed 2D or 3D models using computer-aided design software. Sustainability Consultant: Advises on environmentally friendly design and manufacturing practices.	

Did you know? James Dyson made 5,127 prototypes of his vacuum cleaner before finally succeeding. This process took 15 years and his entire savings. It is estimated that he is now worth £23 billion!

Y8

The Tempest

Homework
Booklet

Activity One

Read the context about Shakespeare and *The Tempest* and summarise in the box below as either a mind map or bullet points.

Likely the most influential writer in all of English literature and certainly the most important playwright of the English Renaissance, William Shakespeare was born in 1564 in the town of Stratford-upon-Avon in Warwickshire, England. The son of a successful middle-class glove-maker, Shakespeare attended grammar school, but his formal education proceeded no further. In 1582, he married an older woman, Anne Hathaway, and had three children with her. Around 1590, he left his family behind and travelled to London to work as an actor and playwright. Public and critical acclaim quickly followed, and Shakespeare eventually became the most popular playwright in England and part owner of the Globe Theatre. His career bridged the reigns of Elizabeth I (ruled 1558–1603) and James I (ruled 1603–1625); he was a favourite of both monarchs. Indeed, King James paid Shakespeare's theatre company the greatest possible compliment by endowing its members with the status of king's players. Wealthy and renowned, Shakespeare retired to Stratford, and died in 1616 at the age of fifty-two. At the time of Shakespeare's death, such luminaries as Ben Jonson hailed him as the apogee of Renaissance theatre.

Shakespeare's works were collected and printed in various editions in the century following his death, and by the early eighteenth century his reputation as the greatest poet ever to write in English was well established. The unprecedented admiration garnered by his works led to a fierce curiosity about Shakespeare's life, but the dearth of biographical information has left many details of Shakespeare's personal history shrouded in mystery. Some scholars have concluded from this lack and from Shakespeare's modest education that

his plays were actually written by someone else—Francis Bacon and the Earl of Oxford are the two most popular candidates. The evidence for this claim, however, is overwhelmingly circumstantial, and few take the theory very seriously.

In the absence of definitive proof to the contrary, Shakespeare must be viewed as the author of the thirty-seven plays and 154 sonnets that bear his name. The legacy of this body of work is immense. A number of Shakespeare's plays seem to have transcended even the category of brilliance, becoming so influential as to affect profoundly the course of Western literature and culture ever after.

The *Tempest* was most likely written around 1610-1611, during the reign of King James I, and is often considered the last play Shakespeare wrote as the sole playwright. Its first recorded performance was on Hallowmas (1st of November) in 1611, at Whitehall. It was probably also performed at the Globe Theatre.

A number of accounts of shipwrecks and travels to exotic islands were published around the time Shakespeare was writing *The Tempest*. In 1610, two accounts of sea voyages were recorded that seem likely to have influenced his work: Silvester Jourdain's *A Discovery of the Barmudas* and William Strachey's *A True Reportory of the Wracke*, which described a group of sailors, believed lost, who made their way back to civilisation.

There is no doubt that *The Tempest* touches on fashionable topics that were in high circulation during this time. New World colonies, such as Virginia in the Americas, were being established, and with this came both fear and fascination. Those people who were educated at the time upheld Renaissance ideas of strict hierarchy, with nature and the animal at the bottom, progressing upward through to man and the rational, towards the divine. On the contrary, utopian

ideals that placed natural 'savagery' above civilisation were also of growing interest. The Tempest considers all of these, but is careful to restore 'civilised' order at its end.

Please complete your summary in your homework workbook.

Activity 2) Vocabulary Check	
Revise the key vocabulary by completing the tasks.	
Usurp: to take over; to seize or use something without authority	
TASK ONE: READ IT	TASK TWO: TRANSFORM IT
Read about the etymology (where a word originates from) of 'usurp'.	Transform the verb 'usurp' into an image to help you remember it.
Middle English (in the sense 'appropriate a right wrongfully'): from Old French usurper, from Latin usurpare 'seize for use'	
TASK THREE: DEBATE IT	
'Should weak and feeble kings be usurped by younger ambitious princes?.'	
Answer in full sentences.	
TASK FOUR: USE IT	TASK FIVE: LINK IT
Can you use the following word in a sentence? <i>usurp, usurping</i>	Explain in full sentences how the verb 'usurp' links to <i>The Tempest</i> . Discuss characters and events in your explanation.

Activity Three:

Create your own family tree for the characters in the play. You will need to include all the following characters: Prospero: Miranda: Ferdinand: Alonso: Antonio: Sebastian: Ariel: Caliban: Sycorax: Trinculo: Stephano: Gonzalo

Once you have done this, use the same characters to place the characters into the following categories. Some characters might be used in more than one category.

- Servants
- Magical beings
- Prospero's family
- Friends of Prospero
- Prospero's enemies
- Lords and noblemen

Activity 4: Character Inference

Below is a character from Shakespeare's play 'The Tempest'.

Study the character carefully and then complete the tasks that follow. Do this in your homework booklet.

You must write in full sentences and paragraphs – no one word answers!



Write a character analysis for this character. You may use the subheadings below or create your own to write about him.

- 1) Explain whether the character looks friendly or not. Explain why.
- 2) Where might he live?
- 3) What might he eat and drink?
- 4) Would he have any friends?
- 5) Is he someone who could be trusted? Explain why
- 6) Why might people be fearful of him?
- 7) How might people react when they see him?
- 8) Would he have any friends? If so, who might they be?

Activity 5: Quote Analysis

Below are phrases linked to the character of Ariel. Give me 3 reasons PER quotation as to why Shakespeare has used that phrase. If you don't understand any of the words, use a thesaurus to help you.

- 1) 'All hail, great master!'
- 2) 'I flamed amazement'
- 3) 'Hell is empty, and all the devils are here'
- 4) 'Thou liest, malignant thing!'

Activity 6: Vocabulary

Look at the vocabulary below. Match the correct definition for the word and explain which character or plot it links to.

Key Vocabulary	Incorrect Definition
1. Indigenous	A person born in a specified place or associated with a place by their birth, whether they still live there or not.
2. Tempest	The action or process of settling among and establishing control over the indigenous people of the area.
3. Servitude	The crime of betraying ones country, especially by attempting to kill or usurp the monarch or government.
4. Liberty	Regard with <u>disgust</u> and <u>hatred</u> .

5. Colonisation	The freedom to live as you wish or go where you want.
6. Native	A violent, windy storm.
7. Abhorred	The condition of being enslaved or of being completely under the control of someone else.
8. Treason	Having originated in and being produced, growing, living, or occurring naturally in a particular region or environment

Activity 7: DAFOREST

Imagine you are Ariel and you are persuading Prospero to give you your freedom, use the DAFOREST table to write a sentence for each of the persuasive techniques listed.

Technique	Explanation	Teacher Example
Direct Address	Addressing the reader directly using pronouns such as "we" or "you".	" You can stop the spread of coronavirus by staying at home"
Alliteration	A group of words which begin with the same letter or sound	" S he s ells s eashells on the s eashore"
Facts	Something which can be proven true	"'E' is the most common letter as it appears in 11% of all English words"
Opinions	A belief which cannot be proven true – someone's ideas.	"Huddersfield Town is the greatest football club of all time"
Rhetorical Question	A question which does not require a response.	"Do you want to pass your exams?"
Repetition	Words that are repeated.	"A small living-room, a small dining-room, a small bedroom"
Emotive Language	Words which provoke an emotional response from the audience.	"The furious father screamed at the innocent child"

Statistics	Numerical facts and data used to support a point.	"8 out of 10 students love English" "80% of pupils love reading!"
Three (rule of)	List of three things in a sentence.	"Smoking is a filthy, selfish and costly habit"

Diet, activity and health

- There are health issues related to dietary excess or deficiency.
- It is important to include a variety of different activity in everyday living, supporting physical, social and mental wellbeing.

A balanced diet

A balanced diet is based on the Eatwell Guide. An unbalanced diet can lead to dietary related diseases.



Malnutrition

Having intakes of energy and/or nutrients below or in excess of needs for long periods of time can affect health.

The risk of **malnutrition** is increased by:

- increased requirements for some nutrients;
- restricted range of foods;
- reduction in available income;
- very low income;
- medical conditions;
- psychological conditions.

Diet and health

There is a link between a poor diet, and the risk of developing some diseases.

This includes the risk of:

- cancer;
- coronary heart disease (CHD);
- bone health;
- anaemia.

Over nutrition

The most common over nutrition problem is obesity caused by too much energy being consumed, or high levels of inactivity.

Energy in: food and drinks

Energy out: activity

Energy in > Energy out = Weight gain

Body Mass Index

BMI measures your height and weight to work out if your weight is healthy.

$$BMI = \frac{\text{weight (kg)}}{(\text{height in m})^2}$$

Recommended BMI range (adults)

Less than 18.5	Underweight
18.5 to 25	Desirable
25-30	Overweight
30-35	Obese (Class I)
35-40	Obese (Class II)
Over 40	Morbidly obese

Under nutrition

Worldwide, Kwashiorkor and marasmus are two common diseases caused by a lack of protein and energy. Fat soluble vitamins (A, D, E and K) are stored in the body so it takes time for deficiency diseases to develop.

Activity recommendations

Pre-schoolers (3 to 4 years): 180 minutes (3 hours) spread throughout the day, including at least 60 minutes of moderate-to-vigorous intensity physical activity every day and engage in a variety of types and intensities of physical activity across the week.
Children and young people (5-18 years): at least 60 minutes of physical activity every day and engage in a variety of types and intensities of physical activity across the week.
Adults (19-64 years): at least 150 minutes each week (moderate intensity), or have 75 minutes of vigorous activity a week and do muscle strengthening activities on two days or more each week.

Moderate activity

walking

garden

hiking

active recreation

swimming

yoga

or carrying heavy shopping

exercising with weights

Muscle strengthening activities

Inactivity

It is also important that the amount of time being sedentary is reduced. Over time, sedentary behaviour can lead to weight gain and obesity, which can increase the risk of developing chronic diseases in adulthood.

1 in 4 women and 1 in 5 men are classified as inactive (<30 mins per week).

Obesity

People who are obese are more likely to suffer from CHD, type 2 diabetes, gall stones, arthritis, high blood pressure and some types of cancers, i.e. colon, breast, kidney and stomach.

Key terms

Deficiency diseases: Adverse bodily conditions caused by a lack of a nutrient.

Iron deficiency anaemia: A condition caused by insufficient iron in the body. Common symptoms include tiredness and lethargy.

Kwashiorkor: A severe type of protein-energy malnutrition.

Malnutrition: When the diet does not contain the right amount of nutrients.

Marasmus: A severe type of energy malnutrition in all forms, including protein.

Moderate activity: Will raise your heart rate, and make you breathe faster and feel warmer.

Obesity: Extreme overweight. Obese adults have a BMI of 30 or above.

Sedentary behaviour: Requires little energy expenditure and includes sitting or lying down to watch television, use the computer, read, work or study, and sitting when travelling to school or work.

Vigorous activity: Makes you breathe hard and fast.

For more information, go to:
<https://bit.ly/32BF4FJ>



Bone health

Calcium is important for strong bones. Vitamin D is needed for calcium to be absorbed from food.

Anaemia

Iron is vital for making red blood cells. Iron from the diet forms haemoglobin, which carries oxygen in the blood. Anaemia develops if the body's stores of iron are too low.

Diet and CHD

It is believed that 80% of CHD and strokes could be prevented by changes to lifestyle factors, such as diet, physical activity and smoking.

Changes to the diet to reduce the risk of CHD include:

- increasing oily fish intake;
- reducing salt intake;
- increasing fruit and vegetables;
- decreasing alcohol consumption.

Diet and cancer

The World Cancer Research Fund has released nine cancer prevention recommendations.

- Be a healthy weight.
- Move more.
- Avoid high-calorie foods and drinks.
- Enjoy more grains, veg, fruit and barley.
- Limit intake of red meat and avoid processed meat.
- Don't drink alcohol.
- Eat less salt.
- Don't rely on supplements.
- Breastfeed your baby.

SUSTAINABILITY KNOWLEDGE ORGANISER YR8: KOLKATA, INDIA



1. COMPONENT KNOWLEDGE

- Know that Kolkata is a large city with a colonial past when it was known as Calcutta
- Know that low-income housing areas have many names including slums, spontaneous settlements and favelas
- Know that Belgachia is an example of a low-income housing area, and that most residents in Belgachia live in extreme poverty and diseases such as cholera are rife due to lack of sanitation
- Services such as electricity and water are lacking.
- Know that improvement schemes can be of different scales
- Know that some areas are improved by local people helping themselves whereas others can be driven by local government and larger financial institutions
- Know that the informal economy is sizeable in Kolkata
- Know that examples include the gold sweepers of the jewellery district, ragpickers on dumps and people who run rickshaws.
- Know that the informal economy is any forms of employment that are not officially recognised, for example the money earned from irregular jobs or from working for yourself on the streets
- Know that low-income housing areas such as Belgachia can have a very important economic role to play
- Know that these areas have high levels of economic activity which contributes significantly to the economy of the city and the country of India



Infertile land
Primary jobs
Low wages
Poverty



Push Factors

High wages
Secondary jobs
Nightlife
Services



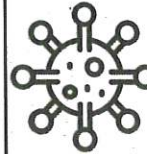
Pull Factors



Informal sector



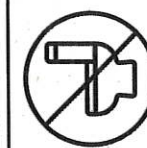
Lack of electricity



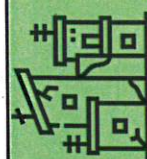
Diseases



Unclean water



Lack of sanitation

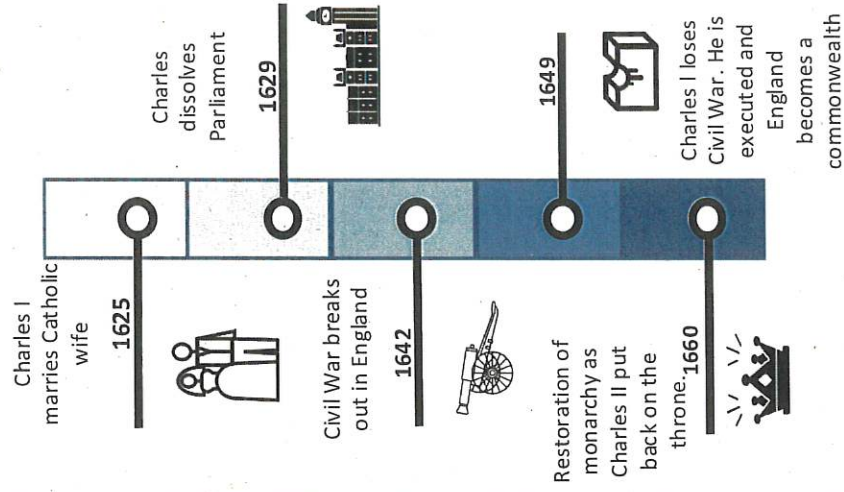


Slum housing

2. KEY VOCABULARY

- Population density- is a measurement of population per unit land area. It is mostly applied to humans
- Sparsely populated- when few people live in an area and are spread out
- Densely populated- when lots of people live in an area in close proximity
- Migration- when people move from one area to another
- Slum- an area of housing which is made by the residents themselves out of found materials such as corrugated metal
- Informal economy- the part of any economy that is neither taxed nor monitored by any form of government
- Push factors- negative aspects of an area which make people want to move away from it
- Pull factors- positive aspects of an area which make people want to move there

1. Key content		2. Vocab	
- Charles I believed that he was chosen by God to rule. This meant that he didn't want to have to ask Parliament when we wanted to raise taxes or change laws. Additionally he had married a Catholic which the Protestant members of Parliament did not like. He then got rid of Parliament. - After many issues during these years without Parliament, Charles asked them to come back and help him. They did so but five MPs were arrested by Charles, without consulting Parliament. It was this that sparked the civil war. - Families were divided during the war and Charles was losing the battle to Oliver Cromwell's new model army. When Charles was finally defeated, he was tried and executed for treason. - Cromwell then ruled as Lord Protector, however he was acting more like a king and people were so unhappy that when he died they brought Charles' son, Charles II, back to be king.	Cavalier	Supported Charles I	
	Civil War	A war within a single country	
	Interregnum	The time period when England had no king	
	Roundhead	Supported Parliament	
3. People			
Charles I – King of England			
Charles II- Son of Charles I			
Oliver Cromwell – Parliament side leader and Lord Protector after death of Charles.			



YEAR 8 - PROPORTIONAL REASONING...

Multiplying and Dividing Fractions

@whisto_maths

What do I need to be able to do?

By the end of this unit you should be able to:

- Carry out any multiplication or division using fractions and integers
- Solutions can be modelled, described and reasoned

Keywords

Numerator: the number above the line on a fraction. The top number. Represents how many parts are taken.

Denominator: the number below the line on a fraction. The number represents the total number of parts.

Whole: a positive number including zero without any decimal or fractional parts.

Commutative: an operation is commutative if changing the order does not change the result.

Unit Fraction: a fraction where the numerator is one and denominator a positive integer.

Non-unit Fraction: a fraction where the numerator is larger than one.

Dividend: the amount you want to divide up.

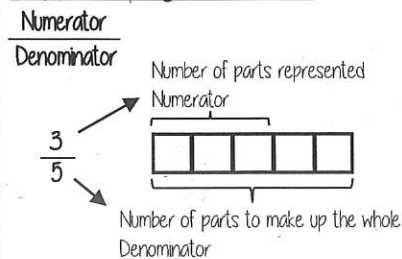
Divisor: the number that divides another number.

Quotient: the answer after we divide one number by another. e.g. dividend ÷ divisor = quotient

Reciprocal: a pair of numbers that multiply together to give 1.

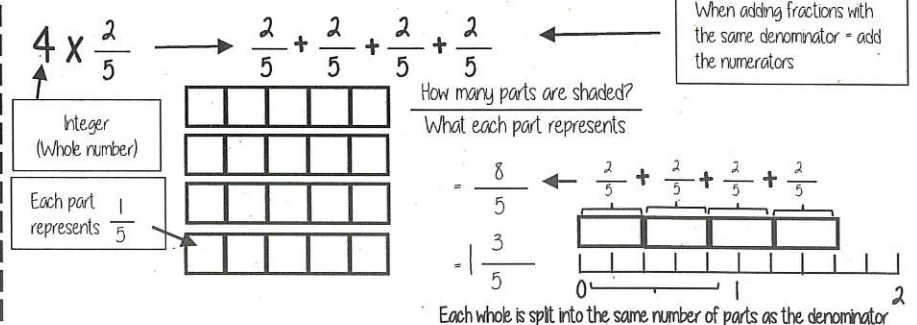


Representing a fraction



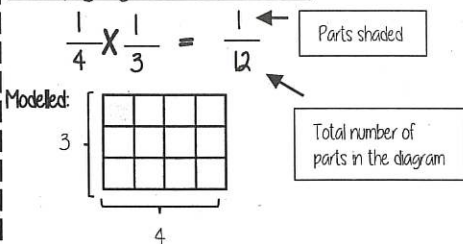
ALL PARTS of a fraction are of equal size

Repeated addition = multiplication by an integer

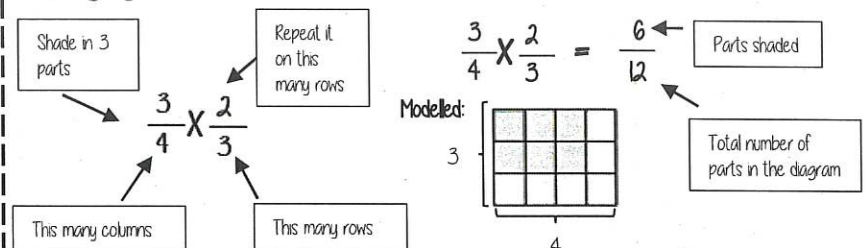


Revisit
When adding fractions with the same denominator = add the numerators

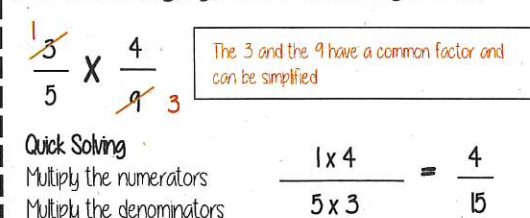
Multiplying unit fractions



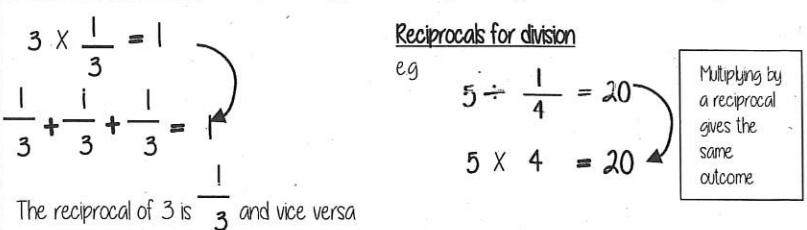
Multiplying non-unit fractions



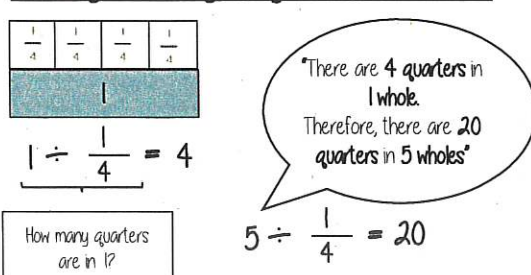
Quick Multiplying and Cancelling down



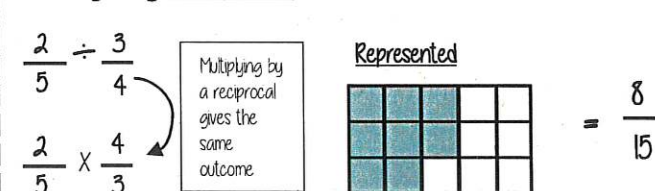
The reciprocal



Dividing an integer by a unit fraction



Dividing any fractions



YEAR 8 - PROPORTIONAL REASONING...

Ratio and Scale

@whisto_maths

What do I need to be able to do?

By the end of this unit you should be able to:

- Simplify any given ratio
- Share an amount in a given ratio
- Solve ratio problems given a part

Solutions should be modelled, explained and solved

Keywords

Ratio: a statement of how two numbers compare

Equal Parts: all parts in the same proportion, or a whole shared equally

Proportion: a statement that links two ratios

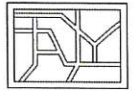
Order: to place a number in a determined sequence

Part: a section of a whole

Equivalent: of equal value

Factors: integers that multiply together to get the original value

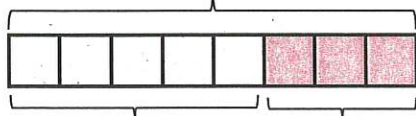
Scale: the comparison of something drawn to its actual size



Representing a ratio

"For every 5 boys there are 3 girls"

This is the "whole" — boys and girls together



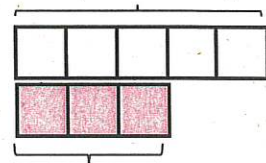
This represents the 5 boys

This represents the 3 girls

5:3

This represents the 5 boys

Double Number Line



This is the "whole" — boys and girls together

This represents the 3 girls

Order is Important

"For every dog there are 2 cats"



1:2

The ratio has to be written in the same order as the information is given

eg 2:1 would represent 2 dogs for every 1 cat ✗

Simplifying a ratio

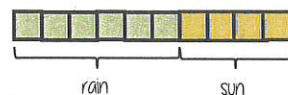
Cancel down the ratio to its lowest form

"For every 6 days of rain there are 4 days of sun"

6:4

÷ by 2

3:2



rain

sun



Find the biggest common factor that goes into all parts of the ratio

For 6 and 4 the biggest factor (number that multiplies into them is 2)

"For every 3 days of rain there are 2 days of sun" — when this happens twice the ratio becomes 6:4

Ratio In (or n:1)

This is asking you to cancel down until the part indicated represents 1

Show the ratio 4:20 in the ratio of In

The question states that this part has to be 1 unit. Therefore Divide by 4

4:20
1:5

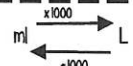
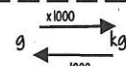
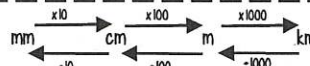
This side has to be divided by 4 too — to keep in proportion

*If the n part does not have to be an integer for this type of question

Units are important:

When using a ratio — all parts should be in the same units

Useful Conversions



Sharing a whole into a given ratio

James and Lucy share £350 in the ratio 3:4
Work out how much each person earns

Model the Question

James: Lucy

3:4

James



Lucy



£350 ÷ 7 = £50

□ = one part = £50

Find the value of one part

Whole: £350

7 parts to share between (3 James, 4 Lucy)

Put back into the question

James: Lucy

James = 3 x £50 = £150



Lucy = 4 x £50 = £200

(x 50) 3:4 (x 50)
£150:£200

Finding a value given In (or n:1)

Inside a box are blue and red pens in the ratio 5:1
If there are 10 red pens how many blue pens are there?

Model the Question

Blue: Red

5:1

□ = one part = 10 pens

Blue pens



Red pens



One unit = 10 pens

Put back into the question

Blue: Red

(x 10) 5:1 (x 10)
50:10

Blue pens = 5 x 10 = 50 pens



Red pens = 1 x 10 = 10 pens



There are 50 Blue Pens

Ratio as a fraction



Trees: Flowers

3:7

Trees



Flowers



There are 3 parts for trees

Fraction of trees

Number of parts of in group
Total number of parts

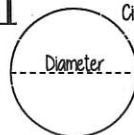
Fraction

3

10

Tree parts 3 + Flower parts 7 = 10

Π Π



Circumference

Diameter

The ratio of a circles circumference to its diameter

YEAR 8 - PROPORTIONAL REASONING...

Multiplicative Change

@whisto_maths

What do I need to be able to do?

By the end of this unit you should be able to:

- Solve problems and explain direct proportion
- Use conversion graphs to make statements, comparisons and form conclusions
- Understand and use scale factors for length

Keywords

Proportion: a statement that links two ratios

Variable: a part that the value can be changed

Axes: horizontal and vertical lines that a graph is plotted around

Approximation: an estimate for a value

Scale Factor: the multiple that increases/ decreases a shape in size

Currency: the system of money used in a particular country

Conversion: the process of changing one variable to another

Scale: the comparison of something drawn to its actual size.

Direct Proportion

As one variable changes the other changes at the same rate.



4 cans of pop = £240

$\times 0.5$
2 cans of pop = £120

$\times 3$

4 cans of pop = £240
12 cans of pop = £720

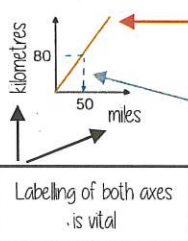
$\times 3$

This multiplier is the same in the same way that this would be for ratio

Sometimes this is easiest if you work out how much one unit is worth first
e.g. 1 can of pop = £0.60

Conversion Graphs

Compare two variables



This is always a straight line because as one variable increases so does the other at the same rate

To make conversions between units you need to find the point to compare – then find the associated point by using your graph
Using a ruler helps for accuracy
Showing your conversion lines help as a "check" for solutions

Conversion between currencies



£1 = 90 Rupees

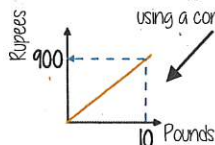
Currency is directly proportional

For every £1 I have 90 Rupees

$\times 10$
£1 = 90 Rupees
£10 = 900 Rupees

$\times 10$

Currency can be converted using a conversion graph



Convert 630 Rupees into Pounds

$\times 7$
£1 = 90 Rupees
£7 = 630 Rupees

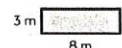
$\times 7$
 $630 \div 90 = 7$

Ratio between similar shapes



Angles in similar shapes do not change
e.g. if a triangle gets bigger the angles can not go above 180°

The two rectangles are similar.



Corresponding sides

$\times 15$
3m : 45m
8m : 120m

$\times 8$
8m : 12m
1m : 15m

Note
Simplify to the same ratio

Understand Scale Factor

The two rectangles are similar.



$3 \times 15 = 45$

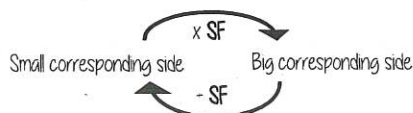
This is a multiplicative change

Use corresponding sides to calculate a scale factor

Missing length
 $8 \times 15 = 120$

Scale factor can also be calculated by

Bigger corresponding side
Smaller corresponding side



Draw and interpret scale diagrams

A picture of a car is drawn with a scale of 1:30

For every 1cm on my image is 30cm in real life

The car image is 10cm

Image : Real life
1cm : 30cm
 $\times 10$
10cm : 300cm

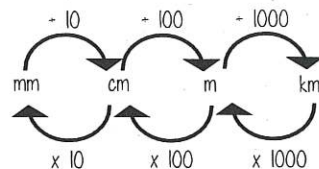


The car in real life is 210cm

Image : Real life
1cm : 30cm
 $\times 7$
7cm : 210cm



Interpret maps with scale factors



1 cm : 250 m

Ratios need to be in the same units

1 cm : 250m

1 cm : 25000cm

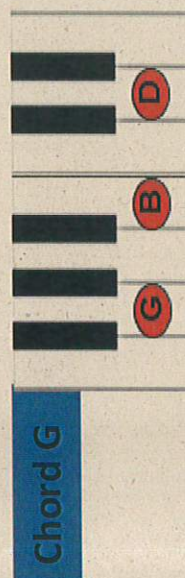
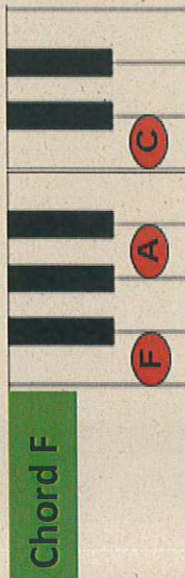
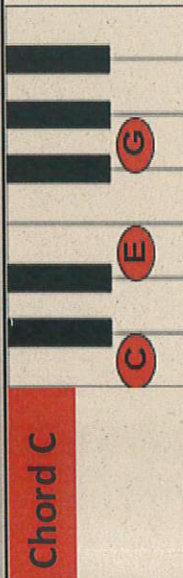
$250 \times 100 = 25000$

For every 1cm on my map is 25000cm in real life.

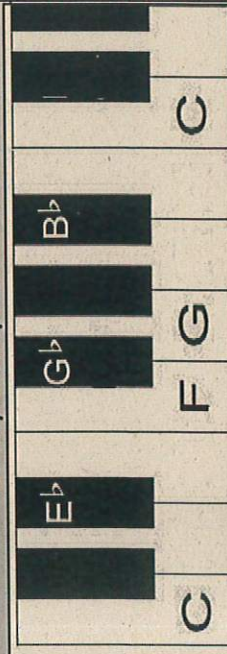


Big Picture: In this unit you will continue to develop your knowledge of the elements of music, notation, rhythms and keyboard skills. The focus will be on the development of your understanding of blues music and chords. You will learn how to play a blues scale, 12 bar blues and a walking bassline.

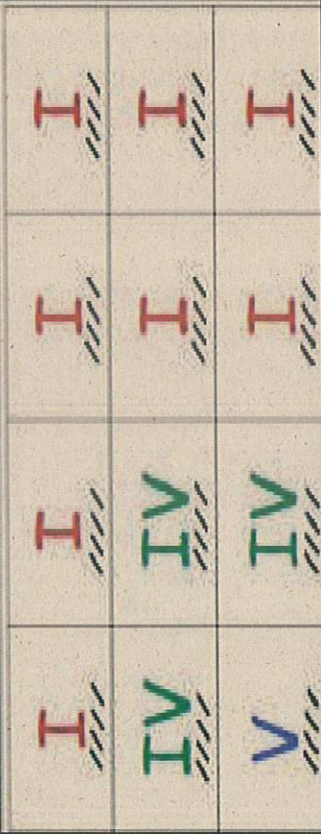
1. Key concept - Chords



3. Key concept Blues scale



2. Key Concept - 12 Bar Blues chord sequence



Tonic – 1st **I** (C chord)

Subdominant – 4th **IV** (F chord)

Dominant – 5th **V** (G chord)

5. Key concept - origins

African slaves brought their **musical traditions** with them when they were transported to work in the North American Colonies. These **work songs** were sung rhythmically, in time with the tasks being done. The songs were passed on orally (by word of mouth) and were usually never written down.

They used **call and response** where phrases from a lead singer are followed by the others. Early styles of Blues were known as **country blues** and were usually a solo singer accompanied on piano or guitar, sometimes with added harmonica or drums.

4. Key Vocabulary

Question and Answer
A musical phrase (question) which is followed by another (answer). These phrases usually balance each other.

Call and Response
A performer plays/sings a 'call' and the other performers will 'respond'

Improvisation
Spontaneous performance without specific preparation

Syncopation
Rhythm patterns where stressed notes are placed off the beat

Chord
Two or more notes played together at the same time. The most common chords are major or minor triad chords

5. Key concept - Musician

Bessie Smith (1894-1937) Nicknamed the 'Empress of the Blues', she was the most popular female blues singer of the 1920's and 1930's.

M	A	D	I	R	T
melody	articulation	dynamics	instruments	rhythm	tempo

Big Picture: Looking at how life is a journey we must travel through and whether the rites of passage religions have in place help support this journey for followers

1. Key Concepts												
Life is a Journey 1.1 A rite of passage is a stage that a person often goes through before the next stage of their life. As we find our road through life, we all need inspiration and guidance. And this is never so true as when we are travelling, especially as solo travellers. This can come from many sources: friends, family, self-help books. But sometimes, a simple quote about life's journey can provide inspiration or make us view our path through a different lens. Drawing on the writings of authors and poets, scholars and spiritual leaders. These things can help us find meaning and purpose in our lives. Philosophy -The study of life and existence and a set of theories, ideas and beliefs	Hindu Ashramas 1.2 Ashrama in Hinduism is one of four age-based life stages discussed in Indian texts many include Bhagavad Gita of the ancient and medieval eras. The four ashramas are: Brahmacharya (student), Grihastha (householder), Vanaprastha (retired) and Sannyasa (renunciate). The Ashrama system is one facet of the Dharma (duty) concept in Hinduism and the goal (Purusartha), for fulfilment, happiness and spiritual liberation.	Birth Ceremonies 1.3 Baptism declares that you are a follower of Jesus Christ. It is a public confession of your faith in, and commitment to, Jesus Christ. It is the next step after salvation through repentance and faith and is an important foundation for Christian life. Then he said, "Go into the world. Go everywhere and announce the message of God's good news to one and all. Whoever believes and is baptised is saved; whoever refuses to believe is damned." Mark 16:16 MSG Some Christian groups believe in baptising babies others adults	Coming of age 1.4 Bar and Bat Mitzvah ceremonies mark the transition into adulthood for young Jews. At age 13 a boy becomes Bar Mitzvah and at age 12 a girl becomes a Bat Mitzvah. Bar and Bat Mitzvah ceremonies are significant because they are seen as the time of coming of age, when a child becomes an adult. The sacrament of confirmation typically takes place in early teenage years, when a child starts to be seen as an adult member of the Church. This is because they are now considered old enough to renew and confirm for themselves vows that were made on their behalf when they were baptised. However, there is no set age for the confirmation rite, and people are often confirmed as adults.									
	Marriage in Islam 1.5 In Islam, marriage is a social and legal relationship intended to strengthen and extend family relationships. Islamic marriage begins with a search for an appropriate partner and is solemnized with an agreement of marriage, the contract, and the wedding party. Islam is a strong advocate of marriage, and the act of marriage is considered a religious duty through which the social unit—the family—is established. Islamic marriage is the only permissible way for men and women to engage in intimacy.	1.6 Muslims view death as a transition from one state of being to another, not as an end. They believe that actions follow you to the afterlife. So, if you follow the law of the Qur'an and live a good life you will be rewarded in the afterlife. In death, you will be separated from the ugliness in the world. But if you live a dishonest and bad life, you will be separated from all the beauty of the world. The body is buried as soon as possible after death The body is turned to face towards Mecca, the holy center of Islam. After the body is buried, all guests go to the house of the family of the deceased. A meal is prepared and guests usually stay for the entire day. Family members may stay for the whole week. In Islamic culture, death is accepted and viewed as a natural part of life. The belief that the deceased has moved on to a pleasant afterlife is an important belief and helps the bereaved cope with their suffering.	Notes comparing Buddhism 1.7	2. Vocabulary <table><tr><td>Ashrama</td><td>any of the four stages of an ideal life – Hindu</td></tr><tr><td>Nikah</td><td>An Islamic marriage contract</td></tr><tr><td>Bar Mitzvah</td><td>the initiation ceremony of a Jewish boy who has reached the age of 13 and is regarded as ready to observe religious precepts and eligible to take part in public worship.</td></tr><tr><td>Sacrament</td><td>religious ceremony or ritual regarded as imparting divine grace – outward sign of inward change</td></tr></table>		Ashrama	any of the four stages of an ideal life – Hindu	Nikah	An Islamic marriage contract	Bar Mitzvah	the initiation ceremony of a Jewish boy who has reached the age of 13 and is regarded as ready to observe religious precepts and eligible to take part in public worship.	Sacrament
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Sacrament	religious ceremony or ritual regarded as imparting divine grace – outward sign of inward change											
3. Skills Discuss why rites of passage are important Evaluate whether religion helps guide followers through life by having specific ceremonies to mark specific key moments Explain the difference and similarities between key rites Interpret how some people may find comfort in rites whilst others may not need this		4. Key SOWA (Sources of wisdom and authority) From the earth have We created you, and into it We shall cause you to return and from it shall We bring you forth once more. Surah 20:55 "baptise in the name of the Father, Son and Holy Spirit"		5. Key Figures <table><tr><td>Buddha</td><td>Siddhartha Gautama, was born around 2,500 years ago in Nepal. His teachings and understanding of the world around him are widely accepted as the foundations of Buddhism</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		Buddha	Siddhartha Gautama, was born around 2,500 years ago in Nepal. His teachings and understanding of the world around him are widely accepted as the foundations of Buddhism					
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		6. Assessment Criteria <table><tr><td>Identify/Define</td><td>Being able to define and briefly explain key words and beliefs</td></tr><tr><td>Explain using the source/compare or discuss</td><td>Giving well explained and supported answers using key teachings</td></tr><tr><td>Explain</td><td>Giving a range of views with supporting arguments</td></tr><tr><td>Evaluate</td><td>Consider both sides there must be a conclusion both sides can be either equally compelling or one more so BUT there must be a justification for this and it must be sound to get into the top bracket.</td></tr></table>		Identify/Define	Being able to define and briefly explain key words and beliefs	Explain using the source/compare or discuss	Giving well explained and supported answers using key teachings	Explain	Giving a range of views with supporting arguments	Evaluate	Consider both sides there must be a conclusion both sides can be either equally compelling or one more so BUT there must be a justification for this and it must be sound to get into the top bracket.	
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Chemistry - Chemical reactions

1. Hazards and the Laboratory

Hazard Symbol	Meaning	Hazard Symbol	Meaning
	Toxic e.g. chlorine, sulphur dioxide gas		Environmental Hazard e.g. most copper, lead and mercury compounds
	Health Hazard e.g. most lead compounds and their solutions		Explosive e.g. Tollen's reagent (ammoniacal silver nitrate)
	Flammable e.g. hydrogen, ethanol		Gas Under Pressure e.g. hydrogen, oxygen
	Moderate Hazard e.g. some dilute acids and alkalis, propanone		Oxidising e.g. ammonium nitrate solid, chlorine
	Corrosive e.g. concentrated acids and alkalis, some dilute acids and alkalis		

3. Chemical equations

A **word equation** represents a chemical reaction using the names of the **substances** involved.

In a chemical reaction, **reactants** are the substances that react together, and **products** are the substances formed.

Word equations always take the form, **reactants** → **products**.

Word equation: Iron + Sulphur → Iron sulphide

Symbol equation: $\text{Fe} + \text{S} \rightarrow \text{FeS}$

	Number of atoms in reactants	Number of atoms in products
Fe	1	1
S	1	1



2. Chemical and Physical changes

Chemical reactions make new chemicals.

Atoms are **rearranged** during a chemical reaction, but the number of atoms does not change.

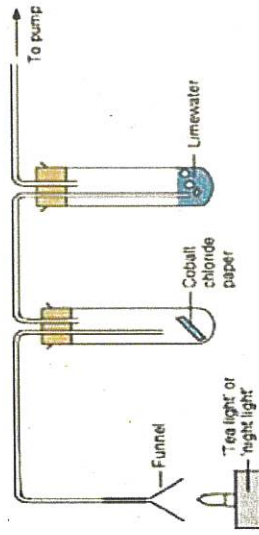
Evidence of chemical reactions includes a large **temperature change**, **bubbles**, or a **colour change**.

4. Combustion

Combustion is a type of **chemical reaction**.

Combustion is the burning of a **fuel in oxygen**.

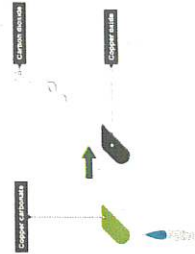
During combustion a fuel will react with oxygen to release **energy**.



5. Thermal decomposition

Thermal means **heat**. Decomposing is the process of **breaking down**.

Thermal decomposition is a chemical reaction that happens when a compound breaks down when heated.



6. Acids and metals

Metal + Acid → Salt + Hydrogen

Salt is the general name for a compound formed from a metal and non-metal.

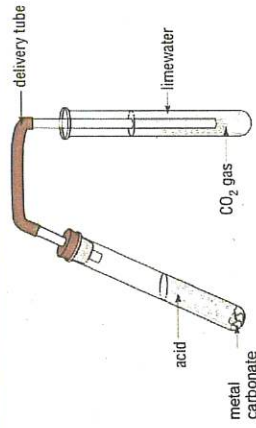
Hydrochloric acid produces **chloride salts**

Nitric acid produces **nitrate salts**

Sulphuric acid produces **sulphate salts**

7. Acids and Carbonates

metal carbonate + acid → metal salt + carbon dioxide

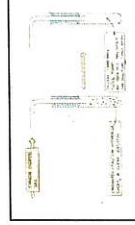
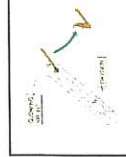
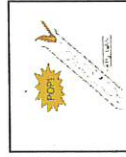


8. Testing for gases

Hydrogen - Burns with a squeaky pop

Oxygen - Relights a glowing splint

Carbon dioxide - Turns limewater cloudy



3. Current and Potential Difference

Current

Current in a wire is a flow of **electrons**. The units of current are called *amperes*, often shortened to **amps**.

Current is measured using a device called an **ammeter**.

An ammeter is connected in series.

	Variable resistor		Thermistor
	Diode		LED
	Variable capacitor		Resistor
	Cell		LDR
	Battery		Filament lamp
	Open switch		a.c. source
	Closed switch		Fuse

Circuit Diagram Rules

-

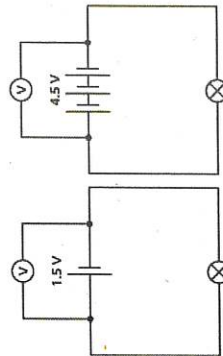
Current

Current is measured using a device called an **ammeter**.

Potential difference is the amount of **energy** transferred by each unit of **charge** passing between two points of a circuit.

Potential difference is also commonly called **‘voltage’**.

Unlike an ammeter, a voltmeter is connected in **parallel**



When we connect *components* in series they are all in the **same loop** one after another.

Current here = 5A

Current here = 5A

Current here = 5A

Current here = 5A

current through component 1

current through component 2

$I_{total} = I_1 = I_2 = \dots etc.$

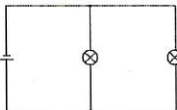
total current flowing in circuit

total circuit potential difference $V = V + V + \dots$ etc. potential difference across component 1 potential difference across component 2

Physics – Electricity 2

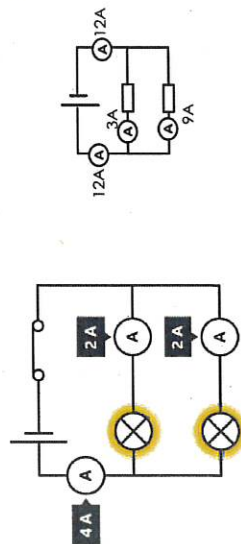
5. Parallel

The components are connected on different **branches** of the circuit. There are two or more 'loops' and multiple paths for a current to flow.



The current is **shared** between the different branches of the circuit. When current reaches a junction in the circuit, it **splits up** and some current flows along each route. When two branches of a circuit meet, the current combines again.

The **total current** flowing through the cell can be found by adding the individual currents flowing through each branch.



total current flowing in the circuit

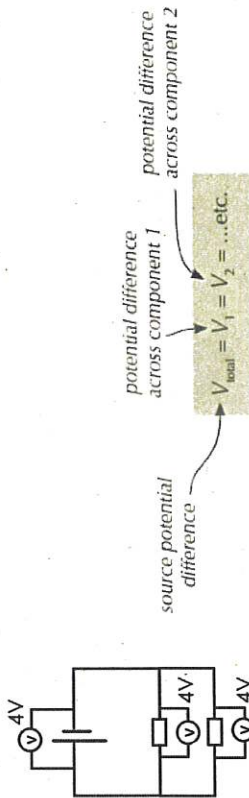
$$I_{\text{total}} = I_1 + I_2 + \dots \text{etc.}$$

current through branch 1

current through branch 2

5. Parallel continued

In a **parallel** circuit, the **potential difference** across each branch of the circuit is the **same** as the potential difference produced by the cell or battery.



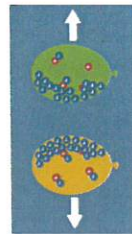
7. Static electricity

Objects can become positively charged or negatively charged, usually because of friction between **insulators**. This is called static electricity.



The places where the electrons left the cloth now have a positive charge.

Charged objects exert electrostatic forces on each other. Objects with like charges (both positive or both negative) will repel.



Objects with unlike charges (one is positive and the other is negative) will attract.

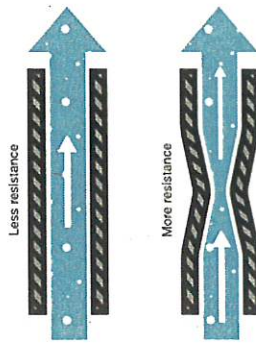


6. Resistance

Resistance is a measure of how **difficult** it is for **current** to flow. Resistance is measured in units called **ohms** (Ω).

The amount of **current** flowing in a circuit is affected by the resistance of that circuit. Each component in a circuit has a resistance.

Resistance



Resistance can be calculated using the equation: **Resistance = potential difference ÷ current**

$$V = \frac{\text{potential difference in volts (V)}}{I = \text{current}}$$

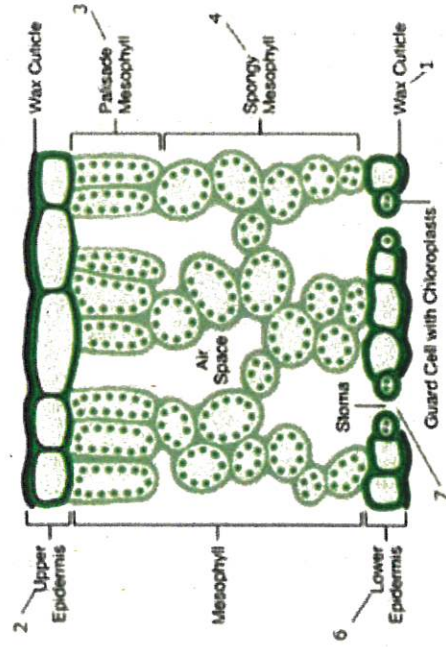
$$R = \text{resistance}$$

$$V = IR$$

Biology - Photosynthesis and Respiration 1

1. Tissue of a leaf

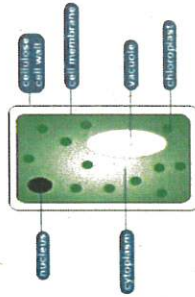
Leaves are green	A green substance called chlorophyll is in leaf cells to absorb sunlight for photosynthesis
Leaves are thin	To allow gases to diffuse (move) in and out of cells easily
Leaves have a large surface area	To absorb as much sunlight as possible
Leaves have veins	Contain tubes called xylem to carry water and tube called phloem to carry sugar
Top of the leaf is waxy	To reduce water loss from the top of the leaf
The underneath of the leaf is lighter than the top	Most of the chlorophyll is found at the top of the leaf where most sunlight hits.
Holes in the underside of the leaf called stomata	Allow gases to diffuse in and out.



2. Photosynthesis

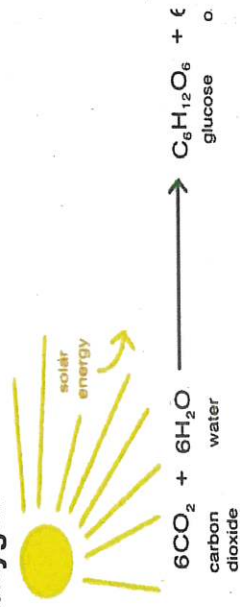
Green plants make their own food by a process called **photosynthesis**.

Photosynthesis takes place inside plant cells within the **chloroplasts**.



Chloroplasts contain a green pigment called **chlorophyll**. This absorbs **light energy** needed for photosynthesis to occur.

Plants use the raw materials; **Carbon Dioxide** and **Water**. With the presence of light energy from the sun, the raw materials are converted into **Glucose** and **Oxygen**



3. Testing leaves for starch

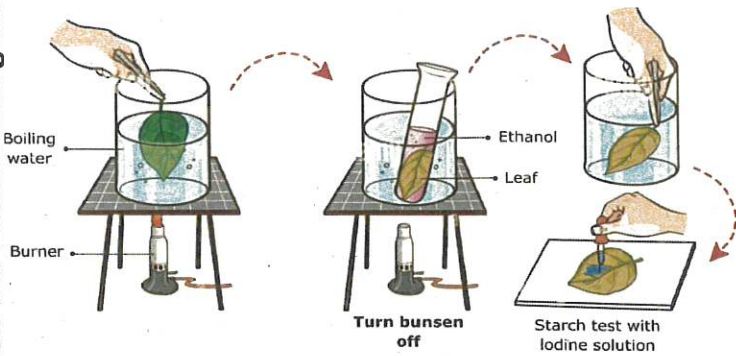
Much of the glucose produced in photosynthesis is stored in the plant as **starch**. The presence of starch in leaves indicates that **photosynthesis** is happening.

Iodine solution is a chemical that can be used to show the presence of starch.

If starch is present, iodine solution turns from an **orange/brown** colour to a **blue/black**.

If there is no starch present, the iodine solution will **remain orange/brown**.

Testing a leaf for starch



Biology - Photosynthesis and Respiration 2

4. Respiration

Aerobic Respiration

Respiration is a series of **reactions** that takes place in the cells of animals and plants.

Energy is released in the reaction. The **mitochondria**, found in the cell cytoplasm, is where respiration happens.

Glucose + Oxygen → Carbon Dioxide + Water (+energy)



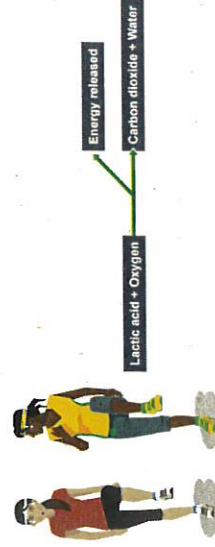
This type of respiration, where **oxygen** is used, is known as aerobic respiration.

Anaerobic Respiration

Although anaerobic respiration does release some **energy**, it does not release as much as aerobic respiration does.

Glucose → Lactic Acid (+energy)

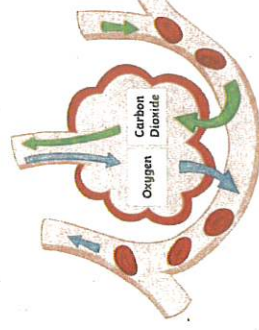
The **lactic acid** produced during anaerobic respiration builds up in muscles. This can be felt as an aching in muscles during or after exercise.



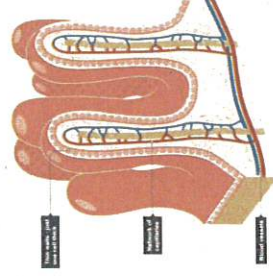
5. Adaptations for respiration

The human body has two systems that are required to provide the reactants for aerobic respiration. Those two systems are the **respiratory system** & the **digestive system**.

The **Respiratory system** takes air into and out of the body and is where **gas exchange** occurs.



The **Digestive System** contains millions of finger-like projections called **villi**. These structures have **thin membranes** so molecules can **diffuse** quickly.



6. Exercise

During exercise, muscle cells need **more energy**, so they **respire more**.

To respire more quickly, muscle cells, need **oxygen** and **glucose** supplied at a faster rate. They also need **carbon dioxide** to be removed at a faster rate.

To do this, your body respond in the following ways **heart** rate increases.

rate of **breathing** and breathe volume increases.

7. Fermentation

Anaerobic Respiration in Microbes

Some microorganisms such as yeast respire anaerobically. This is called **fermentation**.

Fermentation is the chemical breakdown of **glucose** into **ethanol** and **carbon dioxide** by respiring microorganisms.

Glucose → Ethanol + Carbon Dioxide

Fermentation in yeast cells is very important for:

1. Manufacturing of **alcoholic drinks**. The compound ethanol that is produced in the reaction is commonly known as alcohol.
2. **Bread-making**. The bubbles of carbon dioxide produced in fermentation expand the dough and help the bread to rise.



Big Picture: Why are we learning this now?

During year 7 we covered the verbs 'to be', 'to have', 'to go' and 'to do'. Now that you have a good understanding of those we can start to use them to form different tenses (talk about different time frames) as this is key at GCSE.

1. Key Concepts

The **present tense** tells us that something is happening NOW and includes opinions which you used in Year 7. Eg. I dance / I like to dance.

The **preterite tense** tells us what happened (a completed action in the past). Eg. I ate cereal for breakfast and then I swam in the pool.

The **imperfect tense** tells us what something was like in the past OR it can tell us what someone USED to do. Eg. The hotel was very modern and it had a large restaurant. OR I used to go to swimming lessons when I was younger.

****To form different tenses we adapt the INFINITIVE****

4. Vocabulary 1: infinitive phrases (ar)

'AR' infinitive phrases	
bailar en la discoteca	To dance in the disco
tomar el sol	To sunbathe
descansar / nadar en el mar	To relax/To swim in the sea
mandar mensajes	To send messages
escuchar la música	To listen to music
montar en bicicleta	To ride a bike
sacar* fotos / jugar* al voleibol	To take photos/To play volleyball (irregular infinitives)

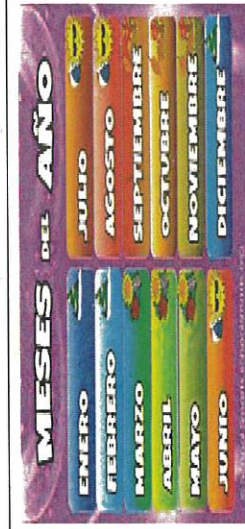
5. Vocabulary 2: infinitive phrases (er/ir)

'ER' / 'IR' infinitive phrases	
comer helado / chocolate	To eat ice cream/chocolate
beber agua / limonada	To drink water/lemonade
recibir dinero / un regalo	To receive money/a gift
escribir una carta / un postal	To write a letter/a postcard
'IR' (a) = To go (to)	
Voy (a) / Vas (a) / Va (a)	I go/You go/ He/she goes (to)
Fui (a) / Fuiste (a) / fue (a)	I went /You went/He/she went (to)

Common irregular verb: fui = I went

Verbos Regulares	VERBOS -AR HABLAR	VERBOS -ER COMER	VERBOS -IR VIVIR
yo	hablé	comí	viví
tú	hablaste	comiste	viviste
él / ella	habló	comió	vivió
usted	habló	comió	vivió
nosotros / as	hablamos	comimos	vivimos
vosotros / as	hablasteis	comisteis	vivisteis
ellos / ellas	hablaron	comieron	vivieron
ustedes	hablaron	comieron	vivieron

2. Processes: forming the preterite tense



3. Sentence starters (time frames and sequencers)

Time Frames	
En junio/julio/agosto...	In June/July/August...
Durante el otoño/invierno...	during the Autumn/Winter
La primavera / el verano pasado	Last Spring/Summer
El año pasado...	Last year...
Hace tres semanas...	Three weeks ago...
Sequencers	
luego después más tarde	Then After Later

6. Assessment

- ¿Adónde vas normalmente?
- ¿Qué te gusta hacer durante las vacaciones?
- ¿Adónde fuiste recientemente?
- ¿Qué hiciste durante las vacaciones?

1. How do you say the following countries in Spanish? Write the Spanish for each country in your homework book.	
1.	Spain
2.	Wales
3.	Germany
4.	Ireland
5.	France
6.	Scotland
7.	England
8.	Greece
9.	Portugal
10.	Italy
2. Translate the sentences into English, write the sentences in your homework book	
1	Me gusta ir a Alemania
2	Odio ir a Gales
3	Me encanta ir a Italia pero no me gusta ir a Francia
3. Translate the sentences into Spanish, write the sentences in your homework book	
1	I love to go to Spain
2	I like to go to France but I don't like to go to Germany
3	I would like to go to Ireland

1. In your homework book list 5 activities, in Spanish, that you might do on holiday.	
2. Translate the sentences into English, write the sentences in your homework book	
1	Normalmente me gusta bailar en la discoteca
2	Generalmente me encanta nadar en el mar
3	A veces me gusta tomar el sol
3. Translate the sentences into Spanish, write the sentences in your homework book	
1	I love to chill out
2	I like to play volleyball because it is fun
3	I don't like to listen to music because it is boring

1. In your homework book, explain what an infinitive is, how to recognise it and give 3 examples in Spanish (one for each group)

2. Translate the past tense sentences into English, write the sentences in your homework book

1 El año pasado fui a Alemania con mi familia

2 Hace tres semanas fui a Francia con mi hermano

3 En junio fui a Irlanda con mis abuelos

3. Translate the past tense sentences into Spanish, write the sentences in your homework book

1 In August I went to Portugal

2 In September I went to Spain with my sister

3 During the Autumn I went to Wales with my family

During year 7 we covered the verbs 'to be', 'to go' and 'to do'. Now that you have a good understanding of those we can start to use them to form different tenses (talk about different time frames) as this is key at GCSE.

The **present tense** tells us that something is happening NOW and includes opinions which you used in Year 7.

The preterite tense tells us what happened (a

completed action in the past).
Eg. I ate cereal for breakfast and then I swam in the pool.

****To form different tenses we adapt the INFINITIVE (Root Verb)****

Good/nice	Acha/i/ay	اچھا۔۔ اچھی۔۔ اچھے
Bad	Burra/i/ay	برا۔۔ بری۔۔ برے
Pleasant	Khushgawaar	خوشگوار
Clean	Saaf	صاف
Dirty	Gandha/i/ay	گندھا۔۔ گندھی۔۔ گندے
Rich	Ameer	امیر
Poor	Ghareeb	غریب
Helpful	Madadgaar	مددگار
Caring	Hamdard	همدرد

Always	hamesha	ہمیشہ
Sometimes/ usually/ often	aksar/ amooman/ kabhi kabhaar	اکثر عموماً کبھی کبھار
Rarely	shaaz o naadr	شاز و نادر
Never	kabhi nahiN	کبھی نہیں

- Thum chutyoN main aksar k'haaN jaathay ho?
- Thum chutyoN kay dhoraan kya krne pasand karthay ho?
- Thumhay Pakistan jaana kyuN acha lagtha hai?

Remove 'na' from the end of the root verb, then add the correct ending from the table below:

... ya th'a ... a th'a	یا تھا / اتھا	Masculine
...ee th'i	ہی تھی	Feminine
...ay th'ay	تھے	Plural

Time Frames:	
In June/July	July main
In the summer holidays	GarmiyoN ki chutyoN main
Last winter	Pichlee sardiyoN main
Three months/weeks ago	Theen maheenay/hafthay pehlay
Sequencers: Then	Phir
After	Uss kay baad
Later	Baad main