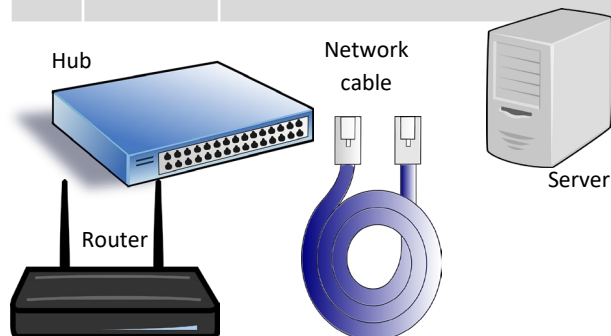


Year 7 Computing Summer Term Knowledge Organiser History of Computing & Introduction to Networks

Key Vocabulary:

1	Cryptography:	The art of writing or solving codes.
2	Decipher:	Convert (a text written in code, or a coded signal) into normal language.
3	Hardware:	Parts of a computer system you can physically hold and touch.
4	Computer network	Two or more computers are connected together to allow them to communicate, share resources such as files and printers.
5	Network Hardware	Physical equipment required to set up a network
6	Hub	Connects a number of computers together. Ports allow cables to be plugged in from each connected computer.
7	Sever	A powerful computer which provides services to a network
8	Cable	Used to connect different devices together. They are often made up of a number of wires.
9	Router	Used to connect two separate networks together across the internet



10 Cryptography

Cryptography is derived from the Greek word 'kryptos' which means hidden or secret

Cryptography is thought to date back to the Egyptians and their use of hieroglyphics.

Julius Caesar developed the first modern cipher.

It is known as the 'Caesar cipher'

Each character in the message is replaced by the character three positions ahead of it in the alphabet

11 How Computers were used during WW2

The Germans developed a computer called Enigma to send secret messages between troops

Colossus was the name of a set of computers developed by British code breakers in 1943-1945

The Colossus computers were used to help decipher intercepted messages that had been encrypted using ENIGMA

Colossus helped to crack the German coded messages, without this the messages were unreadable

12 Bus networks

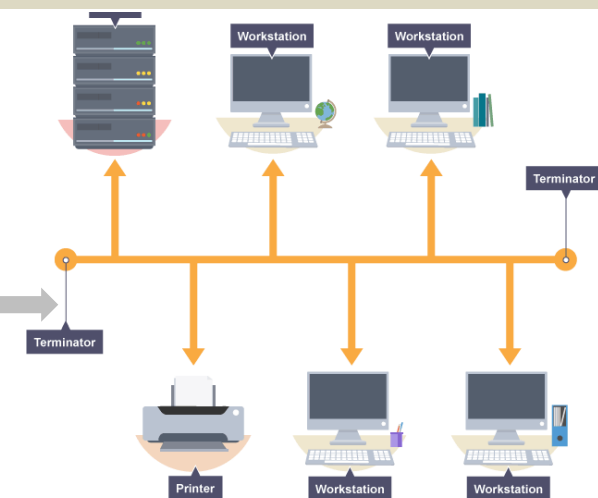
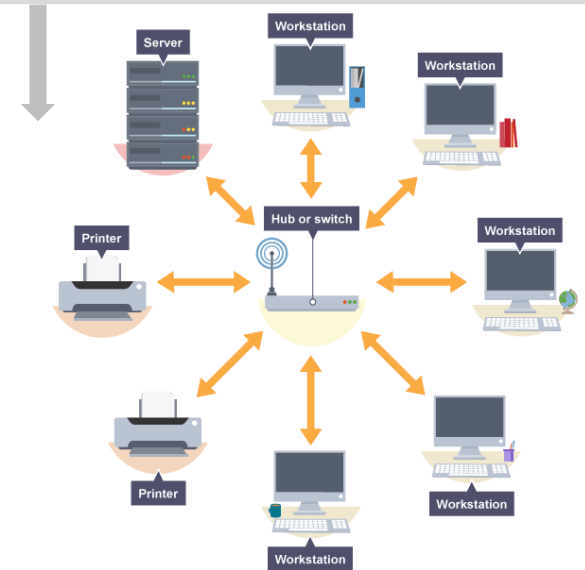
In a bus topology, all nodes in the network are connected directly to a central cable that runs up and down the network - this cable is known as the backbone.

Data is sent up and down the backbone until it reaches the correct node.

13 Star networks

Star topologies are used in many networks, large and small.

In a star topology, all nodes indirectly connect to each other through one or more switches. The switch acts as a central point through which all communications are passed.



Year 7 Art and Design Summer Term Knowledge Organiser

Key Vocabulary:			World Art		
1	The Formal Elements of Art	The formal elements of art are used to make a piece of artwork. These elements are line, tone, texture, shape, pattern and colour.	10	African Art	African Art describes the modern and historical paintings, sculptures, installations, and other visual culture from native or ingenious Africans and the African continent.
2	Line	A line is a mark or link between two points.			
3	Mark	Mark making describes the different lines, dots, marks, patterns and textures created to produce a work of art. Artists use gesture to express their feeling and emotions in response to something seen or something felt.	11	Sculpture	Sculpture is a type of visual art that operates in three dimensions (as opposed to 2D art - paintings). Sculpting used to always consist of carving into stone, metals, ceramics and wood, but since the Modernism era in the 19th/20th centuries, there is now more freedom in materials used and the processes explored. Modern sculptures can use almost any material, and can involve assembling, welding, casting and modelling.
4	Tone	Tone refers to the light and dark values of an object when drawing. There are three different types of tone: shadows, mid tones and highlights.			
5	Texture	Texture stimulates two different senses: sight and touch.			
6	Shape	Shape is a flat, enclosed area such as a square or triangle.			
7	Form	Form can refer to a three-dimensional composition or object.			
8	Pattern	Pattern can be a repeated decorative design.	12	Materials	Materials are what things are made from. Materials have different qualities: they can be smooth or rough; hard or soft; heavy or light; fragile or indestructible. Artists choose materials because of their particular qualities.
9	Colour	Colour is the element of art that is produced when light strikes an object, and is reflected back to the eye. A colour wheel is an illustrative organisation of colour hues around a circle, which shows the relationships between primary colours, secondary colours and tertiary colours.	13	Media	Media is the materials and tools used by the artist to create a work of art. For example ,pen and ink. The pen is the tool and the ink is the material.

Year 7 Computing Summer Term Knowledge Organiser

Spreadsheet

- 1 A spreadsheet file is made up of one workbook and multiple worksheets. Worksheets appear as tabs at the bottom of a workbook. They can be reordered and renamed.

Formatting

- 2 A well-formatted spreadsheet is easy to read. Spreadsheet programs have plenty of formatting features.

Adjusting column width and row height
To adjust a column's width or a row's height, move your mouse cursor between two columns or rows. Click and drag to resize.

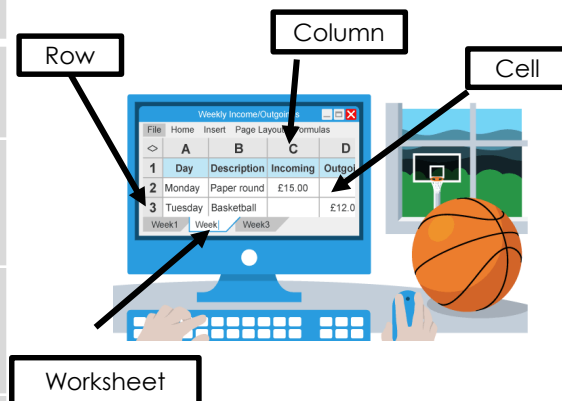
To automatically resize a row to fit the data entered in a cell, double-click between the current row and the row after it.

Arithmetic Operators

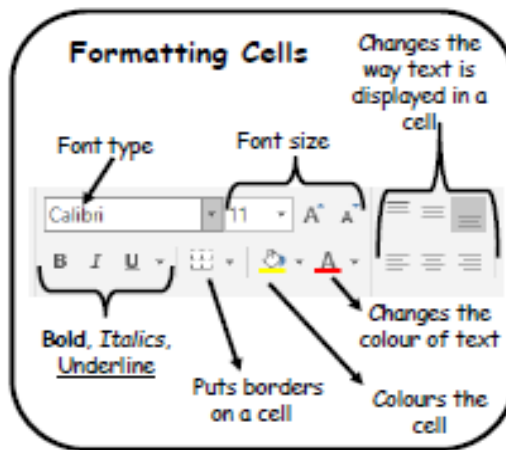
3	*	MULTIPLY
4	/	DIVISION
5	+	ADDITION
6	-	SUBTRACT
7	=	EQUAL TO
8	>	GREATER THAN
9	<	LESS THAN
10	>=	GREATER THAN EQUAL TO
11	<=	LESS THAN EQUAL TO
12	<>	NOT EQUAL TO

Key Vocabulary:

13	Cell	A cell reference is the name given to a cell to uniquely identify it. E.g. E4
14	Row	A row is several data banks (cells) laid out horizontally in a table or spreadsheet. X GOES ACROSS
15	Column	A column is several data banks (cells) laid out vertically in a table or spreadsheet. Y IN THE SKY
16	Conditional	Cells, rows, or columns can be formatted to change text or background color if they meet certain conditions
17	Absolute	An absolute cell reference ensures that 1 cell always remains constant even when autofill is used. E.g. \$E\$4
18	Function	A function is a predefined formula that performs calculations using specific values in a particular order.



19	Formula	Only use when creating a calculation between 2 cells.
20	Relative	Relative references change when a formula is copied to another cell.
21	Sort	Sorting data organises it in a specific way e.g. alphabetically
22	Filter	Filtering data makes it easy for us to find one specific piece of data without having to look through every piece of data
23	Autofill	Automatically fill a series of data in your worksheet.
24	Chart	Adds a graph to the spreadsheet



Year 7 Drama Summer Term Knowledge Organiser

Key Vocabulary:		
1	Characterisation	Use of voice and movement to create a role.
2	Stage Levels	Staging to create Status – height, in charge, locations
3	Facial Expressions	Matches the character's feelings/emotions
4	Body language	Over exaggerated to create identifiable characters to a young audience.
5	Gestures	Exaggerated hand and head movements
6	Monologue	A character speaks directly to the audience about their feelings.
7	Tableaux	A single frame forming a motionless image

The World Around us- News reporting	
8	What is Verbatim Drama What is Verbatim Performance? Also known as Ethno drama or documentary theatre, verbatim performance involves actors portraying as precisely as possible the exact words and gestures of people from media artefacts, such as video and audio recordings, interviews, court reports, or newspaper articles.
9	What is news reporting? What is the importance of news reporting? Mainly to inform the public about events that are around them and may affect them. Often news is for entertainment purposes too; to provide a distraction of information about other places people are unable to get to or have little influence over. News can make people feel connected too
10	Which key skills are developed? Communication Freeze Frames Teamwork Characterisation Research Reading Vocal and physical
11	Key skills for journalists Enthusiasm. Stamina. Determination. Confidence. Perseverance. Excellent oral or written skills. Interpersonal skills
12	What are the six major elements of news reports? The Six Elements of News: Timeliness. Proximity. Prominence. Consequence. Human Interest. Conflict.

Reflective Performance Keywords	
Key words	Definitions
Diction	How clear and precisely words are spoken
Projection	Speaking using clear stage voice
Pace	The speed of speech
Pitch	How high or low the voice is
Pause	Break in the speech
Volume	How loud or soft you speak
Accent	Pronunciation based on place of origin
Emphasis	The syllable or word that is stressed
Intonation	Adapting voice to show meaning
Expression	Making the emotion clear to the audience – visual and audible
Given Circumstances	The facts about the character that the actor cannot change
Script	A play text
Interpretation	Deciding on the meaning of a script
Motivation	What a character wants in a scene
Stage direction	Instructions in a script for action and interpretation
Staging	Plan the use of space
Rehearsal	Practising the piece of drama.
Blocking	To stage a scene focusing on transition
Dramatic Tension	To create suspense for the audience
Dialogue	Conversation between characters

Year 7 Science Summer Term Knowledge Organiser – Energy transfers

Key Vocabulary:

1	Calorie	A unit of energy used to describe the energy content in food.
2	Chemical energy	A store of energy that is found in food, fuels and batteries.
3	Degrees Celsius	The unit used for temperature.
4	Dissipate	Spread out into the surroundings.
5	Efficiency	A measure of how much useful energy is transferred.
6	Elastic potential energy	A store of energy that is found in objects that can be stretched or compressed.
7	Energy	There are different stores of energy , such as potential energy and kinetic energy.
8	Gravitational potential energy	A store of energy that is found in objects at a height.
9	Joule	The SI unit of energy.
10	Kilojoule	1000 Joules.
11	Kinetic energy	A store of energy that any object or particle has when moving.
12	Sankey diagram	A diagram that shows the energy transfers taking place and their efficiency.
13	Temperature	Related to the average kinetic energy of particles
14	Thermal energy	A store of energy that any object with a temperature has.
15	Thermal conductor	A material that allows heat to move flow it quickly.
16	Thermal insulator	A material that does not allow heat to flow through it quickly.

Energy

17

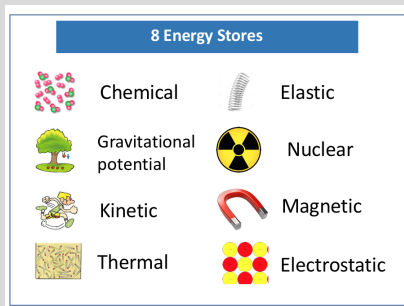
1. Energy cannot really tell us how things work.
2. Energy can only tell us if things are possible to do.
3. Energy is measured in joules (symbol J).
4. One joule is quite a small amount of energy.
5. One kilojoule, 1 kJ = 1000 J (one thousand joules)
6. One megajoule, 1MJ = 1000 kJ = 1,000,000J (one million joules)

18

Energy stores

Energy can be stored in different ways, including:

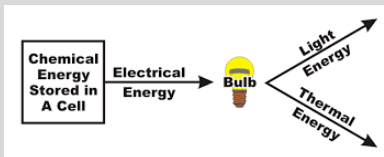
- Moving things have a kinetic energy store
- High up things have a gravitational potential energy store
- Stretched, twisted or bent things have an elastic potential energy store
- Hot things have a thermal energy store
- Certain chemicals, like fuels or batteries, have a chemical store



19

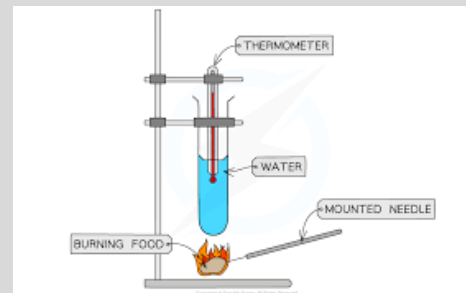
Energy Transfers

- Energy can be shifted from one store to another by physical processes (like forces or electric currents).



20

Energy in food



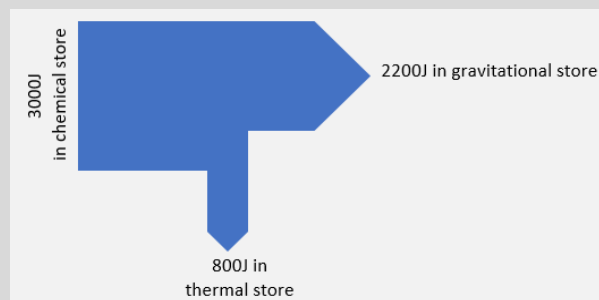
- 1 food calorie is approximately 4 200J.
- Different foods contain different amounts of energy – food labels can tell us how much.

Thermal conductors are materials that allow heat to flow through them easily.

Thermal insulators are materials that do not allow heat to flow through them easily

Metals tend to be good conductors.

Non-metals tend to be good insulators.



Year 7 Summer Term Spanish Knowledge Organiser - Mi familia

Family			
1.	En mi familia hay... - In my family there is	mis padres – my parents mi madre – my mum mi padre – my dad mis abuelos – my grandparents	mi abuela – my nan mi abuelo – my mi tío – my uncle mi tía – my aunty
Apperance			
2.	Tengo – I have Tiene – he/she/it has Tienen – they have	los ojos - eyes el pelo - hair pecas – freckles barba – a beard bigote – a moustache	azules – blue marrones – brown verdes – green grises – grey castaño – brown rubio – blond negro – black liso – straight rizado – curly largo – long corto - short
	Soy – I am Es – he/she/it is Son – they are	calvo – bald pelirrojo – a redhead alto – tall bajo – short gafas - glasses	gordo - fat delgado - slim joven - young viejo - old
	Llevo - I wear Lleva – he/she wears Llevan – they wear		
My house			
3	Vivo en - I live in... Está en – it's in	una casa a house un piso - a flat el campo – the countryside la costa – the coast una ciudad – a city el desierto – the desert la montaña – the mountains centre un pueblo – a villaae	antiguo/a – old bonito/a – nice modern cómodo/a – comfortable pequeño/a – small grande – big moderno/a – modern el norte – the north el sur – the south el este – the east el oeste – the west el centro – the
Key questions			
4	¿Cuántas personas hay en tu familia? - how many people are there in your family? ¿De qué color son tus ojos? – What colour are your eyes? ¿Cómo tienes el pelo? – What is your hair like? ¿Cómo es? – What is he/she like? ¿Cómo es tu casa o tu piso? – What is your house or flat like? ¿Dónde está? – Where is it?		

Let's show off	
5	Ojalá tuviera un hermano/una hermana – If only I had a brother/sister Nos peleamos como el perro y el gato – we fight like cat and dog Me parezco mucho a mi madre/mi padre – I really look like my mum/dad
Large numbers	
5	20 – veinte 30 – treinta 40 – cuarenta 50 – cincuenta 60 – sesenta 70 – setenta 80 – ochenta 90 – noventa 100 – cien

Remember!	
6	When we want to form numbers from 30 – 99, we have to use “y” e.g. treinta y cinco – thirty and 5 (35) setenta y dos – seventy and two (72) ochenta y uno – eighty and one (81) cuarenta y ocho – forty and eight (48)

7. Parallel Text:		
1.	Hola. Me llamo <u>Julia</u> y tengo <u>once</u> años.	Hello. My name is <u>Julia</u> and I am <u>11</u> years old.
2.	Soy bastante <u>alta</u> y <u>delgada</u>	I am quite <u>tall</u> and <u>slim</u>
3.	y tengo los ojos <u>marrones</u> .	and I have <u>brown</u> eyes.
4.	Tengo el pelo <u>rubio</u> y <u>largo</u>	I have <u>long, blond</u> hair
5.	<u>y llevo gafas.</u>	<u>and I wear glasses.</u>
6.	¡Me parezco mucho a <u>mi madre</u> !	I really look like <u>my mum</u> !
7.	Vivo en una casa <u>pequeña</u>	I live in a small <u>house</u>
8.	<u>que</u> está en el <u>campo</u> .	<u>which</u> is in the <u>country</u> .
9.	Mi casa es <u>antigua</u>	My house is <u>old</u>
10.	pero es muy <u>cómoda</u> .	but it's very <u>comfortable</u> .
11.	En mi familia hay <u>cinco</u> <u>personas</u> .	In my family there are <u>five</u> <u>people</u> .
12.	Hay mi <u>madre</u> , mi <u>padre</u> , mi <u>hermano</u> , mi <u>hermana</u> y yo.	There is my <u>mum</u> , my <u>dad</u> , my <u>brother</u> , my <u>sister</u> and me.
13.	Mi hermano tiene el pelo <u>castaño</u>	My brother has <u>brown</u> hair
14.	y es bastante <u>bajo</u> y <u>gorda</u> .	and he's quite <u>short</u> and <u>fat</u> .
15.	Es muy <u>tonto</u>	He's really <u>silly</u>
16.	y <u>nos</u> <u>pelamos</u> <u>como el perro y el gato</u> .	and <u>we</u> <u>fight like cat and dog</u> .

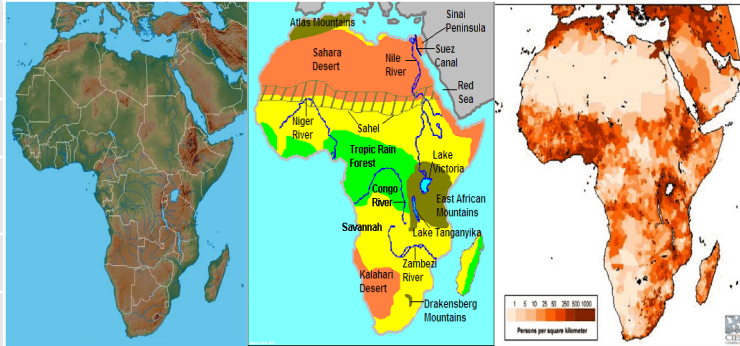
YEAR 7 SUMMER TERM – Africa

Vocab	Definition
Climate Zones	Areas with a similar climate and physical features such as plants and animals.
Poverty	When someone does not have access to basic human needs such as water, clothing, education and shelter.
Development	A measure of how advanced a country is socially, economically, or technologically.
Famine	Extreme and long-term shortage of food that results in widespread malnutrition and death by mass starvation and disease.
Drought	Abnormally low rainfall for an extended period of time.
Development Indicators	Development indicators are a method used to measure how developed a country or region is.
Barrier to Development	Human and physical reasons that there are differences between the level of development between countries.
Landlocked	A country is considered landlocked when it is surrounded on all sides by one or more other countries and therefore has no immediate coastlines.
Sustainable Development	Development that "meets the needs of the present without compromising the ability of future generations to meet their own needs"
Eco - Tourism	A form of environmentally friendly and sustainable tourism which involves people visiting areas that are usually protected such as rainforest.
Quality of Life	refers to the wellbeing of individuals or groups of people. Instead of measuring the amount of money that people have, it refers to where people live and whether they are healthy and happy.

1. A Diverse Continent

- Africa is the world's second largest continent and contains over 50 countries.
- Africa is in the Northern and Southern Hemispheres. It is spread across three of the major lines of latitude: the Tropic of Cancer, the Equator and the Tropic of Capricorn.
- The Sahara is surrounded by the Indian Ocean in the east, the South Atlantic Ocean in the south-west and the North Atlantic Ocean in the north-west.
- There are 54 countries in the continent of Africa.
- Across these 54 countries there are an estimated 1000-2000 languages spoken.
- Algeria is the largest country by area in Africa and Nigeria is the largest country by population.
- Africa has a number of different climate zones including Tropical Rainforest and Savanna.
- The Sahara Desert is the world's largest hot desert, located in northern Africa. The climate is hot and dry, with temperatures recorded as high as 50°C.
- The largest cities in Africa include Lagos, Kinshasa, Cairo and Johannesburg.

2. Relief, Climate and Population Density Maps of Africa.



3. Physical and Human Barriers to Development

Human

War and Conflict – Can cause damage to roads, schools and hospitals and cause a loss in population.
Colonialism – When countries were taken control of in the past countries in Europe stole their valuable resources.
Trade

Physical

Landlocked – With no access to the limits their ability to trade. 16 countries in Africa are landlocked.
Climate – Some climates are more extreme and harsh limiting agriculture.
Extreme Weather - Such as drought, flooding and tropical storms.
Natural Hazards – Earthquakes and Volcanoes can cause damage to roads, schools and hospitals.

4. Sustainable Development Goals



6. Ghana School Feeding Programme

Not enough children in Ghana were attending school. Students were staying home and working as parents could not afford to send them in with food for the day.

The basic idea of the programme is to give children in **public primary schools one hot nutritious meal, prepared from locally grown food every day.**

The aim is to spend 80% of the feeding cost in the local economy.

The immediate objectives are to **reduce hunger and malnutrition, increase school enrolment**, attendance and retention.

The Development objective is to reduce poverty and make sure children have enough to eat every day.

7 Tourism in Kenya

Ecotourism Kenya runs a standards scheme where 86 facilities have received 23 Gold, 43 Silver and 20 Bronze standard eco-rating certificates.

Ecotourism can play a large part in helping to ensure that there are many social and economic positives coming from ecotourism.

These include:

Providing well-paid, stable jobs for the locals - these jobs include a wide range of services for tourists.

High quality education and staff training - many employees and their families will be supported through their education and will be encouraged to continue to learn through their career development.

'Community Development Projects' - many of local hotels and safari lodges and camps have set up their own 'Community Development Projects' where they will support the local community by helping to build homes and infrastructure, wells and water supplies, telecommunications and electricity. **Education** - some organisations will also support local schools and make sure that they are provided with all the provisions that will encourage children to go to school.

However, perhaps the largest impact that ecotourism can make is in how it can help to impact the environment. These include:

Sustainable buildings – any new building for a hotel or safari lodge needs to be planned carefully so that it integrates into the environment easily. Local products should be used so that they do not need to be transported long distances.

Water – water management systems should be developed to ensure that new building will not take too much water away from the local ecosystem. Grey water (from washing) and black water (from toilets and sewage) needs to be filtered and reused.

Electricity – should be generated from a sustainable source such as solar panels.

Waste – should be recycled as much as possible so that there is very little that needs to be incinerated. Strategies for managing waste and for encouraging recycling should be emphasised within every resort.

As a result, any new tourism development in the area should not have any negative environmental impact on the local environment and if anything, should have a positive impact.

Year 7 History Medieval King Problems Summer Term 2 Knowledge Organiser

Key Vocabulary:			Why was the Church so powerful and who challenged it's power?		Who challenged the king's power?	
1	The Church	the Catholic religion led by the pope supported by archbishops and priests in every town and village.	9	Why was the Church so powerful in the Medieval period?	12	Why were the barons angry at King John?
2	Significance	an event that leads to change in the future.	• Showed path to heaven and hell- priests would forgive people's sins and help them get to heaven, it was taught in he Bible and on Doom paintings that good people who didn't sin went to heaven. • Helped the community- priests visited the sick and gave food, shelter and help to the poor • Rich – peasants had to give a tithe (a tenth) of their crops to the Church and King William had granted the Church 25% of the land in England. • Providing Entertainment & Social events- These included feasts and fairs, puppets shows, archery contests and dances. There were also drinking parties known as church ales and mystery plays.		1.John went to war twice against the French king. He was beaten and lost land.	
3	The Pope	the leader of the Catholic Church, believed to be God's representative on Earth. There would be power struggles between the Pope and medieval kings			2.John raised taxes in England to pay for the wars. This upset his BARONS! He ordered them to pay far more tax than earlier kings had done.	
4	Heaven	the religious belief taught in the Bible and church services that if you have led a good life you will be rewarded by spending eternity in the home of God	10	Who was Thomas Beckett?	3.He quarrelled with the Pope about how to run the Church. From 1208 until 1213, the Pope banned all church services in England and English people feared that they would all go to HELL!	
5	Hell	the religious belief that If you have sinned during life you will spend the afterlife in a place of evil and suffering.	Thomas Beckett was the Archbishop of Canterbury and had been the closest friend of King Henry II. He was murdered in 1170 in Canterbury Cathedral by 3 knights. Thomas Beckett had been made Archbishop of Canterbury (he most powerful Church position in medieval England) by Henry II who was angry at the amount of power the Pope had over him.		13	
6	Human Rights	rights we are entitled to simply because we are human.			What did the Magna Carta promise?:	
7	sources	evidence remaining from the past that we use to find out what happened.	11	Who is to blame for the murder of Thomas Beckett?	The King must not interfere with the Church.	
8	interpretations	a point of view about a person/event	The Knights - They did not have orders from the King. They decided to kill Becket just to gain the King's approval. They believed Henry really wanted Becket dead and they wanted to please him. Thomas Beckett himself - He had a good chance to escape but refused to go. He carried on the quarrel after he returned to England and he knew this would put him in danger. He seemed to want to be a martyr so that he could serve God and the Church. He knew that he would go to heaven. King Henry II - He more or less ordered the murder. It was clear that he wanted it done. Henry was angry at his former friend who was causing him so much trouble. He wanted him dead.		When a baron inherits land he should pay the king no more than £100	
					The king cannot collect new taxes unless the barons and bishops agree.	
					No freeman can be put in prison without a proper trial with a jury	
					The king's men must not take anyone's goods/crops without paying for them.	
					Justice will be given without delays or bribes	
					Free men and traders must be able to travel freely without having to pay tolls.	
					Barons will be fined only if the other barons say they are guilty.	
					14	
					To what extent did the Mana Carta change our rights?	
					Remember that most people were o barons or churchmen in the medieval period so a lot of the provisions in the Magna Carta would not have applied to them.	
					However two of the most important provisions- the right to a trial and the fact that the king and his government are not above the law are still important parts of the law today.	
					The Magna Carta also inspired lots of other human rights documents around the world such as the American Constitution.	

Year 7 History Summer Term Knowledge Organiser: What was it like to live in Tudor England?

Key Vocabulary:			How did life change in Tudor England?		How did life change in Tudor England?	
1	Heir	The person (usually the oldest son to the current monarch) who is next in line to the throne	8	Henry VIII's problems and how he solved them	11	Was it a golden age?
2	succession	The act of becoming the next king or queen	Henry was desperate for a son for an heir to the throne; Catherine (his first wife) had become too old to have a child Henry had fallen in love with Anne Boleyn. Henry needed a divorce – the Pope said no! Henry had spent a lot of money on costly wars. How did Henry deal with his problems? Henry 'Broke with Rome' and established the Church of England. This allowed Henry to have more control and power over England as well as divorcing Catherine of Aragon. Henry closed down the monasteries and took their riches for himself. Henry married a third time still seeking a son – Jane Seymour gave birth to Edward.		Exploration England discovered new lands and people and so England became a major power. Sir Walter Raleigh captured £400,000 (worth £200 million today!) from Spanish ships for England Literature Poetry and plays were very popular e.g. Shakespearean plays Education Extremely important during Elizabeth's reign. Girls were starting to receive some education and grammar schools were built for boys. Literacy increased to 30% of the population Theatre Many theatres were built showing plays e.g. Romeo and Juliet. The theatre portrayed Elizabeth very positively and allowed social classes to mix.	
3	Catholic	The only Christian religion before the reformation. They believed church services should be in Latin and priests shouldn't marry	9	Did Henry VII improve England?	12	Black Tudors
4	Protestant	The new Christian religion created by those who believed that Catholicism had become corrupt. They believed the church services should be in English and priests should be able to marry.	Successes Henry was the 'father' of the Royal Navy • Historians argue Henry established England as a powerful country • Henry was extremely clever; he wrote poetry, knew several languages and wrote books • Henry founded Christ Church College Failures Henry shut down the monasteries and took their riches for himself. • As a young King, Henry was more interested in sports and parties than ruling England • Henry beheaded two of his wives – Anne Boleyn and Catherine Howard • Henry executed men who opposed him • Henry argued with the Pope and 'Broke with Rome' for his own personal reasons; a divorce		- We know of over 200 people of African origin who lived in Tudor England. - They lived in different places, from cities to country villages. Some even lived at the courts of monarchs. - John Blanke was a trumpeter, Cattelena of Almondsbury was a maker and seller of butter, Jacques was a diver and Mary Ellis was a servant and seamstress	
5	Reformation	When the Catholic Church split into Catholic and Protestant.	10	What challenges did Elizabeth face as queen?	13	What was it like to be poor?
6	Pope/Papacy	The pope is the head of the Catholic Church, people believed that he had been appointed by God to lead the Church and to get to heaven people had to follow the rules of the Catholic Church	Religious issues - Elizabeth was Protestant and some Catholics plotted - She introduced laws which didn't allow Catholics to attend mass or have priests in their home - Spain and France were Catholic and very powerful Mary Queen of Scots - Mary was Elizabeth's cousin and heir to the throne as Elizabeth had no children-she was Catholic! The issues of marriage - Francis, Duke of Alencon - Catholic, French prince, young - Phillip II of Spain- Catholic, Spanish King had been married to Elizabeth's sister Mary before she died. - Robert Dudley, Earl of Leicester- A Protestant, English member of Elizabeth's royal court. They had been friends since childhood		The Elizabethans believed that if you were poor it was your own fault and called unemployed homeless people 'sturdy beggars' and punished them for not having a job or home by whipping or burning a hole in their ear. There was more people than ever in poverty due to a population increase, failed harvests and loss of jobs.	
7	Break with Rome	Henry broke away from the Catholic Church			14	Mughal India
					- Generated 22% of the world's economy - Traded goods such as copper, silk, precious stones, iron and salt. - The emperor created a new, fairer tax system, where everyone paid 30% of their wages and he spent it on building new towns. - most ordinary people lived in mud style homes 15% of people lived in urban areas	

Year 7 Unit Three: Inspiring Voices – 'I am Malala' by Malala Yousafzai

Key Vocabulary:

1	Inspirational	If someone is inspirational, it means that they've inspired you to do something great or to be a better person. They can motivate us by example and lead us to our goals by showing us what's possible through their actions.
2	Sensory Language	Where the writer uses the senses in their description to create an image for the reader.
3	Lexical Choice	The word choice of the writer for certain effects.
4	Hyperbole	Where the writer exaggerates something to the reader through the use of language./
5	Triple Emphasis	repeating an idea 3 times to create emphasis
6	Anaphora	the repetition of words or phrases in a group of sentences, clauses, or poetic lines

Malala Yousafzai

Malala is a Pakistani activist for female education. She is known for promoting human rights, especially the education of women and children in her native Swat Valley in Pakistan, where the local Taliban had at times banned girls from attending school. Her work has grown into an international movement and she is now one of the most influential Pakistani women.

Malala was particularly inspired by her father's thoughts and humanitarian work and in early 2009, when she was 11–12, she wrote an anonymous blog for the BBC detailing her life during the Taliban occupation of Swat. She rose in fame, giving interviews to newspapers and television.

In 2012, while on a bus in the Swat District, Malala and two other girls were shot by a Taliban gunman in an assassination attempt in revenge for her activism; the gunman fled the scene. Malala was hit in the head with a bullet and remained unconscious and in critical condition, but her condition later improved enough for her to be transferred to the Queen Elizabeth Hospital in Birmingham.

The attempt on her life sparked an international outpouring of support for Malala.

Following her recovery, Malala became a well known activist for the right to education. Based out of Birmingham, she founded the Malala Fund, and in 2013 co-authored 'I Am Malala', an international best seller. In 2014, she received the Nobel Peace Prize.

Key Vocabulary:

1	Taliban	A name for lots of different Islamic extremist groups who are in control of areas of Pakistan and Afghanistan
2	Activist	A person who campaigns to bring about political or social change.
3	Humanitarian	Concerned with or seeking to promote human welfare.



Malala Yousafzai Timeline

12th July 1997: Malala is born in Mingora, Pakistan. 2008: Malala gives a speech, aged 11, about her right to education. 2009: Malala begins her blog for the BBC Urdu Service. 2010: Malala begins to receive death threats underneath her door. October 2012: Malala is shot on her way home from school. July 2013: Malala makes a speech at the United Nations about education for girls. 2013: Her memoir: 'I Am Malala' is released. 2014: Wins the Nobel Peace Prize. 2015: Opens an all-girls school in Syria. 2015: Her documentary 'He named me Malala' is released in cinemas.

Year 7 Science Summer Term Knowledge Organiser – Interdependence

Key Vocabulary:

1	Abiotic Factor	Something that is not to do with a living thing. <i>Light, temperature and water availability are all abiotic factors.</i>
2	Biotic Factor	Something to do with a living thing. <i>Food availability, disease and predators are all biotic factors.</i>
3	Community	Two or more populations of organisms in the same habitat. <i>A group of seals and sharks form community in the ocean.</i>
4	Competition	Where organisms need a resource that has a limited supply. In the desert habitat, there is competition between plants for water.
5	Interdependence	All the organisms in an ecosystem depend on each other. Interdependence involves feeding relationships, pollination and decomposition.
6	Quadrat	A piece of equipment used to count the number of organisms/individuals in a specific area. Quadrats are used during both random and systematic sampling to count the individuals in an area.
7	Secondary Consumer	An organism that feeds on a primary consumer. <i>A fox is a secondary consumer because it eats rabbits, who eat grass.</i>
8	Tertiary Consumer	An organism that feeds on a secondary consumer. <i>A hawk is a tertiary consumer because it eats sparrows, who eat caterpillars.</i>
9.	Trophic Level	An organism's position in a food chain. <i>A producer is always found at the first trophic level as they are at the beginning of a food chain.</i>
10.	Sample	A smaller part of something that gives an idea of the whole.

11 Ecosystems

community of organisms with the non-living parts (abiotic factors) of their habitat. *E.g. a rainforest ecosystem contains: gorillas, ants, nut trees, lots of water and lots of sunlight*
A population is a group of the same organism. *E.g. a group of gorillas*
A community is made of several different populations living in the same area that depend on each other for survival. *E.g. populations of: gorillas, ants and nut trees.*

12 Sampling

Random sampling is used to estimate the size of a population in a habitat
Quadrats are placed randomly and used to count the number of individuals in a specific area
e.g. estimating the total number of daisies in a field
Systematic sampling is used to investigate the effect of a factor on the distribution of organisms
This involves using quadrats placed at regular intervals along a transect line
e.g. counting the number of daisies as you move further away from a pond



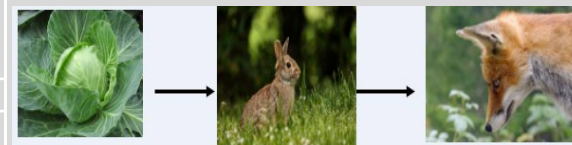
13 Food Chains and Webs

Feeding relationships within a community can be represented by food chains and food webs
The direction of the arrow in a food chain and food web shows the direction of energy transfer.
Producers are plants that can make their own food (glucose) using sunlight in the process of photosynthesis
Primary consumers eat producers, secondary consumers eat primary consumers and tertiary consumers eat secondary consumers

Predators are consumers that eat other animals, called prey

In a stable community the numbers of predators and prey increase and decrease in cycles

If there is a change in one population then this affects other populations in the community. You can use a food web to predict what changes could happen



cabbage → rabbit → fox

Producer Primary consumer Secondary consumer

14 Abiotic and Biotic factors

Biotic factors are living things that can affect a community

Examples of biotic factors are: food, disease and predators

Abiotic factors are non-living things that can affect a community

Examples of abiotic factors are: temperature, light, wind, amount of water

15. Competition

Animals often compete with each other for space, mates and food

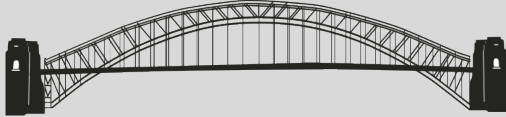
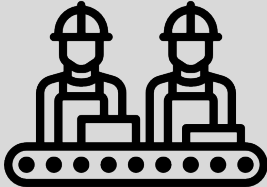
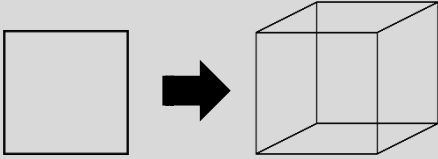
Plants often compete with each other for space, water, minerals and light

The best competitors are most likely to survive

Year 7 Design and Technology Summer Term Knowledge Organiser

Key Vocabulary:		
1	Structure	The arrangement of and relations between the parts or elements of something complex. A building or other object constructed from several parts.
2	Frame structure	An arrangement of struts and ties to support itself and the load placed on it. Each part is known as a 'member'.
3	Shell structure	A construction, where the skin and the frame of the building are created from one single piece. There are no separate parts and the shell is strong enough to support itself and the loads placed on it.
4	Triangulation	Adding triangles to a structure to improve its strength and rigidity
5	Load	Something lifted up and carried or a mass or weight supported by something.
6	Design Brief	A design brief is a document for a design project developed by a person or team in consultation with the client/customer. They outline the deliverables and scope of the project; function and aesthetics, timing, budget, etc.
7	Specification	It is a list of criteria that the product needs to meet if it is to be successful.
8	Scale Models	A scale model is a physical model which is geometrically similar to an object (known as the prototype). Scale models are generally smaller than large prototypes such as vehicles, buildings. Models built to the same scale as the prototype are called mock-ups.

Bridge Structure		
9	Paper	A sheet material used for writing on or printing on (or as a non-waterproof container), usually made by draining cellulose fibres from a suspension in water.
10	Cards	Thicker paper with a weight more than 220 GSM and up to 500 GSM.
11	Boards	The industry's name for cardboard and is made from several layers of pulp. Very thick board is made by sticking together sheets of paper or board.
12	Scalpel	A small and extremely sharp bladed instrument These knives were general-purpose tools, designed for cutting and shaping wooden implements, scraping hides, and for other utilitarian purposes.
13	CAD	Designers use computer-aided design (CAD) software such as 2D Design to develop plans, product drawings, building plans and landscaping layouts.
13	Dimension	a measurable extent of a particular kind, such as length, breadth, depth, or height.
14	Diameter	A diameter of a circle is any straight line segment that passes through the centre of the circle and whose endpoints lie on the circle.
15	Radius	A radius of a circle or sphere is any of the line segments from its centre to its perimeter, and in more modern usage, it is also their length. The name comes from the Latin radius, meaning ray but also the spoke of a chariot wheel.

3D Design	
15	Bridge Structure Building a bridge using Triangulation method. 
16	Manufacture - What is it? The prototypical bridge is quite simple—two supports holding up a beam—yet the engineering problems that must be overcome even in this simple form are inherent in every bridge: the supports must be strong enough to hold the structure up, and the span between supports must be strong enough to carry the loads. 
15	Oblique Projection It is a simple type of technical drawing of graphical projection used for producing three-dimensional (3D) images of objects. 
16	Evaluation Designers evaluate their finished products to test whether they work well and if design can be corrected or improved. It is important to evaluate your work constantly during the project to see if it is on track and so that improvements can be built-in throughout the design process, not just at the end.

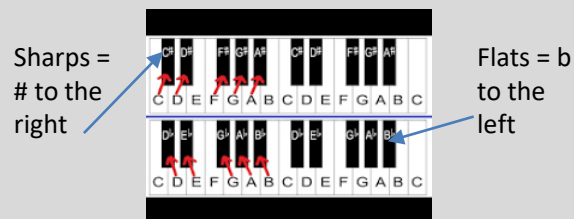
Year 7 Music Summer Term Knowledge Organiser

Key Vocabulary:

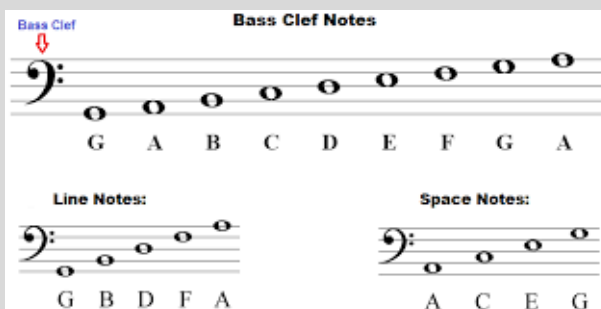
1	Melody	The main tune or musical theme
2	Expression	Using dynamics to make the music sing
3	Bass clef	Music notation for lower pitches in sound and instruments – they are different to the treble clef
4	Musical genres	Different styles of classical music Sonata Symphony Opera Oratorio Dances – Sarabande, Bagatelle, Minuet
5	Accompaniment	Music to accompany (play in the background) the melody.
6	Chords	2 or more notes played together to accompany the melody E.g.. CEG a chord of C
7	Piano Forte	The real name of the piano – named as the notes can be played piano (quiet) and Forte (loud) by different pressure on the keys

Music Theory

8 # - Sharps and b - Flats



9 Bass Clef



10 Beethoven

Ludwig van Beethoven was a German pianist and composer whose Symphony 5 is a beloved classic. Some of his greatest works were composed while Beethoven was going deaf.

11 Fur Elise

Bagatelle in A minor for solo piano, commonly known as "Für Elise"

One of Ludwig van Beethoven's most popular compositions. It was not published during his lifetime, only being discovered 40 years after his death.

12 Fur Elise



13 Ode to Joy

The Symphony No. 9 in D minor, Op. 125, is a choral symphony, the final complete symphony by Ludwig van Beethoven, composed between 1822 and 1824. It was first performed in Vienna on 7 May 1824

14 Symphony first

The Symphony was the first example of a major composer using voices in a symphony. The text was adapted from the "Ode to Joy", a poem written by Friedrich Schiller in 1785.



Year 7 RS Exploring Buddhism – Summer Term Knowledge Organiser

Key Vocabulary:			Buddhist Beliefs		Buddhist Practices	
1	Siddhartha Gautama	Hindu Prince who became the Buddha	10	1. & 2. Becoming the Buddha		6. Branches of Buddhism
2	Samsara	Endless cycle if life, death and rebirth	Buddhists believe that the belief system was reintroduced to the universe through the enlightenment of Prince Siddhartha Gautama. Siddhartha left his luxurious life in the palace to become a holy man, and eventually realized that in order to minimize suffering we should give up our attachment to material things.		There are multiple branches, or denominations of Buddhism, spread around the world. The two largest denominations, Mahayana and Theravada Buddhism, practice the religion in very different ways. By exploring their different views, we will be able to understand how different people interpret the Buddhist beliefs.	
3	Anicca	The idea that nothing lasts forever, and everything changes		3. Universal Truths		7. Dharma
4	Anatta	There is nothing permanent about you, and there is no soul	The universe runs on three truths that are true for all people, at all times. Buddhists believe that everything changes, including us, so we have no soul. The idea of reincarnation is different to Hinduism, as there is no soul to be ‘reborn’. Buddhists also believe that it is human nature to suffer, and by accepting this we can be happier.		Buddhists believe there are several things that support living a Buddhist life. The three refuges – the Buddha, the dharma and the sangha – are the most important parts of Buddhist life. The Tipitakas, or three baskets, are written instructions that come from the Buddha’s teachings to help people live a good life.	
5	Dukkha	All life is suffering		4. Noble Truths		8. Buddhist Worship
6	Meditation	A way or worshipping in which the mind focuses	The three universal truths create a ‘problem’ – humans spend their lives suffering. The four noble truths offer a solution to that problem – they teach us how to avoid suffering by living in the Middle Way and giving up our cravings for material things.		Without a god/goddess to pray to, Buddhist worship is different to other religious belief systems. By looking at the aims of meditation, and creating prayer flags, we will explore how meditation fits in to the Buddhist belief system and supports people in living a Buddhist life in a modern British society.	
7	Nirvana	Achieving a state of perfect happiness		5. Eightfold Path		9. Buddhist Festivals
8	Dharma	Rules, or cosmic laws, that tell us how to act	Buddhists follow the Eightfold Path, which are eight rules for how to live a good life. Focusing on having the right: view, intention, speech, action, livelihood, effort, mindfulness and concentration, Buddhists believe we can live positively and in line with the Buddhist dharma.		The importance of the Buddha is marked by the festival of Vaisakhi, which is a global Buddhist celebration. We will also look at the festival of Songkran, and explore how modern British Buddhists might celebrate religious festivals.	

Year 7 Summer Term Spanish Knowledge Organiser - Mi ciudad

Mi ciudad – my town/city			
1.	En mi – In my	ciudad – city pueblo – town barrio - neighbourhood	hay – there is no hay – there isn't un castillo - a castle un estadio- a stadium un mercado- a market un museo- a museum un parque- a park una piscina- a swimming pool una plaza- a square una tienda- a shop un restaurante- a restaurant una universidad- a university un centro commercial- a shopping centre un polideportivo- a sports centre no hay nada (que hacer) – there is nothing (to do)

Actividades - Activities			Preguntas claves – key questions
2.	Voy – I go	al cine – to the cinema al parque – to the park a la bolera – bowling a la cafetería- to the cafeteria a la playa- to the beach de paseo – for a walk de compras - shopping Salgo con mis amigos – I go out with my friends No hago nada – I don't do anything	3. ¿Qué hay en tu ciudad? – What is there in your town? ¿Qué haces en la ciudad? – What do you do in town? ¿Qué vas a hacer? – What are you going to do?

en la cafetería – in the café			
4.	Quiero – I want Me gustaría – I would like	Bebidas – drinks un batido de fresa/ de chocolate - a strawberry/chocolate milkshake un café - a coffee una Coca-Cola - a coke una Fanta limón - a lemon Fanta un granizado de limón - an iced lemon drink un té - a tea	Raciones – snacks calamares - squid croquetas - croquettes gambas - prawns jamón - ham pan con tomate - tomato bread patatas bravas - spicy potatoes tortilla - spanish omelette
¿Qué quieres? – What do you want? ¿Algo más? - Anything else? ¿Y de beber? - And to drink? ¿Cuánto es? - How much is it?			

Planes para el futuro – plans for the future			
5.	Este fin de semana - This weekend El sábado por la mañana - On Saturday morning El domingo por la tarde - On Sunday afternoon/evening Primero - first Luego - then Finalmente - finally A las tres de la tarde - at three o'clock in the afternoon (Un poco) más tarde - (a little) later	voy a – I'm going vas a – you're going va a – he/she/it's going vamos a – we're going vais a – you lot are going van a – we're going	salir con mis amigos - to go out with my friends ver la television - to watch TV ir de paseo - to go for a walk jugar al voleibol - to play volleyball chatear - to chat online hacer los deberes - to do my homework

6. Parallel Text:		
1	En mi ciudad hay <u>un estadio, unos museos</u>	In my city there is <u>a stadium, some museums</u>
2	y <u>un centro comercial grande</u>	and a <u>big shopping centre</u>
3	<u>sin embargo</u> no hay <u>mercado</u> .	<u>however</u> there isn't a <u>market</u> .
4	Normalmente voy <u>a la bolera</u>	Normally I go <u>bowling</u>
5	con <u>mis amigos</u> o	with <u>my friends</u> or
6	<u>voy de compras</u> con <u>mi madre</u>	<u>I go shopping</u> with <u>my mum</u>
7	pero <u>nunca</u> voy <u>a la playa</u>	but I <u>never</u> go <u>to the beach</u>
8	porque es <u>aburrido</u> .	because it's <u>boring</u> .
9	Este fin de semana voy a <u>salir con mis amigos</u>	This weekend I'm going <u>to go out with my friends</u>
10	y vamos a <u>jugar al voleibol</u> .	And we're going <u>to play volleyball</u> .
11	¡ <u>Qué divertido</u> !	<u>How fun</u> !

Indefinite article				
7.	un	a (masculine)	unos	some(masculine)
	una	a (feminine)	unos	a (masculine)

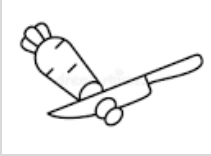
Un diálogo – a dialogue	
8.	<u>Camarero</u>: Hola. ¿Qué quieres? <u>Cliente</u>: Quiero gambas y patatas bravas por favor. <u>Camarero</u>: ¿Y para beber? <u>Cliente</u>: Me gustaría un batido de fresa. <u>Camarero</u>: ¿Algo más? <u>Cliente</u>: Una Fanta limón, por favor. ¿Cuánto es? <u>Camarero</u>: Diez euros cincuenta.

Year 7 Food Technology Summer Term Knowledge Organiser

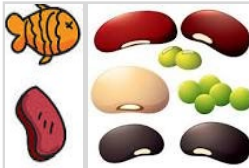
Key Vocabulary: Nutrition

1	The Eatwell Guide	A healthy eating model showing the types and proportions of foods needed in the diet.
2	Hydration	The process of replacing water in the body.
3	Dietary Fibre	A type of carbohydrate found in plant foods.
4	Combination Food	Food made with ingredients from more than one food group.
5	Macronutrients	Nutrients needed to provide energy and as the building blocks for growth and maintenance of the body.
6	Micronutrients	Nutrients which are needed in the diet in very small amounts.
7	Food provenance	Knowing where food was grown, caught and raised. Knowing how food was produced and transported

Key Vocabulary: Cooking

1	cut, slice and chop	
2	grate	
3	peel	
4	mix and combine	
5	use the grill	
6	use the hob	
7	use the oven	

Key Vocabulary: The Eatwell Guide

1	The Eatwell Guide	
2	Fruit and vegetables	
3	Potatoes, bread, rice, pasta or other starchy carbohydrates	
4	Dairy and alternatives	
5	Beans, pulses, fish, eggs, meat and other protein	
6	Oil and spreads	
7	Foods high fat, salt and sugar	

Year 7 Summer Knowledge Organiser Mixtures

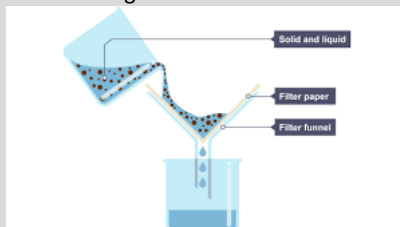
Key Vocabulary:

1	Solute	A substance that can be dissolved in a solvent. <i>Salt is a solute because it can be dissolved in water.</i>
2	Solvent	A substance in which a solute can dissolve <i>Water is a solvent because salt can dissolve in it.</i>
3	Solution	A mixture of a dissolved solute and a solvent. <i>A solution of salt and water was used.</i>
4	Insoluble	A substance is insoluble if it cannot be dissolved in a solvent. <i>Wood is insoluble in water.</i>
5	Unsaturated solution	A solution which has the maximum possible amount of solute dissolved in it. <i>The student continued to add salt to the water until no more would dissolve and she had made a saturated solution.</i>
6	Boiling point	The temperature at which a substance changes state from liquid to gas. It is also the temperature at which a substance changes from gas to liquid (condenses). <i>The boiling point of water is 100 degrees Celsius.</i>
7	Melting point	The temperature at which a substance changes from solid to liquid (melts). It is also the temperature at which a substance changes from liquid to solid (freezes). <i>The melting point of water is 0° Celsius.</i>

Separation techniques

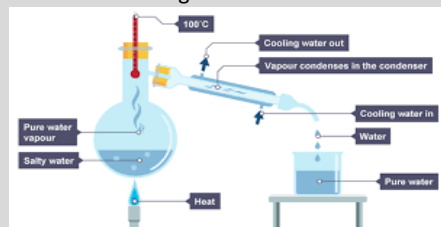
8 Filtration

Filtration is used to separate an insoluble solid from a pure liquid or a solution eg sand from water.



9 Distillation

Distillation is a separation technique used to separate a solvent from a mixture eg water from a salt solution.



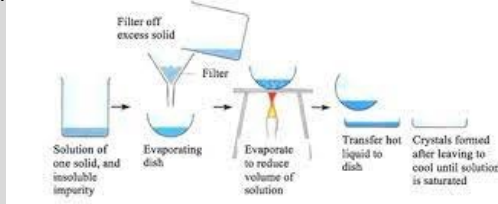
10 Evaporation

Evaporation describes the process of a liquid turning into a gas, is used to separate a soluble solid from a liquid eg salt from water.



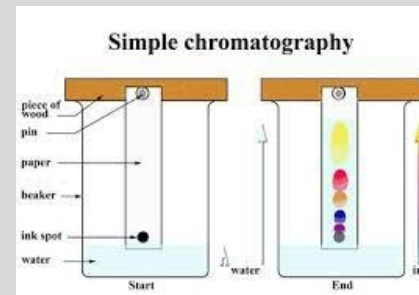
11 Crystallisation

Crystallisation is used to produce solid crystals from a solution eg copper sulphate crystals from copper sulphate solution.



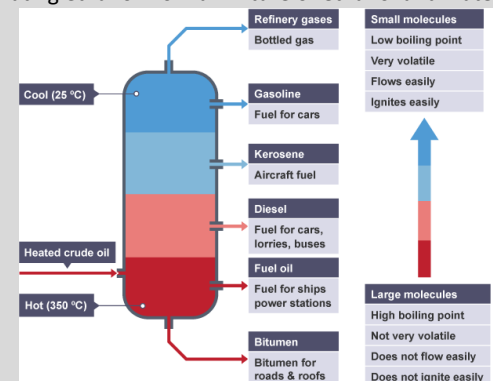
12 Chromatography

Paper **chromatography** is used to separate mixtures of soluble substances eg inks and dyes.



13 Fractional distillation

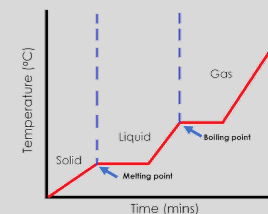
Fractional distillation is used to separate different liquids from a mixture of liquids. It is useful for separating ethanol from a mixture of ethanol and water.



Pure and impure substances

14 Pure and substances

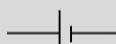
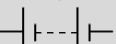
Pure substances melt and boil at specific temperatures.

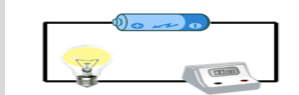
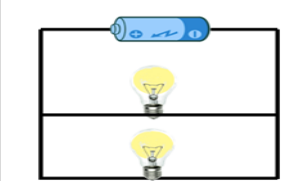


Mixtures melt and boil at a range of temperatures.

Year 7 Science Summer Term Knowledge Organiser – Electrical Circuits

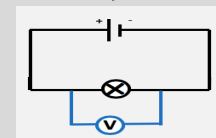
Key Vocabulary:		
1	Ammeter	A component used to measure current in electrical circuits, connected in series.
2	Ampères (Amps)	The unit of measurement for current.
3	Battery	Two or more cells connected together.
4	Cell	A single energy source that can be used to power an electrical circuit, two or more of which can be connected together to make a battery.
5	Charge	Particles that transfer energy in an electrical circuit.
6	Component	Any device in an electrical circuit.
7	Current	The rate of flow of charge.
8	Electrical Conductor	A material that allows current to flow through it easily.
9	Electrical Insulator	A material that does not allow current to flow through it easily.
10	Energy	The ability or capacity to do work (such as move an object through a distance).
11	Junction	A point in a parallel circuit where the current can split.
12	Parallel	A circuit in which there is more than one branch through which current can flow.
13	Series	A circuit in which there is only one branch through which current can flow.
14	Switch	A component that can be open or closed to control whether or not current can flow.
15	Voltage	The amount of energy shifted from the power source to the moving charges or from the charges to the component.
16	Voltmeter	A component used to measure voltage in electrical circuits, connected in parallel.
17	Volts	The unit of measurement for voltage.

18 Circuit Components		
Circuit Symbol	Component Name	Function
1. 	Cell	Push charges around the circuit. Supplies electrical energy
2. 	Battery	
3. 	Bulb/Lamp	Lights up
4. 	Ammeter	Measures current
5. 	Voltmeter	Measures voltage
6. 	Motor	Spins around or moves
7. 	Switch	Completes the circuit
8. 	Buzzer	Makes a sound

19 Series & Parallel Circuits	
A complete circuit has no gaps, so the electricity can flow all around in a loop. If the circuit is incomplete, the electricity cannot flow. If all of the components are connected into one main loop, it is a series circuit.	
	
If there's more than one loop with junctions, it's a parallel circuit	
	

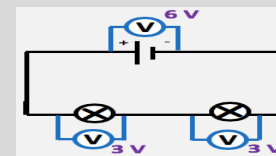
20 Current	
1.	Current is the rate of flow of charge and is measured in Amperes/Amps (A) by an Ammeter.
2.	Ammeters are placed in series.
3.	Current transfers energy from one place to another.
4.	Current can be calculated using the equation: $\text{Current} = \text{Charge} / \text{Time}$
5.	Charge is measured in Coulombs (C) and time is measured in seconds (s).
6.	The brightness of a bulb is increased by adding cells/batteries and decreased by adding more bulbs (components).
7.	Current is the same everywhere in a series circuit.
8.	Current splits at the junctions in a parallel circuit.

21 Voltage	
Voltage is measured in Volts (V) by a Voltmeter. Voltmeters are connected in parallel.	

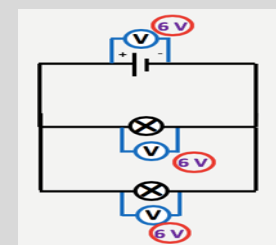


Voltage is the amount of energy shifted from the power source to the moving charges, or from the charges to the circuit component.

- Adding voltage (adding batteries) increases the current and increases the brightness of bulbs.
- The voltage in a series circuit is shared between components.



The voltage across the cell is equal to the voltage on each pathway of a parallel circuit.



Year 7 - Summer Term Knowledge Organiser - Solving Problems with Multiplication and Division

Key Vocabulary:

1	Multiply	The result of multiplying a number by an integer. The times tables of a number
2	Product	The result of a multiplication calculation.
3	Multiples:	Found by multiplying any number by positive integers
4	Factor	Integers that multiply together to get another number.
5	Quotient	The result of a division
6	Divisor	The number we divide by
7	Mean	The average of the all values, whereby all of the values are added together and then divided by the number of values.
8	Equivalent	Something that is essentially the same or equal to something else

9 Factors

A number that divides exactly into another number without a remainder. It is useful to write factors in pairs

Factors of 10

1, 2, 5, 10

The number itself is always a factor

Factors of 4

1, 2, 4

Factors of 36

1, 2, 3, 4, 6, 9, 12, 18, 36

10 Multiples

The result of multiplying a number by an integer. The times tables of a number

Lowest Common Multiples

9 18 27 36 45 54

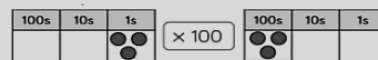
12 24 36 48 60

LCM of 9 and 12

The first time their multiples match
LCM = 36

11 Multiply and divide integers and decimals by powers of 10

A number that divides exactly into another number without a remainder. It is useful to write factors in pairs



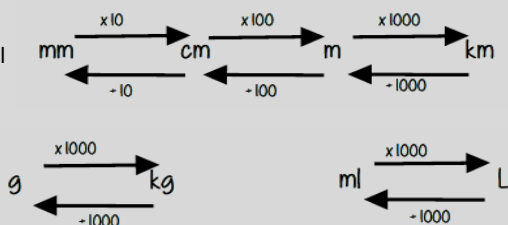
$$3 \times 100 = 300$$



$$0.03 \times 100 = 3$$

12 Convert metric units

When we convert from big unit to small unit we multiply and if we convert from small unit to big unit we divide.



13 Use formal methods to multiply integers

Long multiplication column

$$\begin{array}{r} 326 \times 32 = 10,432 \\ \begin{array}{r} \text{Th} \quad \text{H} \quad \text{T} \quad \text{O} \\ \times \quad \begin{array}{r} 32 \\ 326 \end{array} \\ \hline 652 \\ + 9780 \\ \hline 10432 \end{array} \end{array}$$

Make the unit 0 then carry on multiplying

14 Use formal methods to multiply decimals

Multiply 0.03 by 1.1 = 0.033

Multiply 0.03 by 1.1 = 0.033

the answer should have the same number of decimal places as are in both the numbers you are multiplying.

Multiply without decimal points: $3 \times 11 = 33$

0.03 has 2 decimal places, and 1.1 has 1 decimal place, so the answer has 3 decimal places: 0.033

15 Use formal methods to divide integers and decimals.

$$3584 \div 7 = 512$$

Short division

5	1	2
7	3	5
	8	4

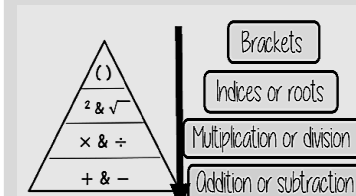
Division with decimals

The placeholder in division methods is essential – the decimal lines up on the dividend and the quotient

$$24 \div 0.02 \longrightarrow 24 \div 0.2 \longrightarrow 240 \div 2$$

All give the same solution as represent the same proportion. Multiply the values in proportion until the divisor becomes an integer.

16 Order of operations



Break down the calculation using the order of operations.

$$6 \times 4 + 8 \times 2$$

$$24 + 16 = 40$$

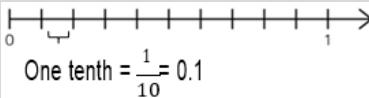
$$10 - 3 + 5 \longrightarrow 10 - 3 \longrightarrow 7 + 5$$

Year 7 Key Stage 3 Knowledge Organiser Fraction, decimal and percentage equivalence.

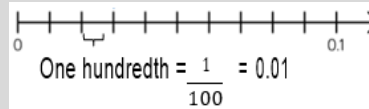
Key Vocabulary:

1	Fraction	A number that compares equal parts of a whole. Each part of the whole is a fraction.
2	Numerator	The top number in a fraction. This tells us how many of the equal parts are required.
3	Denominator	The bottom number in a fraction. It tells us how many equal parts the whole has been split into.
4	Per cent	Parts per hundred
5	Equivalent	Equal in value. E.g. 2+5 is equivalent to 4+1
6	Quotient	The result of a division.
7	Convert	To change from one form to another. E.g. to convert from a fraction to a percentage.
8	Pie chart	A graph in which a circle is divided into sectors that each represent a proportion of the whole.
9	Sector	A part of a circle formed by two radii and a fraction of the circumference.

10 Tenths and hundredths on a number line

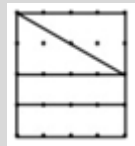


One whole split into 10 equal parts



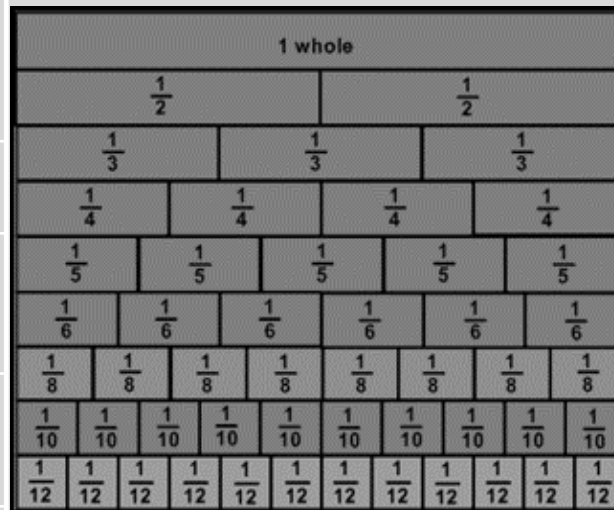
One whole split into 100 equal parts

11 Fractions on a diagram



The denominator is represented by equally sized parts – this shape is split into quarters

12 Equivalent Fractions



For Example

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{5}{10}$$

13 Fractions on a number line



One whole split into 18 equal parts.
18 is the denominator

This point is the 6th part.
6 is the numerator

$$\frac{6}{18} = \frac{3}{9} = \frac{1}{3}$$

14 Convert fractions. Decimals and Percentages

$$\frac{70}{100} \rightarrow \text{This also means } 70 \div 100 \rightarrow \text{hundredths} = 70\%$$

Using a calculator



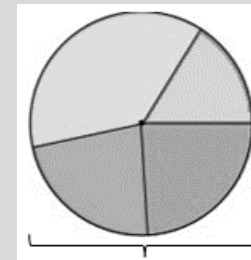
S ⇌ D

Convert to decimal

This will give you the answer in the simplest form

X 10 converts to percentage

15 Simple Pie Charts



Split into 10 parts
10% = 36°

Split into 2 parts
50% = 180°

Split into 5 parts
20% = 72°

A pie chart has 360° so all FDP calculations are out of 360.

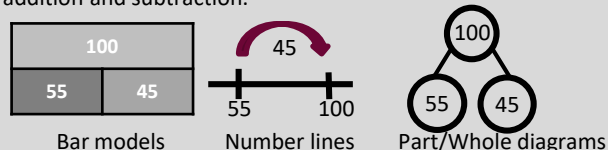
Year 7 Mathematics Knowledge Organiser – Solving Problems with Addition and Subtraction

Key Vocabulary:

1	Addition	To find the total of two or more numbers. Other words to describe addition include: 'add', 'plus', 'sum'.
2	Subtraction	To find the difference between two numbers. To find out how many are left when some are taken away.
3	Commutative	Changing the order of the operations does not change the result. This applies to addition and multiplication.
4	Integer	A whole number that can be positive, negative or zero.
5	Decimal	A number with a decimal point in it. Can be positive or negative.
6	Associative	When you add or multiply you can do so regardless of how the numbers are grouped.
7	Inverse	To perform the opposite operation. For example, the inverse of addition is subtraction.
8	Balance	The amount of money in an account.
9	Credit	Money that goes into an account.
10	Debit	Money that leaves an account.
11	Standard Form	A way to write very big numbers or very small numbers with one number before the decimal point, multiplied by a power of 10. It allows saying and calculating with very big numbers or very small numbers to be easier to handle.

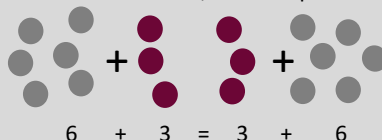
12 Addition and Subtraction

We can use different modelling methods to represent addition and subtraction.



13 Addition is Commutative

Addition and multiplication can be done in any order; these are **commutative** calculations, for example:



However when subtracting the order does matter, for example:

$$9 - 3 = 6 \quad \text{which is not the same as} \quad 9 - 6 = 3$$

14 Formal Written Methods

Column method:

$$\begin{array}{r} 4261 \\ + 3037 \\ \hline 7300 \end{array}$$

$$863 - 75$$

$$\begin{array}{r} 863 \\ - 75 \\ \hline 788 \end{array}$$

Remember the place value of each column. When adding you may need to include the exchange in the next column. When subtracting you may need to exchange 10 units to the column below in order to be able to subtract.

15 Formal Methods with Decimals

Column method:

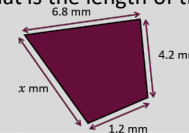
$$7.83 + 16.6$$

Use columns as when adding and subtracting integers. You may find it useful to add a place holder 0 to empty places in the columns. Remember the decimal point acts as a placeholder and aligns the other values.

$$\begin{array}{r} 7.83 \\ + 16.60 \\ \hline 24.43 \end{array}$$

16 Solve Problems with Perimeter

The perimeter is the length around the outside of a shape. For example, the perimeter of the quadrilateral is 16.7 mm. What is the length of the side marked x ?



$$\begin{aligned} P &= 6.8 + 4.2 + 1.2 + x \\ 16.7 &= 12.2 + x \\ x &= 16.7 - 12.2 \\ x &= 4.5 \text{ mm} \end{aligned}$$

17 Solve Problems with Finance

Below is an example of a bank statement.

Date	Description	Credit	Debit	Balance
1 Mar	Opening Balance			254.76
3 Mar	Wages	1,402.11		1,656.87
4 Mar	Phone Bill		34.45	1,622.42

Here we can see the balance is the amount already in the bank account at the beginning of the month. Wages are a credit, as that amount is paid into the account. The phone bill is a debit, so that amount is subtracted from the balance.

18 Tables and Timetables

Distance Tables:

Aberdeen	Cambridge	Leeds	Truro
490			
355	149		
667	343	371	

A distance table shows the distance between two places.

To find the distance between Aberdeen and Leeds follow the arrows to where their row and column intersect to find the distance.

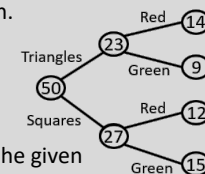
19 Frequency Trees

A frequency tree is made up from part-whole models. One piece of information leads to another.

For example: There are 50 plastic triangles and squares in a bag. All of the shapes are red or green.

There are 23 triangles.
12 of the squares are red.
There are 24 green shapes.

To use this information to complete the frequency tree, start by filling in the given information and then fill in the gaps!



19 Standard Form

Writing large numbers in standard form.

$$\begin{aligned} 4,000 &= 4 \times 1,000 \\ &= 4 \times 10^3 \end{aligned}$$

Adding numbers in standard form.

$$\begin{aligned} 3 \times 10^4 + 4 \times 10^4 \\ &= 30,000 + 40,000 \\ &= 70,000 \\ &= 7 \times 10^4 \end{aligned}$$