THE BOURNE ACADEMY
KNOWLEDGE ORGANISER

everyone is a learner, everyone is a teacher

Year 7
Autumn Term
2021-22

Ambitious
Self Confident
Physically Literate
Independent
Resilient
Emotionally Literate

Name: .....
House: .....

The Bourne Academy
Knowledge Organiser: Year 7 Autumn Term

Contents

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Knowledge Organiser: Year 7 Autumn Term

Excellence at The Bourne Academy: Using your Knowledge Organisers'

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

Routines for Excellence

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

How to revise with your Knowledge Organisers'
Self-quizzing

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


Look/Read


Cover


Write


Check

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

HOW DO WE REVISE WITH OUR KNOWLEDGE ORGANISERS?

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

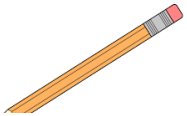
TEACH IT!
Teach someone your key facts and then get them to test you, or even test them!

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

BACK 2 FRONT
Write down the answers and then write out what the questions the teacher may ask to get those answers.

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

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



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

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

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

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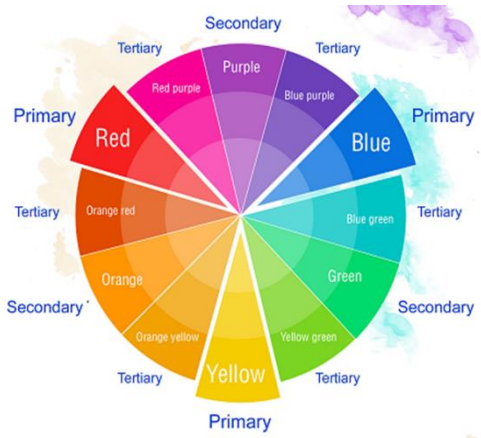
Knowledge Organiser: Year 7 Autumn Term – Art & Design, Understanding Colour Theory and Key Terms

1) The Colour Wheel



The colour wheel is the tool to helping you understand colour theory. Artists use the wheel to see which colours they can mix together, and which work well in an artwork.

4) Key words

- Colour Wheel
- Primary Colour
- Secondary Colour
- Tertiary Colour
- Warm Colours
- Cool Colours
- Hue
- Tint
- Shade
- Blend
- Complimentary
- Bright
- Tone
- Intense
- Harmonious

2) Colour Theory

Colour Theory is a set of rules for colour mixing and colour combinations to make an artwork eye catching.

Primary Colours

Primary Colours are a set of three colours that cannot be created by mixing other colours. They are Red, Blue, and Yellow.

Secondary Colours

Secondary Colours are colours created by mixing two Primary Colours.

Tertiary Colours

Tertiary Colours are colours resulted by mixing a Primary Colour with a Secondary Colour.

3) Elements of Art

Elements of art are stylistic features in a piece used to make the artwork interesting. Artists use a combination of these in their artwork:

- Line
- Shape
- Form
- Texture
- Perspective
- Tone
- Surface
- Media
- Expression
- Contrast
- Proportion
- Pattern
- Negative Space
- Mark Making
- Experiment
- Space
- Design
- Vibrant

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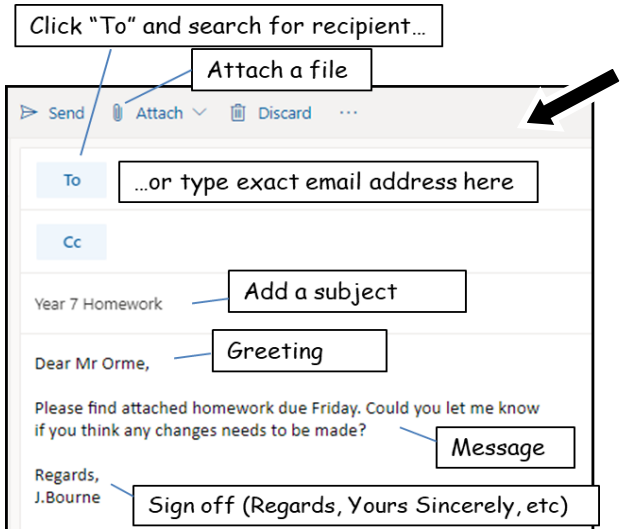
Knowledge Organiser: Year 7 Autumn Term – Computing

1) Online Safety

Personal Information = don't give out details such as your full name or where you live
Cyberbullying = taken very seriously and can be evidenced, even if posts/messages deleted
Password = should be long and hard to guess
Malware = can damage computer or files on it
Trustworthiness = How sure are you the information is correct and not biased
Digital Footprint = information people can find about you on the web
Encryption = scrambles data - unreadable



2) Digital Literacy

Microsoft Word
Word Processing software
e.g. for creating letters, essays

Microsoft PowerPoint
Presentation software
e.g. teacher lesson slides, business meetings

Microsoft Excel
A spreadsheet software used to calculate data e.g. budgets, tracking grades

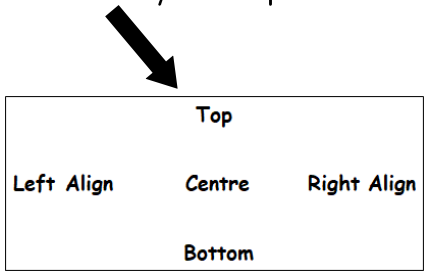
Microsoft Outlook
Emailing - School emails
etiquette = polite and professional

Web Browser
Software used to access the internet
e.g. Microsoft Edge, Google Chrome

Website
Set of web pages under a single domain name e.g.
https://www.youtube.com

3) Vocabulary

Theme = particular colour scheme, design or style consistent throughout all pages.
Transitions = change how the presentation goes from one slide to the next
Animations = add movement to text and images within a slide
Transitions = change how the presentation goes from one slide to the next
User = the person using the program
Automatic = performed without user input, e.g. the images automatically appear
Manual = controlled by the user, e.g. mouse click to transition from one slide to the next
User Interface = how the user controls the program (such as an interactive menu)
Hyperlinks = can be added to help the user navigate between pages or another website
Alignment = position on the page text or images are neatly lined up to



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Knowledge Organiser: Year 7 Autumn Term - Dance

<table>
<tr><th colspan="4">Analysing Dance Vocabulary (RADS)</th></tr>
<tr><th colspan="2">1) Relationships</th><th colspan="2">2) Actions</th></tr>
<tr><td colspan="2">Canon, unison, direct correlation, duet, trio, quartet.</td><td colspan="2">Jumps, turn, travel, transference of weight, stillness, gesture.</td></tr>
<tr><th colspan="2">4) Space</th><th colspan="2">5) Dynamics</th></tr>
<tr><td colspan="2">Directions, facings, changes of level (low, medium, high), proximity, formations, shapes, straight, curved, circular.</td><td colspan="2">Sharp, soft, direct, indirect, sustained, sudden, fast, slow,</td></tr>
<tr><th>6) Tier 2 Vocabulary</th><th colspan="3">Choreographic Devices</th></tr>
<tr><td rowspan="2">Warm-up
Leadership
Audience
Impact
Style
Rehearse</td><th>8) Change the Space</th><th colspan="2">9) Change the Dynamics</th></tr>
<tr><td>Levels
The size of movement
Directions
Shape / body design
Change from near to far proximity
Dance in different areas of stage</td><td colspan="2">The speed – faster / slower
The quality – stronger, softer, sharper, more direct, more flowing etc.</td></tr>
<tr><th>7) Tier 3 Vocabulary</th><th colspan="3">10) Change Action</th></tr>
<tr><td rowspan="3">Technique
Choreography
Contemporary
Venue
Motif
Choreographic Devices</td><td colspan="3">Add in action and add another action E.g. a jump and turn together.
Take out actions instrumentation - different body parts (do on the Right then on the Left)
Repetition – repeat the motif or action</td></tr>
<tr><th>11) Change the relationships</th><th colspan="2">12) Change the structure/order</th></tr>
<tr><td>Add in canon, unison
Make it action reaction with a partner
Lead and following
Mirroring it with your partner</td><td colspan="2">Retrograde – motif performed backwards
Fragmentation – changing the order of action in motif</td></tr>
</table>

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Knowledge Organiser: Year 7 Autumn Term – Dance

1) Performance Skills	
Key word	**Definition**
Projection	Extending your energy out to the audience.
Focus	Where you are looking.
Spatial Awareness	Being aware of your body in space.
Expression	Performing with emotion.
Phrasing	Showing the individual phrases of movement within a motif.
Musicality	Demonstrating the qualities of the music in the way you perform the actions.
Sensitivity to other dancers	Being aware of others in the space and through your performance.
Communicating artistic intention	Communicating the stimulus through expressive qualities.
2) Technical Dance Skills	
Key word	**Definition**
Accuracy	How accurately you can replicate the movement
Alignment	Good alignment means that your entire body follows a straight plumb line.
Balance	Showing control whilst holding weight over a single point.
Co-ordination	Moving more than one body part at the same time.
Flexibility	The range of motion around a joint.
Movement memory	Movement memory occurs in the muscles. Your body remembers the movement as well as your brain.
Posture	How your torso is positioned.
Stamina	Your ability to keep going even though your cardiovascular and muscular systems are working hard.
Strength	Producing resistance against a force.
Timing	Maintaining timing with the music and/or fellow dancers.

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Knowledge Organiser: Year 7 Autumn Term – Drama

<table>
<tr><th colspan="8">1) Voice</th></tr>
<tr><th colspan="2">Pitch</th><th colspan="2">Pace</th><th>Volume</th><th colspan="2">Tone</th><th>Accent</th></tr>
<tr><td colspan="2">High,
Low,
Squeaky,
Husky,
Deep</td><td colspan="2">Fast,
Slow,
Abrupt,
Stuttering,
Controlled</td><td>Soft,
Quiet,
Loud,
Whisper,
Shout</td><td colspan="2">Harsh,
Gentle,
Sarcastic,
Forceful,
Firm</td><td>Liverpudlian,
Northern,
West Country,
Cockney,
Upper Class British</td></tr>
<tr><th colspan="4">2) Facial Expressions</th><th>3) Key words</th><th colspan="3">4) Body Language</th></tr>
<tr><th>Emotion</th><th>Eyes</th><th>Eyebrows</th><th>Mouth</th><td rowspan="2">Dialogue,
Improvisation,
Monologue,
Non-Naturalistic,
Rehearsal</td><th>Posture</th><th>Gesture</th><th>Gait</th><th>Mannerisms</th></tr>
<tr><td>Happy,
Cheerful,
Upset,
Hurt,
Eager</td><td>Wide,
Glaring,
Squinting,
Teary,
Hopeful</td><td>Raised,
Lowered,
Furrowed,
Inquisitive,
Frown</td><td>Opened,
Jaw-dropped,
Closed,
Smile,
Quivering</td><td>Upright,
Slouched,
Relaxed,
Grotesque</td><td>Clenched
Fists,
Pointing,
Strong,
Energetic</td><td>Rapid,
Sluggish,
Gentle,
Smooth,
Direct</td><td>Twitchy,
Decisive,
Indecisive,
Formal,
Jerky</td></tr>
<tr><th colspan="8">5) Impact</th></tr>
<tr><th colspan="3">Atmosphere</th><th colspan="3">Audience Response</th><th colspan="2">Believability</th></tr>
<tr><td colspan="3">Tense,
Dangerous,
Intriguing,
Awe,
Amazement,
Anticipation,
Surprising</td><td colspan="3">Applause,
Laughter,
Sympathy,
Anger,
Disappointed</td><td colspan="2">Natural,
Believable,
Realistic,
Exaggerated</td></tr>
</table>

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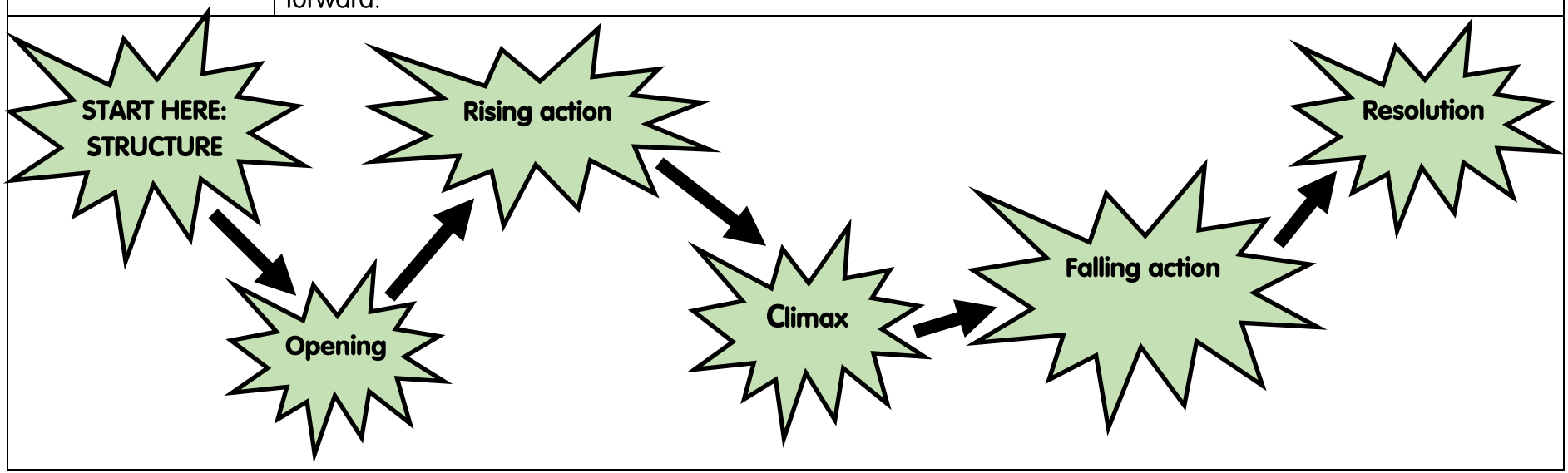
Knowledge Organiser: Year 7 Autumn Term – Drama

6) Drama Technique	Function
A. Still image	Visual pictures created by performers to tell part of the story, illustrate narration or emphasize a key moment in a play. Performers use facial expressions, body language and positioning onstage to show characters, relationships, and emotions.
B. Roleplay	Actors take on the role of character in a naturalistic scene.
C. Thought tracking	The thoughts of a character being told to the audience during a still image. This can be in the form of a mini monologue or narration of the story.
D. Improvisation	Improvised drama is work that hasn't been scripted, the dialogue, characters and actions are made up as you go along. Spontaneous improvisation is created in the moment, a rehearsed role play is planned and prepared.
E. Physical Theatre	This is a style of theatre, where the cast make the scenery, set and props out of their bodies to help tell the story on stage. One minute you could be a character, the next minute you could be a turnip.
F. Narration	A character speaks directly to the audience to describe or narrate parts of his/her own story or a narrator speaks objectively about the events happening onstage.
G. Cross-cutting	Creating cross-cut scenes onstage, this technique allows you to juxtapose scenes that happen at different times or in different places, using separate areas of the performance space. The technique is used to highlight or contrast a particular theme or aspect of the story you can represent the scenes in real time or flashback and forward.



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Knowledge Organiser: Year 7 Autumn Term – English Short Stories

1) Language terminology			**3) Subject-specific words**	
Key word	**Definition**	**Example**	**Key word**	**Definition**
Simile	Comparing one thing to another, usually using 'like' or 'as'.	Billy was as brave as a lion.	**Connotation**	Ideas, emotions, associations or images that come to mind beyond a word or text's literal meaning.
Personification	Giving an object human characteristics.	The piece of cake was calling out my name.	**Effect**	The result of something.
			Characterisation	The creation of a character.
Alliteration	Using the same sound at the start of words near each other.	Peter Piper picked a peck of pickled peppers.	**Intention**	Purpose.
			Perspective	Viewpoint.
			Genre	A category of book, film or music (e.g. Sci-Fi, Romance, Comedy, Horror, Fantasy).
Metaphor	Comparing two things by describing one as the other.	Her eyes were diamonds shining in the sun.		
Onomatopoeia	A word that sounds like its meaning.	The tomato hit the wall with a splat.	**Theme**	A key idea explored throughout a text (e.g. love, violence, religion, family).
2) Structural terminology			**4) Command words**	
Key word	**Definition**		**Key word**	**Definition**
Narrative	A story.		**Summarise**	Give a short statement of the main points.
Character	A person or creature in a story.		**Annotate**	Label.
Setting	The place where the story happens.		**Analyse**	Look at something closely.
Shift in focus	When a writer begins to concentrate on something else in a story.		**Redraft**	Write something again making improvements.
Contrast	Opposites.		**Infer**	Guess based on evidence.

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Knowledge Organiser: Year 7 Autumn Term – English Short Stories

5) Clauses and sentence types			**7) Short stories**		
	Definition	**Example**		**Author**	**Synopsis**
Main clause	A clause that makes sense on its own.	I like bananas and I like grapes.	**The Hitchhiker**	Roald Dahl	A story about a man who picks up a hitch-hiker whilst driving to London.
Simple sentence	A sentence containing one main clause.	English is my favourite subject.	**A Monkey's Paw**	W.W. Jacobs	A supernatural story about three wishes being granted to the owner of The Monkey's Paw but the wishes come with an enormous price for interfering with fate.
Compound sentence	A sentence containing two main clauses and a coordinating conjunction.	Everyone was busy so I went for a walk on my own.	**Lambs to the Slaughter**	Roald Dahl	A story about a housewife and her husband with twists along the way.
6) Word Types			**8) Punctuation**		
	Definition	**Example**		**Symbol**	**Definition**
Noun	Name of a person, place or thing.	Her **name** is **Anna**. She's from **Manchester**.	**Full stop**	.	Used at the end of a sentence.
Adjective	Describes a noun.	The **tall** waiter was very **polite**.	**Exclamation mark**	!	Used at the end of a sentence to show shock or surprise.
Verb	A doing or being word.	I **listen** to the word and then **repeat** it.	**Question mark**	?	Used at the end of a sentence to show that something is being asked.
Adverb	Describes a verb.	Yesterday, I ate my lunch too **quickly**.	**Apostrophe**	'	Used to show contraction (e.g. doesn't) or possession (e.g. Jennifer's pen).
			Speech marks	" "	Used to mark the beginning and end of a character speaking.

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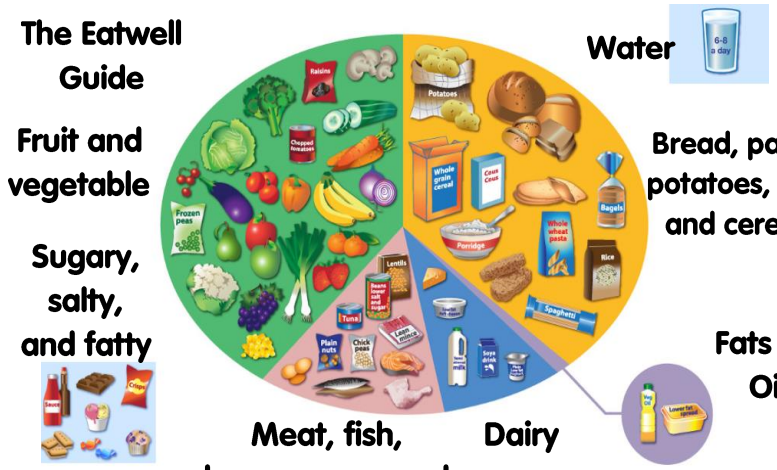
Knowledge Organiser: Year 7 Autumn Term – Food

1) World Foods, Food Provenance and Nutrition



A **staple food** is the main part of a population's diet. Staple foods are eaten regularly and supply a major proportion of a person's energy and nutritional needs.

Dried, ground **corn** is called cornmeal. Many cultures use cornmeal to make porridge cornbread, or tortillas.

Rice is a food staple for more than 3.5 billion people around the world.

Flour made from **wheat** is used in pasta, pastries, breakfast cereals, and bread.

Cassava is a food staple for more than 500 million people.

Yams are an important food in the rainforests of West Africa.

Potatoes are a staple food in many parts of the world.

Some countries, where fresh fruits and vegetables are scarce, rely on meat and **fish** as food staples.

The **plantain**, eaten in a similar way as a potato, is a reliable staple food.

Food provenance means **where** foods are originally produced. We don't just eat food that has been produced in the UK, in fact we eat food that is produced all over the world.

Seasonal foods (mostly plants) are ready to be harvested at the stage of their life cycle when they are at their best for flavour, colour and texture.

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Knowledge Organiser: Year 7 Autumn Term - French : Bienvenue (Welcome)

1) Salut (Hi)		**2) Les jours (Days)**	
Bonjour.	Hello.	lundi	Monday
Salut!	Hi!	mardi	Tuesday
Comment t'appelles-tu?	What's your name?	mercredi	Wednesday
Je m'appelle …	My name is …	jeudi	Thursday
Comment ça va? (Ça va?)	How are you? (Are you OK?)	vendredi	Friday
Ça va (très) bien.	I'm (very) well.	samedi	Saturday
Pas mal, merci.	Not bad, thanks.	dimanche	Sunday
Ça ne va pas!	Not good!		
Et toi?	How about you?		
Au revoir.	Goodbye.		
À plus!	See you later!		
3) Les numéros (Numbers)			
un	1	seize	16
deux	2	dix-sept	17
trois	3	dix-huit	18
quatre	4	dix-neuf	19
cinq	5	vingt	20
six	6	vingt-et-un	21
sept	7	vingt-deux	22
huit	8	trente	30
neuf	9	trente-et-un	31
dix	10	Quel âge as-tu?	How old are you?
onze	11	J'ai (onze) ans.	I am (11) years old.
douze	12	C'est quand, ton anniversaire?	When is your birthday?
treize	13	Mon anniversaire, c'est … le (15 mars).	My birthday is on … the (15 March)
quatorze	14		
quinze	15		

4) As-tu des frères et sœurs? (Do you have any brothers or sisters?)		5) Les mois (Months)	
Oui. J'ai …	Yes, I have …	janvier	January
un frère.	one brother.	février	February
une sœur.	one sister.	mars	March
un demi-frère.	one half-/step-brother.	avril	April
(deux) frères.	(two) brothers	mai	May
(trois) demi-sœurs.	(three) half-/step-sisters.	juin	June
Je n'ai pas de frères et sœurs.	I don't have any brothers or sisters.	juillet	July
Je suis fils/fille unique.	I am an only child.	août	August
		septembre	September
		octobre	October
		novembre	November
		décembre	December
6) Tu es comment? (Can you describe yourself?)		**7) As-tu un animal? (Have you got a pet?)**	
Je suis …	I am …	J'ai …	I have …
Je ne suis pas …	I am not …	un chat	a cat
Il est/Elle est …	He is/She is …	un chien	a dog
amusant(e)	Funny	un cochon d'Inde	a Guinea pig
arrogant(e)	Arrogant	un hamster	a hamster
bavard(e)	talkative/chatty	un lapin	a rabbit
fort(e)	strong	un lézard	a lizard
grand(e)	big/tall	un oiseau	a bird
intelligent(e)	intelligent	un poisson	a fish
méchant(e)	nasty/bad	un serpent	a snake
patient(e)	patient	Je n'ai pas d'animal.	I don't have a pet.
petit(e)	small/short	Tu aimes …?	Do you like …?
timide	shy	J'aime …	I like …
		Je n'aime pas …	I don't like …

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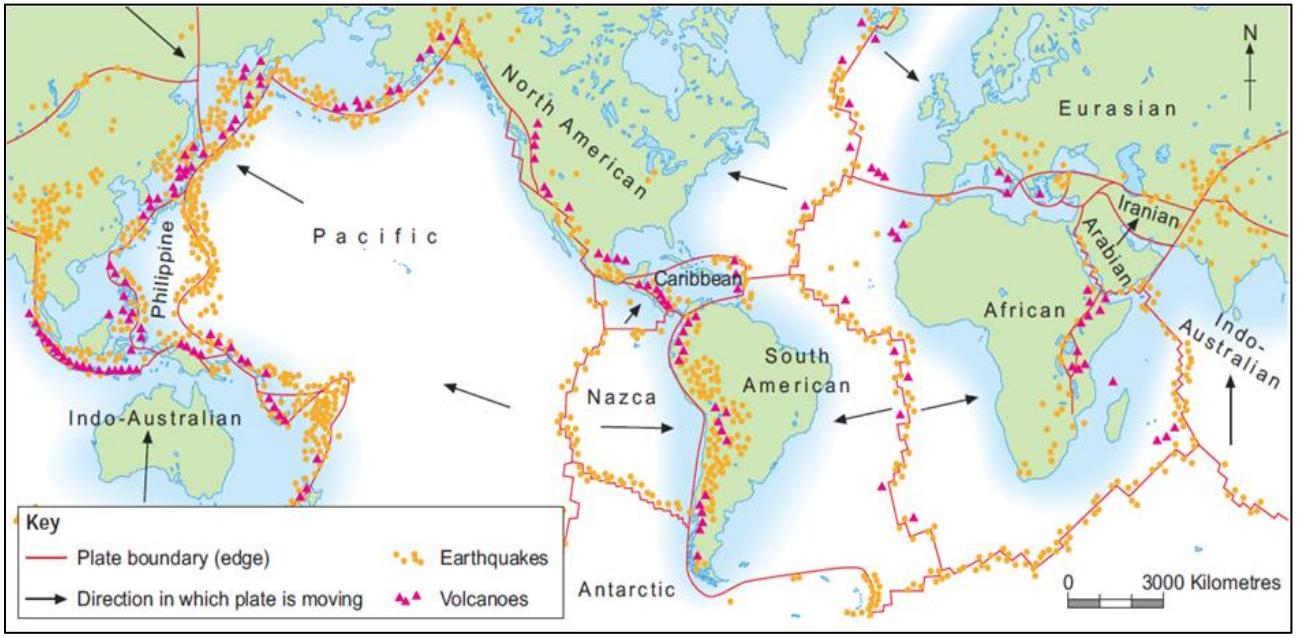
Knowledge Organiser: Year 7 Autumn Term – Geography

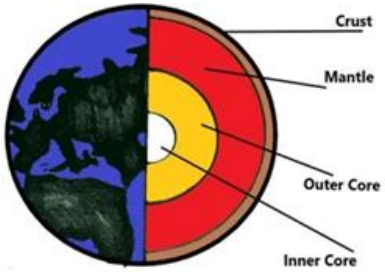
1) Key Vocabulary	
Natural hazard	A natural event can cause damage or loss of life.
Natural disaster	A natural hazard when many lives are lost.
Tectonic Plate	Pieces of the rocky outer layer of the Earth known as the crust.
Destructive or convergent plate boundaries	When 2 tectonic plates move towards each other (both continental or one continental and one oceanic).
Constructive or divergent plate boundaries	This is when 2 tectonic plates move apart. This is normally with oceanic plates.
Conservative or transform plate boundaries	This is when no land is made or destroyed. It is when 2 tectonic plates slide past each other causing friction and pressure to be built up.
Primary Effect	These occur in the minutes and hours after the natural disaster.
Secondary Effect	These occur in the days, weeks and months after the natural disaster.

2) Global distribution of volcanoes and earthquakes



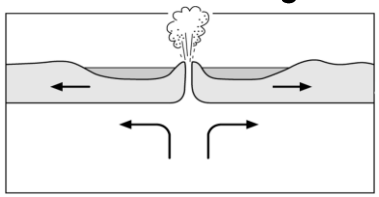
3) The Layers of the Earth

The Earth is made up of 4 main layers; inner core; outer core; mantle and then crust. There are 2 types of crust, continental and oceanic.

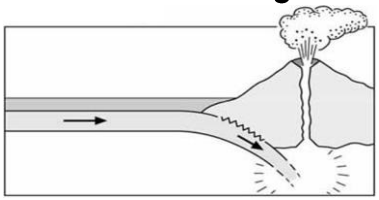


4) Types of plate boundary

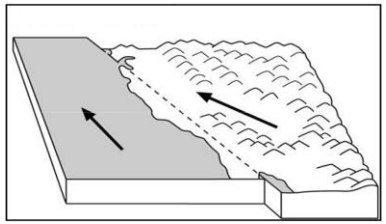
Constructive margin



Destructive margin



Conservative margin



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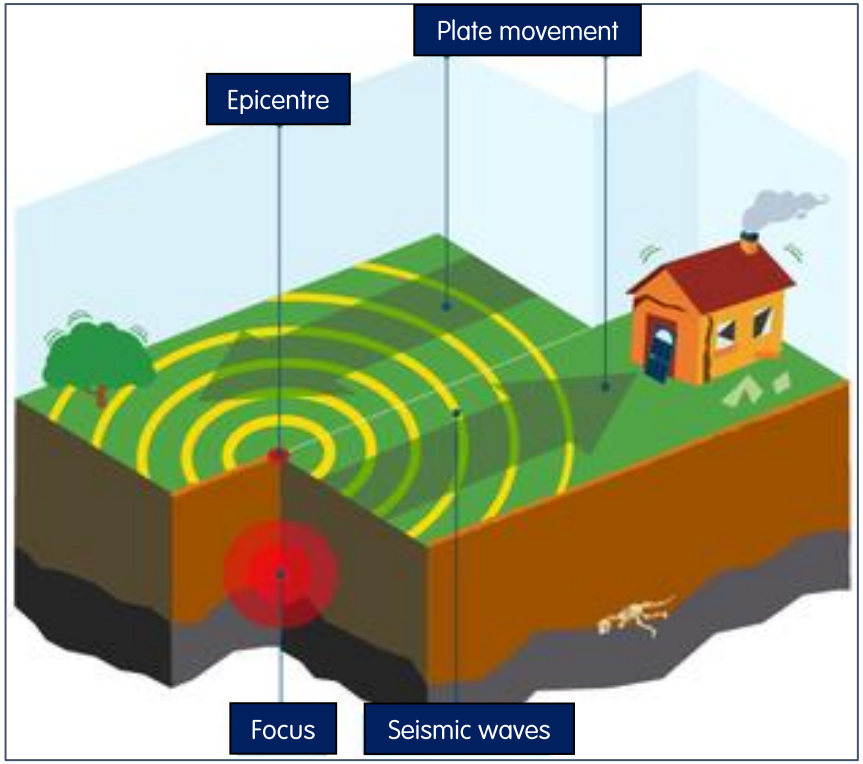
Knowledge Organiser: Year 7 Autumn Term – Geography

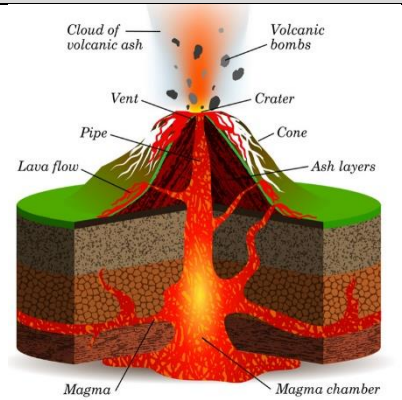
5) Key Vocabulary

Keyword	Definition
Earthquake	A sudden violent movement of the Earth's surface.
Focus	The location that the earthquake starts.
Epicentre	The point directly above the focus.
Seismic waves	The waves of energy caused by the earthquake.
Fault line	The line that 2 tectonic plates move by each other.



6) Why do people live near a volcano?

- Fertile soil that is good for agriculture
- The presence of precious minerals
- Geothermal energy to produce electricity
- Tourism: volcanoes attract millions of visitors every year
- Vibrant landscapes.



7) Key Vocabulary

Volcano	Openings or cracks in the lithosphere where magma from inside the Earth can escape onto the surface.
Shield Volcano	Gentle slopes formed from runny lava.
Composite Volcano	Steep slopes formed from thick sticky lava that doesn't flow far.
Active Volcano	Is erupting or has recently erupted and is likely to erupt again.
Dormant Volcano	Is one that has not erupted for 10,000 years but could become active again.
Extinct Volcano	Hasn't erupted for that last 1,000,000 years and will probably never erupt again.

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Knowledge Organiser: Year 7 Autumn Term – History

What is History and The Norman Conquest?

1) What is History – Key words

A. **Chronological** - organised in the order in which they occurred.
B. **BC –** Before Christ. Used to indicate the year counting backwards from the birth of Jesus Christ.
C. **AD –** Anno Domini (Latin meaning 'the year of the Lord). Used to indicate the year counting forwards from the birth of Jesus Christ.
D. **Period** - A label used by historians to identify the time between two dates in History.
E. **PRIMARY EVIDENCE** is an object from the time being studied or information from somebody who saw what happened.
F. **SECONDARY EVIDENCE** is not first hand e.g. a reconstruction of a Roman helmet, or a reconstructed gateway. It could be a legend, information from a textbook or a comment by a historian.

2) Key Skills

A. **Chronology and knowledge** – Putting events in correct order and recalling facts.
B. **Change and Continuity –** How things evolve and stay the same.
C. **Cause and Consequence –** Explaining the reasons things happen and their impact.
D. **Evidence and sources –** Using pieces of history and facts.
E. **Interpretations and Representations –** Explaining how and why people see the past in different ways.
F. **Structuring and organising –** Writing clearly and orderly with purpose.

3) Why did the Norman Conquest happen?

Jan 1066 Edward the Confessor dies without an heir. → **Jan 1066** Harold Godwinson crowned king of England. → Harold Hardrada invades the North of England on **Sept 1066** but loses at the Battle of Stamford Bridge to Harold Godwinson. → William of Normandy, believing he should be king, leads an invasion of England and defeats Harold Godwinson at the battle of Hastings in **Oct 1066** → **Norman Conquest**

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Knowledge Organiser: Year 7 Autumn Term - History

What is History and The Norman Conquest?			
4) Key Individuals			**6) Key Events**
A	Edward the Confessor	Saxon King of England for 24 years. No children.	**A. The Battle of Stamford Bridge – 25 September 1066** 300 Viking longboats carried Harold Hardrada's army from Norway to England. Godwinson's army marched quickly north to meet the Viking threat and after marching 210 miles in 5 days, caught Hardrada by surprise and defeated him.
B	Harold Godwinson	English, Earl of Wessex, a powerful leader of England. Brother in law to Edward.	
C	William of Normandy	A Norman and Duke of Normandy in France. Experienced leader and fighter. Cousin of Edward.	
D	Harald Hardrada	A Viking. King of Norway. Most fared warrior in Europe, claim based on agreement of 1038.	**B. The Battle of Hastings – 14 October 1066** William of Normandy's army of 10,000 soldiers arrived at Pevensey on 29 September. Godwinson marched south and placed his army at the top of **Senlac Hill**. During the battle, William faked a retreat which encouraged the Saxons to run down the hill exposing Godwinson's army. Godwinson was killed and William of Normandy is crowned King of England on 25th December 1066.
E	Edgar Aethling	Strongest claim to the throne but just nine years old.	
5) Keywords			
A	Norman Conquest	A period between 1066-1088, where William of Normandy and his Normans invade, conquer and rule England.	
B	Anglo-Saxons	People who settled in Britain after the Romans left and lived in England when the Normans invaded.	
C	Homage or Oath	To promise to give allegiance to someone (e.g. King) publicly.	**C. The Harrying of the North 1069-70** Rebellions in the North of England lead to the Harrying of the North where William devastates the North in an effort to stop rebellions, over 10,000 die and large areas of land are destroyed.
D	Feudal System	Social structure of Medieval England that William used to keep control and loyalty of his people.	
E	Noble	Barons, Earls or other rich land owners who pledge their loyalty to William in the Feudal System.	
F	Cavalry	A soldier mounted on a horse.	**D. The Domesday Book – 1085** The Domesday Book was a complete written record of property ownership across England and was completed in less than a year. At the time it was called the Winchester Book, but later became better known as the Domesday Book.
G	Motte and Bailey	The first castle created by William. It was made out of wood and had a higher Motte part and a low Bailey part.	
H	Rebellion	An act of resistance to the government or King.	
I	Heir	The next in line to the throne.	

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Knowledge Organiser: Year 7 Autumn Term – Mathematics 1a

1) Number and Numerals

Key word	Definition	Example
Place Value	The value of where a digit is within a number	In 726.4, the value of the 2 is 20, as it is in the 'tens' column

Hundreds	Tens	Ones	.	Tenths
7	2	6	.	4

Inequalities	An inequality compares two values,	Less than	<	5 < 12
		Greater than	>	6 > -1
		Not equal to	≠	3 – 5 ≠ 4 + 1

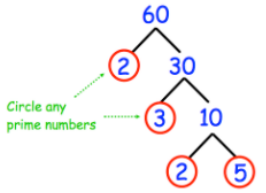
2) Axioms and Arrays

Key word	Definition	Example
Commutativity	An operation is commutative if it can be applied to two numbers in any order	2 x 4 = 4 x 2 5 + 7 + 2 = 7 + 2 + 5
Associativity	The way the numbers are grouped	3 x 18 = 3 x (9 x 2)
Distributivity	represented using diagrams and calculations. To show how the multiplication can be distributed	3 x (4 + 5) = 3 x 4 + 3 x 5

Hegarty Clips

7, 8, 12, 13, 14, 27, 29, 30, 31, 32, 33, 34, 35

3) Factors and Multiples

Keyword	Definition	Example
Factor	The number we can multiply to make another number	5 x 6 = 30 so 5 and 6 are factors of 30
Multiple	The result of multiplying a number by an integer	20 is a multiple of 4 12 is the 4th multiple of 3.
Lowest common multiple (LCM)	The smallest number that is a multiple of each number	The LCM of 3 and 4 is 12
Highest Common factor (HCF)	The biggest number that divides exactly into two or more numbers	The HCF of 6 and 15 is 3
Product of prime factors	Finding out which prime numbers multiply together to make the original number. Use a prime factor tree	

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Knowledge Organiser: Year 7 Autumn Term – Mathematics 1b

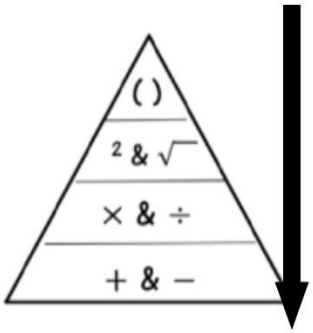
1) Key words

Key word	Definition	Example
Equal	Having the same value	$1 + 1 = 2$
Indices	A small, raised number next to a normal letter or number. It represents how many times that normal letter or number has been multiplied by itself.	$4 \times 4 = 4^2$ $5 \times 5 \times 5 = 5^3$
Subtract	Taking away one number from another.	$6 - 5 = 1$
Negative	A value less than zero.	-3
Square Root	The inverse of a square number is a square root.	$\sqrt{}$
Cube root	The inverse of a cube number is a cube root.	$\sqrt[3]{}$

2) How to use the order of operations

The order of operations should be completed in the following order of **priority.**

First answer anything in **brackets.**
Then calculate any **indices or roots.**
Next, **multiplication or division,** complete left to right
Finally, **addition or subtraction,** complete left to right.



3) Examples

Order of operation	Worked example
brackets multiplication	Calculate $\mathbf{3 \times (7 - 3)}$ $3 \times (7 - 3)$ $= 3 \times 4$ $= 12$
division multiplication addition	Calculate $\mathbf{42 \div 7 + 1 \times 6}$ $= 42 \div 7 + 1 \times 6$ $= 6 + 6$ $= 12$
multiplication addition subtraction	Calculate $\mathbf{2 + 3 \times 5 - 4}$ $2 + 3 \times 5 - 4$ $= 2 + 15 - 4$ $= 17 - 4$ $= 13$
brackets multiplication subtraction indices	Calculate $\mathbf{(15 - 3 \times 2)^2}$ $(15 - 3 \times 2)^2$ $= (15 - 6)^2$ $= (9)^2$ $= 81$

Hegarty Clips
24, 44, 150 and 120

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Knowledge Organiser: Year 7 Autumn Term: Mathematics 1c

1) Key words

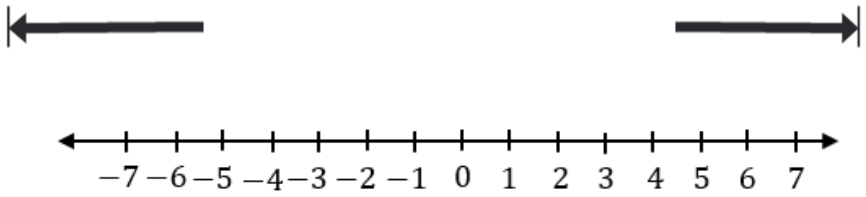
Key word	Definition	Example
Negative number	A number less than zero.	-8 or (-8)
Difference	Subtract one number from another.	7 – 5 = 2
Ascending order	Sorting by size, starting with the smallest.	$-8, -4, 1, 7$
Descending order	Sorting by size, starting with the biggest.	$6, 2, -3, -7, -9$
Absolute value	The distance a number is away from 0.	The absolute value of -5 is 5

2) Using a number line

A number line can be used to position numbers and perform calculations.

When subtracting we move to the left

When adding we move to the right



3) Calculations with positive and negative numbers

Operation	Examples	Final Calculations
Addition	$12 + 15$ $12 + (-15)$ $(-12) + (-15)$ $(-12) + 15$	$12 + 15 = 27$ $12 - 15 = -3$ $-12 - 15 = -27$ $-12 + 15 = 3$
Subtraction	$9 - (-12)$ $(-9) - 12$ $9 - 12$ $(-9) - (-12)$	$9 + 12 = 21$ $-9 - 12 = -21$ $9 - 12 = -3$ $-9 + 12 = 3$
Multiplication	2×4 $(-2) \times (-4)$ $(-2) \times 4$ $2 \times (-4)$	$2 \times 4 = 8$ $-2 \times -4 = 8$ $-2 \times 4 = -8$ $2 \times -4 = -8$
Division	$30 \div 6$ $(-30) \div (-6)$ $30 \div (-6)$ $(-30) \div 6$	$30 \div 6 = 5$ $-30 \div -6 = 5$ $30 \div -6 = -5$ $-30 \div 6 = -5$

Hegarty Clips

37, 38, 39, 40, 41, 42, 43, 44

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Knowledge Organiser: Year 7 Autumn Term – Mathematics 1d

1) Keywords			**2) Worked examples**
Key word	**Definition**	**Example**	Solve the following equation $3y - 7 = 8$
Expressions	A statement written using numbers and letters. The letter represents a **variable**. The number used to multiply the variable is called the **coefficient.** The number on it's own is called the **constant.**	$4x + 8$ coefficient variable constant	+7 | $3y - 7 = 8$ | +7 ÷3 | $3y = 15$ | ÷3 $y = 5$
Simplify Expressions	The same as collecting like terms	$a + 2a + 2b + 3b = 3a + 5b$	Solve the following inequality $4x + 3 < 27$
Expanding	To expand a bracket, multiply each term in the bracket by the expression outside the bracket	$3(m + 7) = 3m + 21$	-3 | $4x + 3 < 27$ | -3 ÷4 | $4x < 24$ | ÷4 $x < 6$
Factorise	The reverse of expanding	$5x + 30 = 5(x + 6)$	Expand 3(x + 9)
Equation	A statement showing that two expressions are **equal**	$2y + 5 = 11$	$3(x + 9)$ $3x + 27$
Identity	An equation which is true all the time	2x ≡ x + x	
Formula	Shows the relationship between two or more variables	Area of a rectangle = length x width or $A = l \times w$	
Solving inequalities	You can solve an inequality like an equation they tell us the relative size of the two values. Less than $<$ Less than or equal to $\leq$ Greater than $>$ Greater than or equal to $\geq$	$9y + 1 < 19$	**Hegarty Clips** 154, 156, 157, 160, 167, 168, 178, 179, 180, 181, 182 ,184, 269, 270

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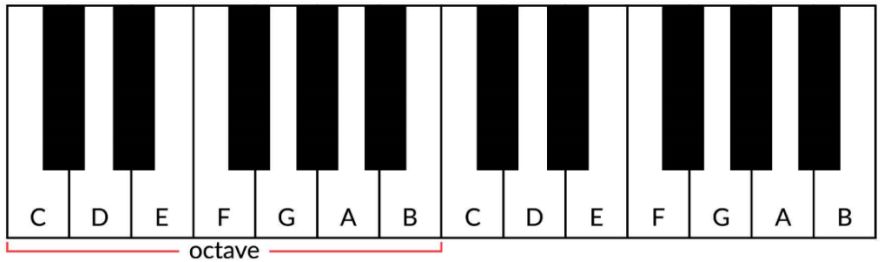
Knowledge Organiser: Year 7 Autumn Term – Music

1) Layout of a Keyboard/Piano



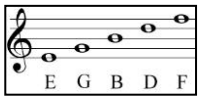
A piano or keyboard is laid out with **WHITE KEYS** and Black Keys. C is to the left of the two Black Keys and the notes continue to G then they go back to A again. Notes with the same letter name/pitch are said to be an **OCTAVE** apart. **MIDDLE C** is normally in the centre of a piano keyboard.

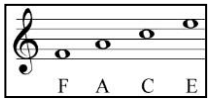
2) Treble Clef & Treble Clef Notation

A **STAVE** or **STAFF** is the name given to the five lines where musical notes are written.

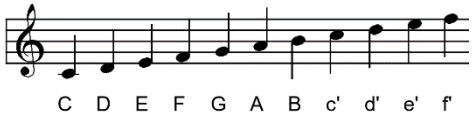
The position of notes on the stave or staff shows their **PITCH** (how high or low a note is). The **TREBLE CLEF** is a symbol used to show high-pitched notes on the stave and is *usually* used for the right hand on a keyboard to play the **MELODY** and also used by high pitched instruments such as the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

Every **G**reen **B**us **D**rives **F**ast. Notes in the **SPACES** spell **"FACE"**

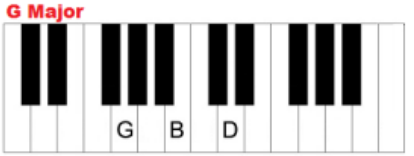


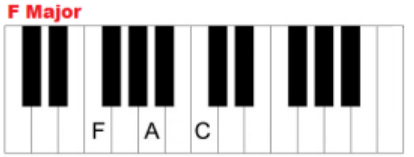


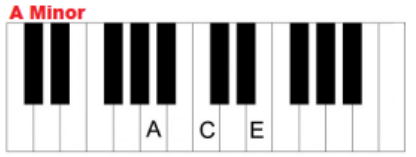
Notes from **MIDDLE C** going up in pitch (all of the white notes) are called a **SCALE**.



3) Keyboard Chords

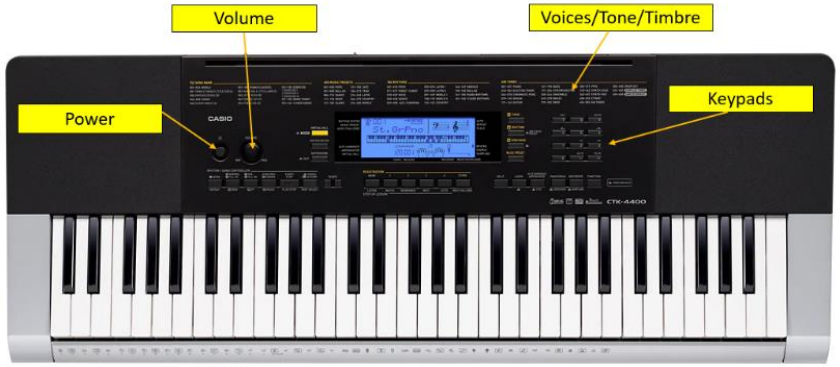






Play one – Miss one – play one – miss one – play one

4) Keyboard Functions



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Knowledge Organiser: Year 7 Autumn Term – Physical Education

1.a) Gymnastics		1.b) Multi-Skills	
Term	**Definition**	**Term**	**Definition**
Actions	A movement in gymnastics could be roll, jump, travel, spin, or balance.	**Components of a session plan**	Warm-up (pulse raiser and stretches), main activity, Cool down.
Apparatus	Equipment used in gymnastics- benches, mats, and spin boards.	**Basic Skills**	Movement, throwing, catching, passing, and striking.
Balance	To remain still in a set position for 3 seconds.	**Skills**	Ability to choose and perform the right techniques at the right time.
Technical devices	Cannon, Unison, Formations, and Musicality.		
Extension	Straightening limbs and/ or trunk.	**Technique**	The way you perform a specific skill to improve performance.
Fluency	Being able to move effortlessly and smoothly with ease.	**Spatial awareness**	Awareness of space in working area including yourself and others.
Levels	Height at which you are performing e.g., low (close to the ground) high, (on tip toes).	**Tactics**	Outwitting an opponent.
Components of Fitness	Flexibility, Strength, Muscular Endurance, Coordination, Agility.	**Defence**	Action of preventing an opponent from scoring.
Matching	Copying the same actions as your partner at the same time.	**Attacking**	Action of attacking or engaging an opposing opponent or team with the objective of scoring points or goals.
Points	Parts of your body in contact with the floor or apparatus.	**Officiating**	Referees and umpires ensure rules in sport are adhered to for fairness and safety.
Sequence	Linking together multiple actions that can be repeated.	**Sportsmanship**	Means playing within the rules and understanding and using sports etiquette.
Travel	Getting from point A to B using repeated movements.	**Feedback**	Is information the performer/team receives about a skill or performance, includes strengths and areas of improvement.
Aesthetic	The performance or skill is pleasing to look at.		

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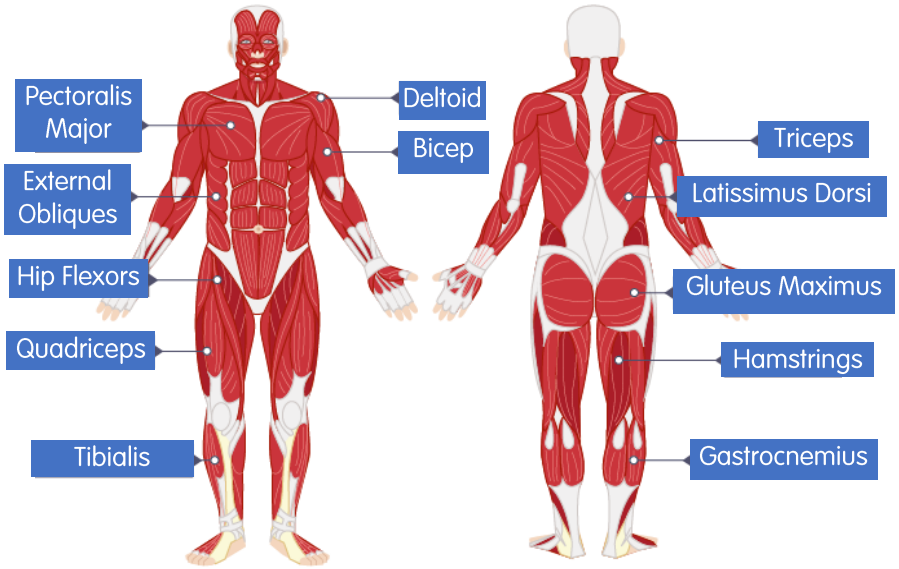
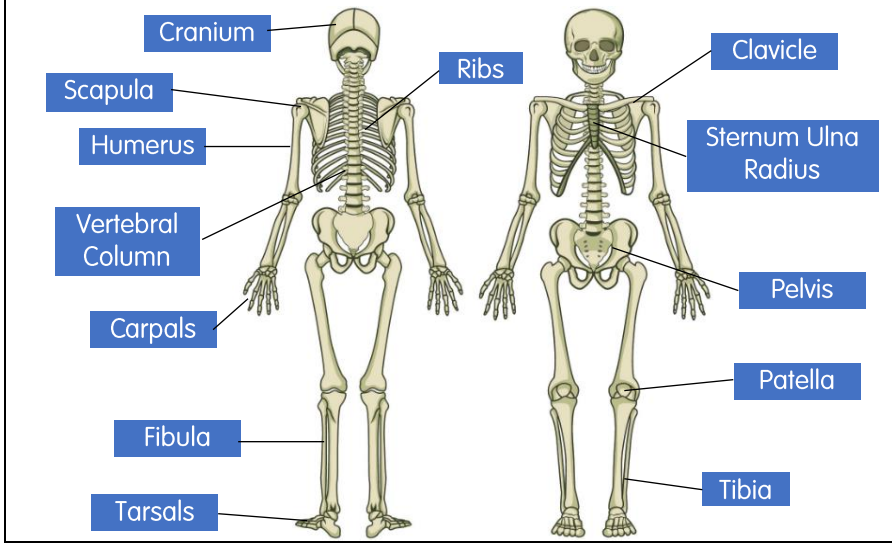
Knowledge Organiser: Year 7 Autumn Term – Physical Education

2.a) Muscular System



2.b) Skeletal System



3) Body Systems

Keyword	Description
Cardiovascular	Consists of the heart and the blood vessels.
Respiratory	Consists of the lungs and enables us to breathe.
Blood vessels	Capillaries (gas exchange), veins (carries deoxygenated blood), and arteries (carries oxygenated blood).
Ligament	Elastic tissue that join bone to bone.
Tendon	Elastic tissue that join muscle to bone.

4. Components of Blood

Keyword	Description
Red	Carries oxygen and other nutrients to working muscles.
White	Fights off infection, providing immunity to disease.
Platelets	Group together over a wound to stop bleeding.
Plasma	Watery fluid that makes blood liquid.

5. Injuries

Keyword	Description
Sprain	When a ligament stretches too far.
Strain	When a muscle/tendon stretches too far.
Bruising	When blood vessels (capillaries) rupture or bleed.
Dislocation	When the bones at a joint are displaced 'pops' out of place.
SALTAPS- treatment	Stop, Ask, Look, Touch, Active, Passive and Strength.
PRICE- treatment	Protect, Rest, Ice, Compression and Elevation.

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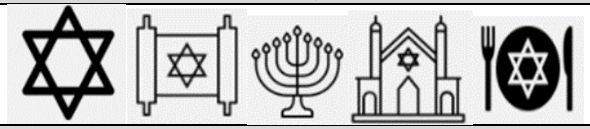
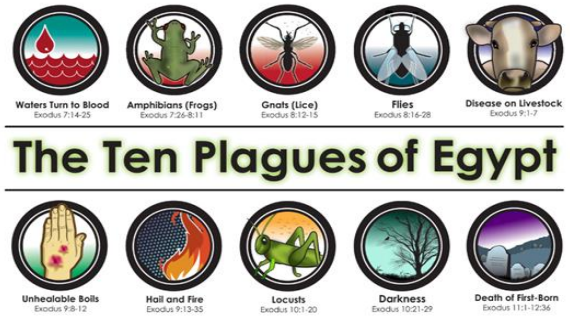
Knowledge Organiser: Year 7 Autumn Term: Religious Studies

1) Key words	**2) Key Figures - Abraham** (Father of the People)	**3) Key Figures – Moses**
a) **Monotheism** – one God. b) **Polytheism** – many gods. c) **Torah** –Jewish holy book. d) **Synagogue** – Jewish holy building. e) **Shabbat** – Day of spiritual renewal and rest. f) **Kosher** – means 'fit' or 'proper'. Foods that are permitted. g) **Covenant** – an agreement or promise between two parties, e.g., God and Noah, Abraham and Moses. h) **Persecution** – being treated unfairly.	*Genesis 12* 'As an older Abraham was asked to leave his home and obey God. As a result, he was promised this land and that his descendants would become a great nation. He and his family settled in Canaan and were known as Hebrews. At an older age his wife had a son, Isaac. Abraham was asked to sacrifice Isaac but was stopped at the last minute'.	*Exodus 1:22-2:10:* Moses was a Hebrew. The Hebrews were being persecuted by the Egyptians. He escaped being killed as he was saved by the Princess, the Pharoah's daughter. As he grew up, he disagreed with the terrible ways in which the Hebrews were treated. Moses asked the Pharoah to free the Hebrews. The Pharoah refused and 10 plagues were sent by God as a consequence. Moses and the Hebrews escaped across the Red Sea.

4) The Story of Hanukah	**5) Important Jewish Symbols**
The festival of Hanukkah reminds Jews of a time over 2500 years ago when Antiochus, a Syrian king, tried to make the Jewish people worship Greek gods. A statue of Antiochus was erected in the Jewish temple and the Jews were ordered to bow down before him. The Ten Commandments forbid Jews to worship statues or idols and so they refused. A small group of Jews called the Maccabees, (led by Judah Maccabee) rebelled. After a three-year war they recaptured Jerusalem from the Syrians. But the temple was all but destroyed. The Jews had to clean and repair the Temple, and when they were finished, they re-dedicated it to God. They did this by lighting the lamp (Menorah) - which was a symbol of God's presence. Only one small jar of oil was found, enough for one day, but miraculously the lamp stayed alight for eight days.	 **6) Ten Plaugues of Egypt** 

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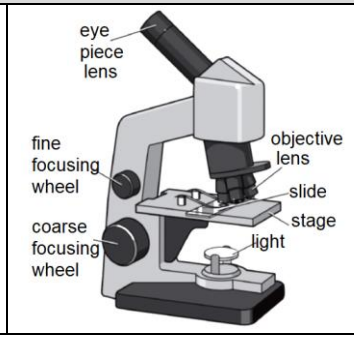
Knowledge Organiser: Year 7 Autumn Term – Science B1 Cells

1) Key words

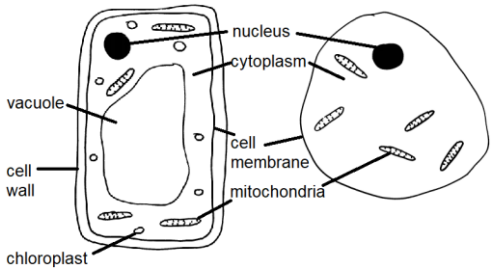
Key word	Definition
Cell	The basic building block of life.
Cell membrane	Controls the movement of substances in and out of the cell.
cell wall	Provides support to the cell and is made of a tough fibre called cellulose.
Chloroplasts	The site of photosynthesis in the cell.
Cytoplasm	Jelly-like substance where chemical reactions take place.
Mitochondria	The site of respiration in the cell.
Organ	Different groups of specialised cells working together – example heart.
Nucleus	Carries genetic information and controls the cell.
Specialised cell	A cell that is adapted to perform a particular function.
Vacuole	Contains cell sap.
Tissue	Something made from just one type of specialised cell.

2) Microscope

A light microscope uses light and a series of lenses to produce a magnified image of an object. Magnification is a measure of how much bigger an object appears under a microscope than in real life.



3) Plant and animal cells



Plant and animal cells contain smaller structures called organelles which help it to carry out its function.
Some organelles are found in both animals and plants – but not all.

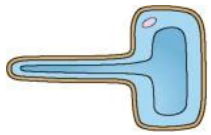
4) Specialised cells

A specialised cell is a cell that is adapted to carry out a particular function.

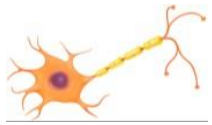
Red Blood Cell
Carries blood around the body.
No nucleus.
Large surface area.

Sperm Cell
Long tail for swimming.
Lots of mitochondria.

Root Hair Cell
Takes in water from the soil.
Large surface area.
Thin cell walls.



Nerve Cell
Carries signals around the body.
Very long and thin.



Egg Cell
Lots of mitochondria.

Palisade Cell
Contains lots of chloroplasts for photosynthesis.

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Knowledge Organiser: Year 7 Autumn Term – Science B2 Movement

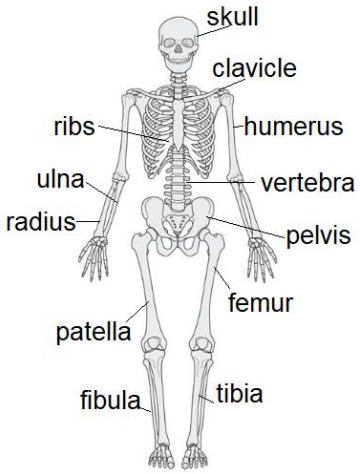
1) Key words

Key word	Definition
Antagonistic musde	A pair of muscles that act on a joint. As one contracts, the other relaxes.
Bone	Hard, rigid (stiff) tissue that makes up the skeleton.
Contract	To become shorter.
Joint	The connection between two bones in a skeleton.
Ligament	Tough tissue that joins two bones together.
Skeleton	The support structure for an organism.
Tendon	Tough tissue that connects a muscle to a bone.

2) The skeleton

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

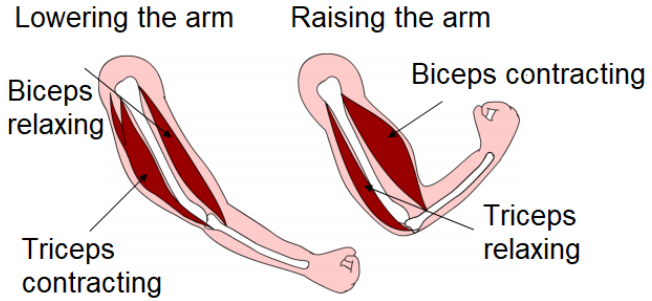
- movement
- protection of internal organs
- support
- produces blood cells



3) Antagonistic Muscles

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

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



4) Joints and Movement

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

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

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Knowledge Organiser: Year 7 Autumn Term – Science C1 Investigations

1) Key words

Key word	Definition
Anomaly/ outlier	A piece of data that doesn't fit the pattern.
Conclusion	Identifies what we have learned in the investigation.
Control variable	What you keep the same in an investigation.
Dependent variable	What you measure or observe in an investigation.
Independent variable	What you change in an investigation to see how it affects the dependent variable.
Method	A clear list of instructions that let you carry out an experiment.
Observation	Information gathered by your senses (usually eyes).
Prediction	A sensible guess as to what will happen in an experiment.
Risk	How likely something is to be harmful.

2) How to write a method

1. Write short numbered sentences to describe each step.
2. Name each piece of equipment that you use.
3. Give the quantities (how much) of each chemical you use.

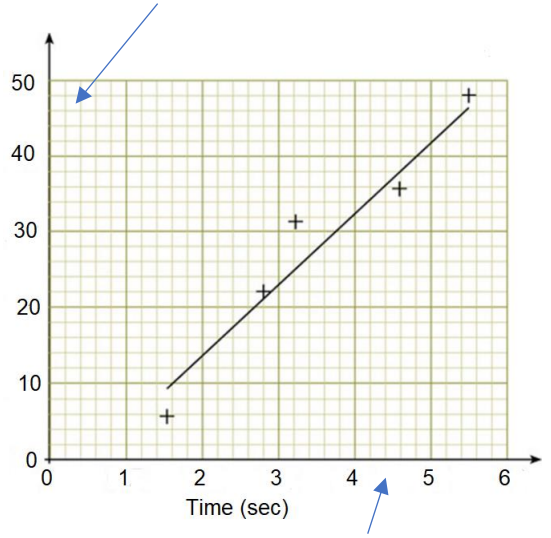
3) How to draw a Table of Results

Temperature of water (°C)	Amount of Salt (g)	Amount of Salt (g)	Amount of Salt (g)	Average (g)
35	3	3	4	3.5
45	5	4	7	4.5

1. Always use a ruler and a pencil to draw the table.
2. The independent variable goes in the left-hand column and the dependent variable goes on the right-hand columns.
3. Do not include anomalies (values that don't fit the pattern) in the average.
4. To find the average, add all the values in horizontal line together and then divide by the number of values

4) How to draw a graph

The dependent variable goes on the y-axis



The independent variable goes on the x -axis

Graph Check List

1. Use a sharp pencil
2. Use a ruler
3. Draw two axes
5. Label the axis
6. Add the units to the axis label
7. Draw a line of best fit if applicable
8. Add a title and underline it.

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Knowledge Organiser: Year 7 Autumn Term – Science P1 Forces

1) Key words	
Key word	**Definition**
Balanced Forces	When the two forces acting on an object are equal in size but act in opposite directions
Contact Force	A force acting between two objects that are touching.
Force	A push, a pull, or a twist on an object.
Mass	Mass is a measure of the amount of matter or 'stuff' in an object.
Newton (N)	We measure force in newtons (N)
Non-contact Force	A force acting between two objects that are **not** physically touching.
Normal Force	The force that supports the weight of an object on a surface. It stops us from falling through walls!
Resultant Force	Single force which can replace all the forces acting on an object and have the same effect. We find it by adding the forces together.
Speed	Speed is a measure of how fast an object moves.
Unbalanced Forces	When the two forces acting on an object are not the same size.
Velocity	Velocity is speed in a particular direction.
Weight	Weight is the force acting on an object due to gravity, measured in newtons (N).

2) What is a force?

A force can be a push, a pull, or a twist. You can't see forces – you can only see the affect they have.

When a force is applied to an object it can lead to:
A change in speed (acceleration)
A change in the object's direction of movement
A change in the object's shape (squash or stretch the object).

Forces can also be divided into two types:
Contact Forces, which act between two objects that are touching.
Examples include friction and air resistance
Non-contact Forces, which act between objects that are not touching.
Examples include gravity, weight and the magnetic force.

3) Balanced and unbalanced Forces

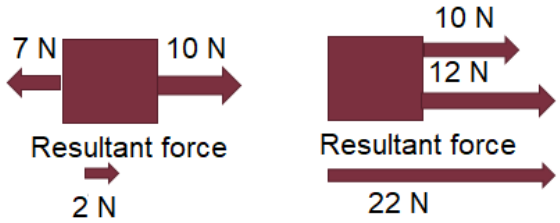
If the forces acting on an object are **equal**, we say that the forces are **balanced**. If the forces on an object are **balanced**, the object will either be stationary (not moving), or moving at a constant speed.

If the forces are **not equal**, we say they are **unbalanced.** If the forces on an object are **unbalanced**, the object will be speeding up (accelerating), slowing down (decelerating), or changing direction.

4) Free Body Force Diagrams

Forces have a **size** and a **direction**. We can show the forces acting on an object by drawing a diagram called a **Free body force diagram**.

- The length of the arrows shows how large the force is.
- The direction the arrow points shows the direction of the force.



5) Gravity

Gravity is a force that exists between any two objects with a mass. Gravity is different on different planets, because different planets have different masses. Gravity on Earth is 9.8 N, but we usually round it up to 10 N.

An object which is on or close to a planet will experience a force of gravity which we call weight. We can calculate weight using the equation:

weight = mass x gravitational field strength

W = m x g

6) Pressure

Pressure is a measure of the force that acts on a surface.
To calculate pressure, we use this equation:

pressure = force ÷ surface area

$$\textbf{pressure} = \frac{\textbf{force}}{\textbf{surface area}}$$

The units of pressure are N/m^2
A small surface area and a large force gives a higher pressure.

7) Speed

Speed is a measure of how far an object can travel in a certain time. We use this equation to calculate the speed of an object:

speed = distance ÷ time

$$\textbf{speed} = \frac{\textbf{distance}}{\textbf{time}}$$

The units of speed can change. The most common units of speed are miles per hour, kilometres per hour (km/h) and metres per second (m/s)

8) Acceleration

Acceleration is a measure of how quickly an object is speeding up, or slowing down.

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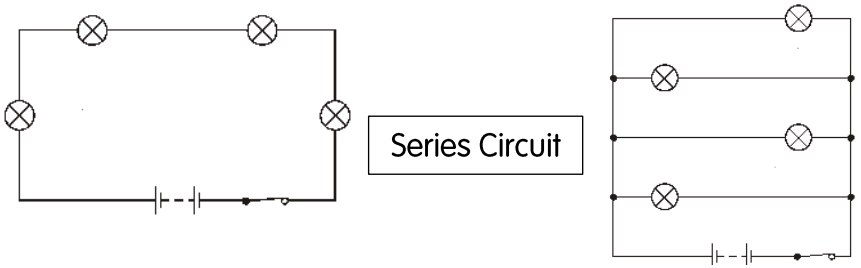
Knowledge Organiser: Year 7 Autumn Term – Science P2 Electricity

1) Keywords

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

2) Circuits

Series Circuit **Parallel Circuit**



In a **series circuit**, all the components are on the same loop (except for the voltmeter). If any component breaks, the whole circuit has broken.
Current is the **same** all through the circuit. The ammeter will read the same wherever it is.
Voltage is **split** between the components (parts) of the circuit. A voltmeter will give different readings.
In a **parallel circuit**, the components are on different loops. If one component breaks, the current can flow through the other loops of the circuit.
Current is **split** between the components of the circuit. The ammeter will give different readings.
Voltage is the **same** all through the circuit. The voltmeter will read the same wherever it is.

R = V ÷ I

resistance = voltage ÷ current

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Knowledge Organiser: Year 7 Autumn Term – Spanish : Mi Vida (My Life)

1) Saludos	**Greetings**	**2) ¿Qué tipo de persona eres?**	**What sort of person are you?**
¡Hola	*Hello!*	Soy…	*I am…*
¿Qué tal?	*How are you?*	divertido/a	*amusing*
Bien, gracias.	*Fine, thanks.*	estupendo/a	*brilliant*
Fenomenal	*great*	fenomenal	*fantastic*
Regular	*not bad*	generoso/a	*generous*
Fatal	*awful*	genial	*great*
¿Cómo te llamas?	*What are you called?*	guay	*cool*
Me llamo…	*I am called…*	listo/a	*clever*
¿Dónde vives?	*Where do you live?*	serio/a	*serious*
Vivo en…	*I live in…*	simpático/a	*nice, kind*
¡Hasta luego!	*See you later!*	sincero/a	*sincere*
¡Adiós!	*Goodbye!*	tímido/a	*shy*
		tonto/a	*silly*
		tranquilo/a	*quiet, calm*
3) Mi pasión	**My passion**	**4) ¿Tienes hermanos?**	**Do you have any brothers or sisters?**
Mi pasión es…	*My passion is…*	Tengo…	*I have…*
Mi héroe es…	*My hero is…*	una hermana	*a sister*
el deporte	*sport*	un hermano	*a brother*
el fútbol	*football*	una hermanastra	*a half-sister/stepsister*
la música	*music*	un hermanastro	*a half-brother/stepbrother*
el tenis	*tennis*	No tengo hermanos.	*I don't have any brothers or sisters.*
		Soy hijo único./Soy hija única.	*I am an only child. (male/female)*

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Knowledge Organiser: Year 7 Autumn Term – Spanish : Mi Vida (My Life)

5) Los números 1–30	***Numbers 1–30***	**6) ¿Cuántos años tienes?**	***How old are you?***
Uno	*1*	Tengo… años.	*I am years old….*
Dos	*2*	¿Cuándo es tu cumpleaños?	*When is your birthday?*
Tres	*3*	Mi cumpleaños es el… de…	*My birthday is the… of…*
Cuatro	*5*	enero	*January*
Cinco	*6*	febrero	*February*
Seis	*7*	marzo	*March*
Siete	*8*	abril	*April*
Ocho	*9*	mayo	*May*
Nueve	*10*	junio	*June*
Diez	*11*	julio	*July*
Once	*12*	agosto	*August*
Doce	*13*	septiembre	*September*
Trece	*14*	octubre	*October*
Catorce	*15*	noviembre	*November*
Quince	*16*	diciembre	*December*
Dieciséis	*17*		
Diecisiete	*18*		
Dieciocho	*19*		
Diecinueve	*20*		
Veinte	*21*		
Veintiuno	*22*		
Veintidós	*23*		
Veintitrés	*24*		
Veinticuatro	*25*		
Veinticinco	*26*		
Veintiséis	*27*		
Veintisiete	*28*		
Veintiocho	*29*		
Treinta	*30*		

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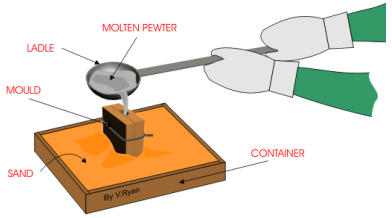
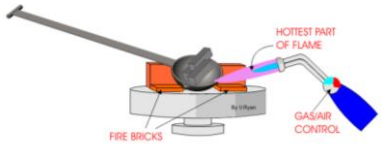
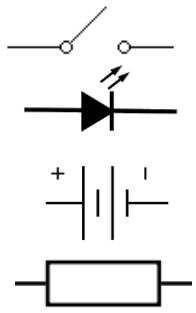
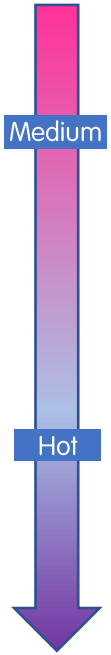
Knowledge Organiser: Year 7 Autumn Term – TED

1) Pewter Casting	2) Metals	3) Electronics	4) Product Analysis
Casting is a **manufacturing process** used for making 3D shapes out of metal. Metal is placed into a ladle and heated to it's **melting point** using a gas torch. When the metal reaches its melting point it becomes a liquid. Then it is poured into a **mould**: it goes through the **sprue** and into the **cavity**. When the metal has cooled the mould is opened and the shape is released.  	There are three main groups of metals: ferrous – non-ferrous – alloys **Ferrous metals** contain iron. They are magnetic and will rust (corrode). Types of ferrous metals include mild steel. **Non-ferrous metals** do not contain iron. They are non-magnetic and will not rust (corrode). Types of non-ferrous metals include aluminium. **Alloys** are a mix of metal. This means alloys have improved properties and are suitable for a range of different products. Types of alloys include **pewter**, which is used in casting	Different components have different functions: **Input Components** - The input is what sets an electrical circuit in action. It allows the first signal to be sent. **Process Components** - Process components work together to ensure current and signals are sent between input components and output components. **Output components** - The output is what the circuit results in and ultimately does. **Switches** **LED** **Batteries** **Resistors** 	A product analysis looks at current products and assesses whether they are successful or require improving. A good Product Analysis informs designers how products can be developed. When carrying out a successful Product Analysis you always ask yourself the following questions in relation to the product you are looking at…  1. Who is the product designed for? How do you know this? 2. How has the designer made the product easy to use? 3. What features does the product have which makes it a good product? 4. What features does the product have which could make it hard to use? 5. What materials have been used and why? 6. How would you improve the product?

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Knowledge Organiser: Year 7 Autumn Term – TED

5) Timbers

Hardwoods are durable and sturdy and often used in expensive furniture and finishes. Hardwoods tend to have a close grain
Example= Oak, Mahogany, Teak and Beech

Softwoods are cheaper than hardwoods and are used mostly for their look and appearance. IKEA use softwood from sustainable forests, meaning that for every tree cut down they plant one in its place, a softwood tree takes 2—30 years to grow. This is better for the environment and cheaper for the customer. Examples= Pine and Spruce.

Manufactured boards are timber sheets which are produced by gluing wood layers or wood fibres together. Examples are plywood and MDF.

6) Sustainability

Reduce – Using less materials and energy

Reuse – Using components and materials that have been used before.

Recycle - Recycling products into new materials to be used again.
Sustainability is about designers and manufacturers working together to minimise the impact products have on the environment.

7) New and Digital Technologies

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

CAM stands for **Computer Aided Manufacture.** CAM processes include Laser Cutting, 3D Printing and Robotics.

8) Quality Control

Quality Control is when engineers and designs make regular checks to ensure what they are doing is correct.
Ways you can quality control your work include checking spellings and using task criteria to ensure your work does everything the task asks.

9) Working safely

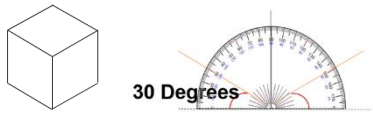
PPE stands for **Personal Protective Equipment.**
PPE you will wear:

- Apron
- Safety goggles
- Leather Gloves

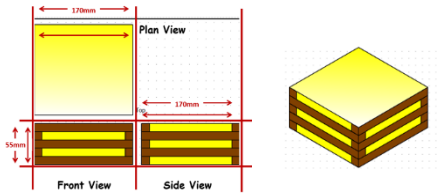
10) Design Communication

It is important all ideas are communicated clearly. Ideas can be communicated through drawings and annotation. Annotation is the labelling of your work to fully explain it. The different ways to communicate ideas through drawings shown below:

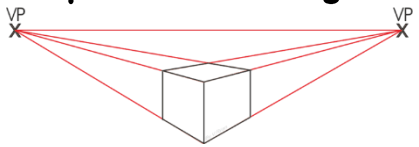
Isometric 3D drawing:



Orthographic 2D drawing:



Perspective 3D drawing:



Free hand sketching:

Notes

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