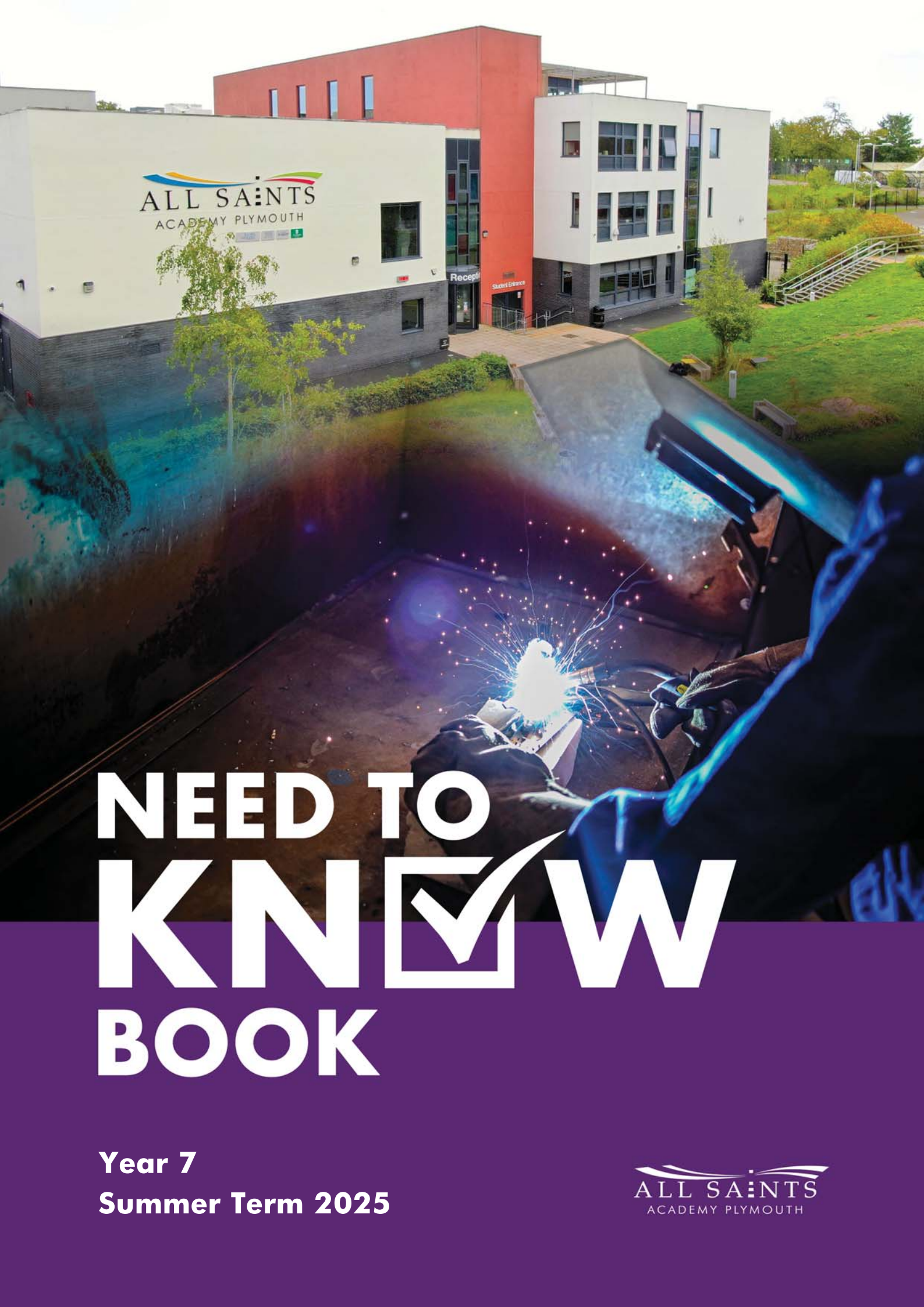


The background of the cover features a photograph of All Saints Academy Plymouth, a modern school building with white and red walls. In the foreground, there is a close-up of a person welding, with bright sparks flying from the welding torch. The bottom half of the cover has a solid purple background.

ALL SAINTS
ACADEMY PLYMOUTH

NEED TO KNEW BOOK

Year 7
Summer Term 2025

ALL SAINTS
ACADEMY PLYMOUTH

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Timetable

Week A

Period	Monday	Tuesday	Wednesday	Thursday	Friday
Tutor					
1					
2					
3					
4					
5					
6 or Extra Curricular					

Week B

Period	Monday	Tuesday	Wednesday	Thursday	Friday
Tutor					
1					
2					
3					
4					
5					
6 or Extra Curricular					

Homework Expectations

You are expected to complete up to 1 hour of Homework per night. This is split into 3 subjects at 20mins each.

	3 x 20 Minute Sessions		
	Subject 1 20 mins	Subject 2 20 mins	Subject 3 20 mins
Monday	Sparx Reader	Science	Science
Tuesday	Sparx Reader	Geography	French
Wednesday	Sparx Reader	Maths : Sparx	History
Thursday	Sparx Reader	Maths : Sparx	RE
Friday	Sparx Reader	Maths : Sparx	

Where is my homework?

Maths



Your maths homework is found at www.sparxmaths.uk. You will complete your Compulsory Homework on a Monday. If you have completed over 80% and are stuck on your last few questions, your teacher will help you on Tuesday.

Sparx Reader

Sparx Reader

Your Sparx reader homework is found at www.sparxreader.com. You will complete 20 minutes of reading every day Tuesday – Friday. You can, of course, complete more if you like!

Science



Educake

Your Science homework can be found at www.educake.co.uk. You will answer a series of questions once a week. When it comes to revising, you will have the option of picking a topic, reading an overview, and taking a quiz.

English, History, French and RE

Homework for these subjects will be found in your Google Classroom in the form of a quiz. These quizzes are to test that you have learned the knowledge in your Need to Know booklet. We have high expectations of you and expect students to try their best and achieve the best possible marks. We will give rewards for excellent attainment and we will help everyone achieve by using after school interventions to make sure no one falls behind.



At All Saints, we are organised and don't make excuses for ourselves. If we know we have evening plans, we complete our homework the night before to make sure we are free to go to our planned event. We always want the best for ourselves and my teachers want the same.

Reflection Sheet

Name:

Tutor:

Year:

Use this reflection sheet to track your progress and attitude to learning score after each progress check. This sheet will be used in your parent evening meetings with your teachers to discuss your areas of strengths, weaknesses and ways to improve. If your average attitude score is below a certain average your parents will be called in for a meeting with your Head of house and SLT member.

ATL SCORES	What will I get at GCSE?
0-1	Students who achieve an average of 1 or below usually leave school with no GCSEs.
1-2	Students who achieve an average of 1-2 usually leave with 1s or 2s (E or F) at GCSE
2-3	Students who achieve an average of 2-3 usually leave with 2s or 3s (D or E) at GCSE
3-4	Students who achieve an average of 3-4 usually leave with 3/4/5s (C or D) at GCSE
4-5	Students who achieve an average of 4-5 usually leave with 6/7/8s at GCSE

Average attitude to learning score	Term 1	Term 2	Term 3	Term 4

Subject rank	Subject Maths	Subject English	Subject Science	Subject	Subject	Subject	Subject	Subject	Subject	Subject
Term 1	/	/	/	/	/	/	/	/	/	/
Term 2										
Term 3										

Term 1 - Reflection (Answer the questions by filling in the boxes in blue or black pen)

Are you happy with your rank scores and ATL?	What subjects do you need to improve?	How will you get there?

Reflection Sheet

Term 2 - Reflection

Has your rank scores and ATL improved from term 1? If no, why not?	What subjects do you need to improve in?	How will you get there?

Term 3- Reflection

Has your rank scores and ATL improved from term 2? If no, why not?	What subjects do you need to improve in?	How will you get there?

Signed _____
signature _____

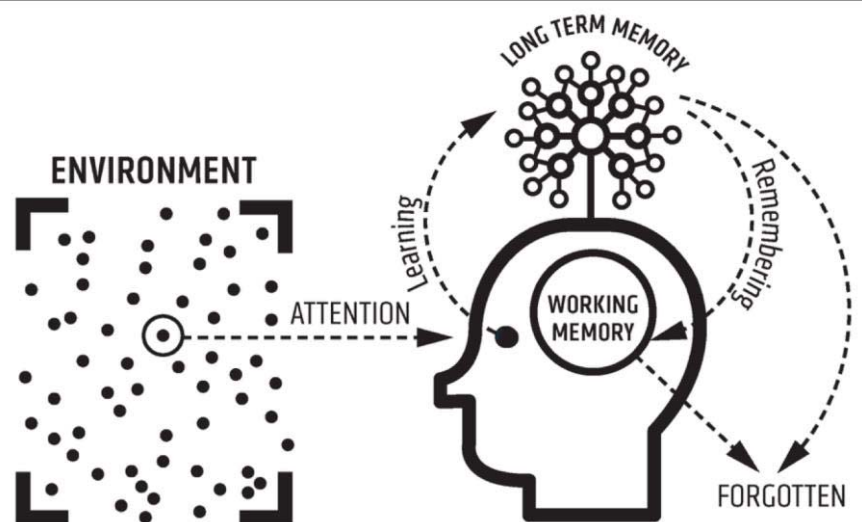
Tutor

Improving Your Long Term Memory

Memory

Your memory is split into two parts: the working-memory and the long-term memory. Everybody's working-memory is limited, and can therefore become easily overwhelmed. Your long-term memory, on the other hand, is effectively limitless.

You can support your working memory by storing key facts and processes in long-term memory. These facts and processes can then be **retrieved** to stop your working memory becoming overloaded.

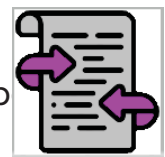


Need to know booklets are a key way to help you learn. Each booklet has the key information that needs to be memorised to help you master your subject and be successful in lessons.

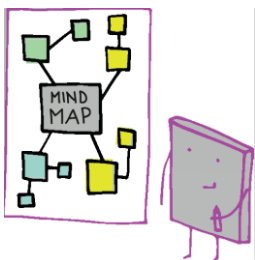
There is strong scientific evidence from cognitive psychology that shows the benefits of **self-quizzing** in promoting **retrieval strength**. This is your ability to quickly recall key facts related to your subject or topic

How should I self-quiz and how often?

There are lots of different ways to learn the material in your need to know booklet



You could:



Draw a mind map, jotting down everything that you can remember from the need to know booklet.



Cover up one section of the need to know booklet and try and write out as much as you can from memory.



Make flash cards based on the need to know booklet and ask someone to quiz you.

SENTENCES.
HAND
ARTICULATE.
PROJECT
Eye contact

Make up mnemonics to help you remember key facts, then write these out from memory.

Making revision notes and self-quizzing will help you be a more successful learner.

BOLD steps to your BRIGHT future



www.ASAPaspirations.co.uk

Post 16 pathways of Plymouth — Sixth forms — Apprenticeships — Employment — Resources

Support — Opportunities — Choosing a career — Parents guide — Writing a CV— Employability skills

The Formal Elements:

The Formal Elements of Art are the parts used to make a piece of art work. It is impossible to create a piece of art, even if it is only a doodle, without using some or all of them. The art elements are Line, shape, form, tone, texture, pattern, colour and composition. They are often used together and how they are organised in a piece of art determines what the finished piece will look like.

Line

A line is a path, left by a moving point. E.G. a pencil, or a paintbrush dipped in paint. A line can take on many forms. E.g. Horizontal, diagonal or curved. A line can be used to show co



Tone

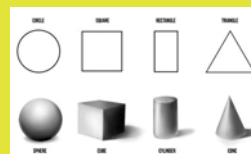
Tone means the lightness and darkness of something. This could be a shape and/or how dark or light a colour appears.



Shape & Form

A shape is an area enclosed by a line. It could be just an outline or it could be shaded in.

Form is a three dimensional shape such as a sphere, a cube or a cone.



Texture

Texture is the surface quality of something, the way something feels or looks like it feels. There are two types of texture, actual texture and visual texture.

Actual Texture: really exists so you can feel it or touch it.

Visual Texture: Created by using different marks to create the impression of actual texture.

Colour

There are three primary colours:

Red, Yellow, Blue

By mixing any two primary colours together, you get secondary colours.

Orange, Green and Purple

Pattern

Pattern is a design that is create by repeating lines, shapes and tones or colours.

Patterns can be manmade such as a design on fabric or natural like the print on animal fur.



COLOR THEORY

Color is an element of art.

Everytime I use color, I am creating a color scheme.

↓ This is a color wheel.

The most common color schemes are listed below.



Primary...

 { I can make all the other colors by mixing different amounts of primary colors }

Secondary....

I can mix two primary colors to make a secondary color.



Warm

Yellow and all the colors with red and orange tones are warm.

Cool.....



{ Violet and all the colors with blue and green tones are cool.

Complementary....

Opposites on the color wheel are complementary.

Analogous...                                                                        

Rainbow...



{ Using primary and secondary

Colors placed in order from the color wheel, I can make a rainbow

Intermediate... is a color term I need to know. It is the color in between the primary and secondary colors on the

Post Impressionism:

Post-Impressionism is an art movement that developed in the 1890s in France as a reaction to Impressionism (Post meaning after). Post Impressionist artists continued to develop the Impressionist style but rejecting its limitations. They continued to use vivid colours, a thick application of paint and real-life subject matter, but were more inclined to emphasize geometric shapes, distort forms for an expressive effect and use unnatural colours. Post impressionism was characterized by how artists used colour, movement and line to reflect and evoke emotion through their work



Vincent Van Gogh: Vincent van Gogh was a **Dutch painter**, generally considered to be one of the greatest in the world. He sold only one piece of art in his life time, but in the century after his death he became perhaps the most recognised painter of all time. The Post impressionist art movement was led by Vincent Van Gogh, Paul Cézanne, Paul Gauguin and Georges Seurat. Van Gogh's **striking use of colour, expressive brushstrokes, and contoured forms** of his work has powerfully influenced the modern art movement Expressionism. During his life, Van Gogh was plagued by psychiatric illness and eventually van Gogh committed suicide in 1890. Evidence suggests that he had **manic depression**, a chronic mental illness.

Key words

Composition	The position and layout of shapes on the paper
Line	Defines shape, the outer edges of something.
Tone	How dark or light a shape is.
Shape	The outline of objects.
Form	Appearing three-dimensional.
Psychiatric	relating to mental illness or its treatment.
Texture	The feel or appearance of a surface, how rough or smooth it is.
Formal Elements	The Formal Elements of Art are the parts used to make a piece of art work.
Refine	To develop and improve a piece of artwork.
Expressive	Effectively conveying thought or feeling.
Evoke	Bring or recall (a feeling, memory, or image) to the conscious mind.
Art movement	Is a tendency or <i>style</i> of art with a specific common philosophy or goal, followed by a group of artists during a specific period of time.
Post Impressionism	An art movement that explored colour, line, and form, and the emotional response of the artist.
Emphatic	expressing something forcibly and clearly.

Art and Design Assessment Objectives:

DEVELOP

Artist Research.
Explore Ideas.
Be Inspired.
Personal comments and opinions.

EXPERIMENT

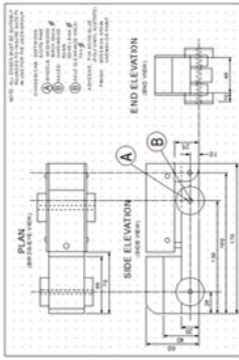
Explore different materials
Explore different techniques
Refine your work
Evaluate your success

RECORD

Observational drawings
Collecting image
Taking photos
Annotating your work

PRESENT

Produce a final piece
Link to prep work from project.

Week 2	Week 4	Week 6	Week 8	Week 10
know how to mark out When you mark out material you must always leave room for the cut. SAWS, CHISELS etc are all 'wasting' tools so they produce waste when used i.e. saw dust. We call this space a cutting gap. Remember you can always take material away but you can never put it back.  The diagram above shows two areas for cutting that are hatched to mark the waste material. You should cut between the lines. To measure and mark out accurately in the workshop you should use a TRI SQUARE and a STEEL RULE for small jobs or a TAPE MEASURE for larger materials. 	know about manufacturing drawings Engineers and manufacturers use orthographic projection drawings to gain information about parts and assemblies. They are scaled 2D views, measured and dimensioned in mm. they are most commonly produced in CAD (Computer Aided Design)  know your hand tools We use a TENON SAW for crosscutting timber. It has fine teeth so you get an accurate cut if it is sharp. It is only for straight cuts and how you clamp your work is just as important as how you cut it. 	know your clamping tools A BENCH HOOK fits into the BENCH VICE for sawing at 90° to the grain.  A 'G' CLAMP is a portable clamp that can be used on work benches or machines like the Pillar drill for example. It is a good idea to use scrap to protect your work and avoid denting flat surfaces. A MACHINE VICE is for use on the Pillar Drills to hold your work in position. It is a good idea to support your work both at the sides and underneath with scrap timber when drilling.  know your machine tools The workshop is full of tools and equipment. In Y7 you will use a Belt Sander, Pillar Drill and Power Fret Saw to accurately produce parts in timber and manufactured board. You must wear PPE for them all. The belt sander and power fret saw have extraction built in to remove the majority of the saw dust as soon as it is created.	know your workshop safety Make sure you always follow the rules of the workshop. 1. Wear goggles on machines and when hammering 2. Only use a machine when you are confident, have permission and have seen a demonstration to use it 3. Wear an apron if available. 4. Tie you hair back 5. Do not run in the workshop 6. Only the person using the machine should stand in the yellow/black safety area 7. Always switch a machine off and wait for it to slow down after use 8. Do not shout in the workshop 9. Do not talk when you are using a machine 10. Remove loose clothing and jewellery	know your PPE PPE stands for Personal Protective Equipment. In the workshop you must always wear goggles on machines and using impact tools i.e. hammers and mallets. You should also wear an apron and remove loose clothing/jewellery. On occasions you may need to wear ear defenders, gloves, a leather apron and more robust shoes depending on what you are doing.  Eye protection must be worn

POETIC POEMS			Upgrade	
POETIC POEMS	Definition	Examples		
P ersonification	Giving something non-human human qualities.	<i>His heart laughed.</i>	Volta	A turning point in the poem
O xymoron	Two opposite ideas next to each other	<i>It tasted awfully good.</i>		
E njambment	A line which runs on	<i>As his heart soared He felt himself rise</i>	Caesura	Punctuation which breaks up the line
T one	The mood or attitude	<i>Humorous, lighthearted.</i>		
I magery	Vivid, descriptive language	<i>The autumn leaves turn gold, orange and red.</i>		
C ontrast	Two opposite ideas	<i>The black ink on the white towel.</i>	Repetition	Repeated words
P erspective	Point of view	<i>1st or 3rd person</i>	Symbolism	The use of an object to represent something
O nomatopoeia	A word which imitates the sound	<i>Smash!</i>		
E xtended	A continued comparison throughout a poem	<i>Hope is a thing with feathers</i>		
M etaphor	A comparison when something is something else	<i>The sea is a monster</i>	Motif	A recurring idea
S imile	A comparison using 'like' or 'as'	<i>The sea is like a monster</i>		

Health, Safety and Hygiene

Health, safety and hygiene.

- ◆ Always listen to the teacher and follow instructions.
- ◆ Do not run in the food room.
- ◆ Do not leave bags and blazers where they can get in the way and cause a tripping hazard.
- ◆ Walk sensibly around the room when carrying equipment especially knives.
- ◆ Always return equipment once its finished with and cleaned especially knives. These will be counted in at the end of every lesson.
- ◆ Always listen carefully when the teacher is demonstrating how to use equipment. Make sure you ask questions if you do not understand.
- ◆ Take your blazers off and roll up your sleeves when doing a practical lesson.
- ◆ Tie your hair back.
- ◆ Always wash your hands thoroughly when preparing foods.
- ◆ Always use hot soapy water to wash your equipment.
- ◆ Make sure all spillages are cleaned up immediately.
- ◆ **Always** use an oven cloth when taking food from the oven.

The Eatwell Guide

Fruits and vegetables.

Eat at least 5 portions of a variety of fruits and vegetables a day.



Drinks.

6-8 glasses a day. Water, lower fat milk, sugar free drinks including tea and coffee count.

Potatoes, bread, rice, pasta and other starchy carbohydrates.

Choose wholegrain or higher fibre versions with less added salt, sugar and fat.

Beans, pulses, fish, eggs meat and alternatives (protein).

Eat more beans and pulses, 2 portions of sustainably sourced fish per week, one of which is oily. Eat less red and processed meat.



Dairy and alternatives.

Choose lower fat and lower sugar options.

Oils and spreads (fats).

Choose unsaturated oils and use in small amounts.

Foods high in fats and sugars.

Eat less often and in small amounts.

Preparation Skills and Techniques

Chopping, Slicing, Dicing and Peeling Skills



Bridge Hold



Claw Hold



Peeling



What could happen?

Cake and Pastry Making Methods

Rubbing -in Method

Used for pastry and cakes that **do not have a large amount of fat** compared to flour

- ◇ Fat is **cut into chunks** (block margarine is best)
- ◇ Air is trapped when sieving the flour and by lightly **rubbing the fat in to the flour**
- ◇ Any optional ingredients (e.g. sultanas) are **added before the liquid or egg** that binds the crumb together
- ◇ **Raising agents** help the cake to rise



Creaming Method

Used for cakes containing **more fat and sugar** compared to flour

- ◇ The fat and sugar are **creamed together** using a **wooden or plastic spoon**. Air is **trapped** by **creaming** the sugar and fat together
- ◇ Soft margarine is better as it is **easier to cream**
- ◇ **Caster sugar** has **smaller crystals** than **granulated** so it **traps more air** and mixes better
- ◇ **Self raising flour** is used to make the cakes rise



Melting Method

- Fat is melted with the sugars and syrup
- Dry ingredients added
- Liquids bind all ingredients together



Year 7 French - Cycle 3

	French	English
Week 1	Je comprends, c'est facile de dire la vérité.	I understand, it is easy to say the truth.
Week 2	Elle est algérienne donc il vient en Algérie.	She is Algerian so he is coming to Algeria.
Week 3	Quelle est ta matière préférée ? J'aime la musique.	What is your favourite subject? I like music.
Week 4	Parfois, elle dort sur son bureau !	Sometimes, she sleeps on her desk!
Week 5	Le café est derrière le cinéma, entre la rue est la plage.	The café is behind the cinema, between the street and the beach.
Week 6	Le vieux bâtiment a un beau jardin avec un nouveau pont.	The old building has a beautiful garden with a new bridge.
Week 7	Tu vas partir tôt ? Je vais partir à l'avenir.	Are you going to leave early? I am going to leave in the future.
Week 8	Nous allons partir l'Allemagne demain en avion.	We are going to leave Germany tomorrow by aeroplane.
Week 9	Il veut visiter son ami mais il doit dormir.	He wants to visit his friend, but he has to sleep.
Week 10	Désolé, je ne peux pas t'aider à chercher ton chien.	Sorry, I can't help you find your dog.

Each week you will need to practise and learn your **Sentence of the Week** as well as your **Vocabulary of the Week**. For your **Vocabulary of the Week** also pay attention to which type of words they are:

Verbs are in VIOLET
Feminine nouns are in PINK
Masculine nouns are in BLUE
Adjectives are in AMBER

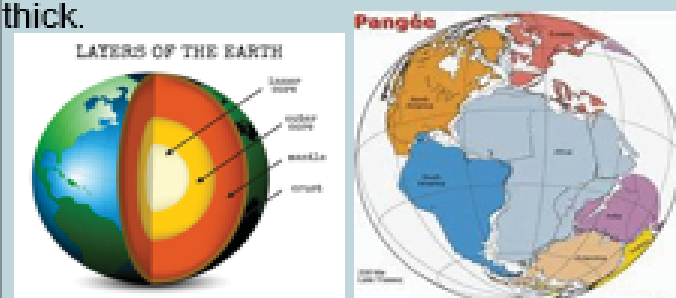
Week 1			Week 2			Week 3			Week 4			Week 5		
apprendre	to learn, learning	sortir	to go out, going out	que ?	that, what?	dormir	to sleep, sleeping	le café	le café	café				
comprendre	to understand, understanding	je sors	I go out, I am going out	la langue	language	je dors	I sleep, I am sleeping	le cinéma	le cinéma	cinéma				
dire	to say, saying	tu sors	you go out, you are going out	les maths (mpl)	maths	tu dors	you sleep, you are sleeping	la plage	la plage	beach				
je dis	I say, I am saying	il sort	he goes out, he is going out	la matière	subject	il dort	he sleeps, he is sleeping	la rue	la rue	street				
tu dis	you say, you are saying	elle sort	she goes out, she is going out	la musique	music	elle dort	she sleeps, she is sleeping	derrière	derrière	behind				
il dit	he says, he is saying	venir	to come, coming	la science	science	l'équipe (f)	team	devant	devant	in front of				
elle dit	she says, she is saying	je viens	I come, I am coming	le nom	full name	le bureau (m)	desk	entre	entre	between				
prendre	to take, taking	tu viens	you come, you are coming	quel ?	which? (m)	parfois	occasionally							
je prends	I take, I am taking	il vient	he comes, he is coming	quelle ?	which? (f)	sous	under							
tu prends	you take, you are taking	elle vient	she comes, she is coming	combien ?	how much? / how many?	sur	on							
il prend	he takes, he is taking	devenir	to become, becoming	pourquoi ?	why?									
elle prend	she takes, she is taking	revenir	to come back, coming back	parce que	because									
l'erreur (f)	mistake	l'Algérie (f)	Algeria											
la vérité	truth	algérien(ne)	Algerian (m/f)	important(e)	important (m/f)									
facile	easy	Alger	Algiers	de	of, from									

Week 6			Week 7			Week 8			Week 9			Week 10		
le bâtiment	building	je vais	I go, I am going	nous allons	we go / we are going	devoir	must, to have to	aider	to help, helping					
l'église (f)	church	tu vas	you go, you are going	vous allez	you (all) go / you are (all) going	je dois	I must, I have to	chercher	to look for, looking for					
le pont	bridge	il va	he goes, he is going	ils vont	they go / they are going (masc)	tu dois	you must, you have to	partager	to share, sharing					
le jardin	garden	elle va	she goes, she is going	elles vont	they go / they are going (fem)	il doit	he must, he has to	pouvoir	can, to be able to					
belle	beautiful (f)	partir	to leave, leaving	l'allemand	German	elle doit	she must, she has to	je peux	I can, I am able to					
bonne	good (f)	je pars	I leave, I am leaving	l'avion (m)	aeroplane	dormir	to sleep, sleeping	tu peux	you can, you are able to					
haut(e)	high (m/f)	tu pars	you leave, you are leaving	la lettre	letter	visiter	to visit, visiting	il peut	he can, he is able to					
nouveau	new (m)	il part	he leaves, he is leaving	allemand	German nationality (m)	vouloir	to want (to), wanting (to)	elle peut	she can, she is able to					
nouvelle	new (f)	elle part	she leaves, she is leaving	allemande	German nationality (f)	je veux	I want (to), I am wanting (to)	savoir	to know how to, knowing how to					
vieille	old (f)	(à) l'avenir (m)	(in the) future	différent(e)	different (m/f)	tu veux	you want, you are wanting (to)	je sais	I know how to					
vieux	old (m)	madame	Miss, Mrs, Ms, madam	prochain(e)	next (m/f)	il veut	he wants (to), he is wanting (to)	tu sais	you know how					
		le match	match	bientôt	soon	elle veut	she wants (to), she is wanting (to)	il sait	he knows how to					
		monsieur	Sir, Mr	demain	tomorrow	le billet	ticket	elle sait	she knows how to					
		encore	again					le projet	plan					
		en retard	late					désolé(e)	sorry (m/f)					
		tôt	early					peut-être	maybe					

Week 1

In 1912, Alfred Wegener, a German meteorologist, (a person who studies weather), put forward his theory of **continental drift**. He argued that millions of years ago, the continents that we know today were joined together into one supercontinent called Pangea. The continents have been slowly drifting apart and together ever since.

Lithosphere: Outer layer of the Earth sometimes called the crust. **Mantle:** Much thicker mass of rock under the lithosphere (about 2900km thick). Hot rocks that can deform and move like plastic. **Outer core** is liquid. **Inner core** is solid and made of iron and nickel. **Oceanic plate:** 50-100km thick. **Continental plate:** Up to 200km thick.



Week 2

Tectonic Plates The Earth's crust is not one, solid mass. It is like a jigsaw puzzle, made up of big pieces called tectonic plates. These plates move around. They can collide (bump into each other) to form mountains, they can subduct (one plate sinks under another), or they can slide past each other.

Tectonic plates meet at a boundary (edge) and there are three main types.

One of these is a **destructive plate boundary**: tectonic plates collide with each other.

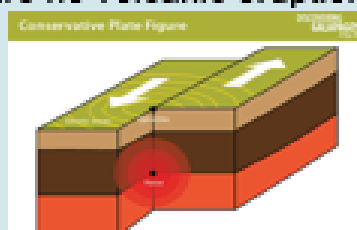
Subduction zone: where an oceanic plate moves towards a continental plate, the heavier oceanic plate sinks (called subduction) beneath the continental one. This creates an ocean trench. The oceanic plate melts into magma which rises to the surface as a volcanic eruption. The pressure can trigger earthquakes. **Collision zone**: Two continental plates meet and push upwards to create high mountain ranges called fold mountains but there are no volcanoes.

Week 3

Constructive plate boundary: two plates are forced apart. Magma rises and the hot rocks melt, forming a ridge of volcanoes and new ocean lithosphere (crust). Forms a mid-ocean ridge.



Conservative plate boundary: two plates slide slowly past each other. Friction causes the plates to stick together, and pressure builds. When the friction is overcome, the sudden movement creates a severe earthquake. No magma escapes so there are no volcanic eruptions.



Week 4

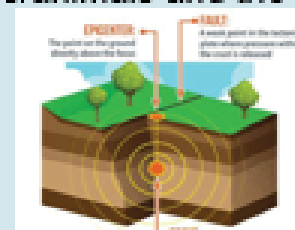
Earthquakes - An earthquake is the shaking of the surface of the Earth. Earthquakes most often occur close to the boundaries (edges) of tectonic plates as the plates do not slide smoothly past each other, or because they are dividing/colliding.

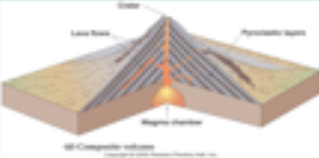
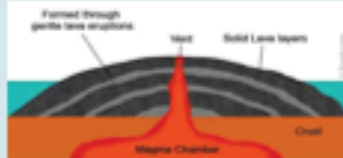
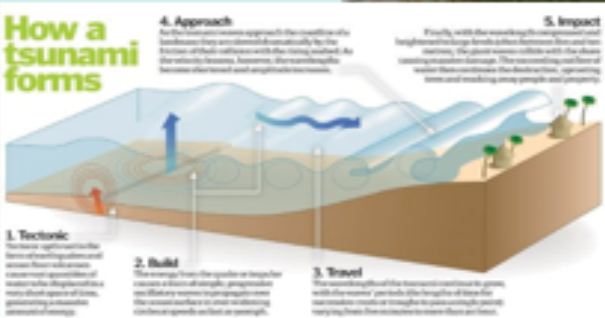
Focus: the centre of an earthquake below the Earth's surface. **Epicentre**: the area on the surface directly above the focus.

Seismic waves: waves of energy.

Richter scale: measurement of the magnitude or size on an earthquake. Recorded on a seismometer.

Mercalli scale: measurement of the intensity of the earthquake by recording the effect on people/animals and the damage caused.



Week 5	Week 6
<u>Earthquake case studies:</u> Nepal earthquake (25 April 2015): 7.8 magnitude, collision zone between Indian and Eurasian plate. Focus 8 km deep. 8,632 dead and 19,009 injured. Worst in 80 years. Temperatures fell at night, survivors suffering hypothermia. Landslides cut off remote villages. Triggered an avalanche at Mount Everest. International aid from China and India: \$1 billion provided to help Nepal. Christchurch earthquake (22 February 2011): 6.3 magnitude, friction from a conservative plate boundary (Pacific and Australian plate). Focus 5 km deep. 181 dead and 2,000 injured. Over 50% of the city's buildings were damaged and many businesses closed. \$898 million in insurance claims to make repairs and rebuild damaged areas. Water and sewerage were restored by August 2011.	<u>Volcanoes:</u> A volcano is a vent/fissure in the Earth's crust through which lava (molten/melted rock), rock, ash and gases erupt. The build-up of these materials over time often forms a mountain, which is also known as a volcano. Magma – molten rock within the Earth. Lava – molten rock on Earth's surface. Rock – large, solid pieces of Earth's crust. Ash – small, fine bits of Earth's crust. Gas – invisible particles such as Sulphur dioxide which erupt from volcanoes. Shield volcano: gentle slopes forming from runny lava spreading far e.g. Mauna Loa Composite volcano: Steep sides, cone shape. Forms from thick, viscous lava that does not flow easily e.g. Mount Fuji  
Week 7	Week 8
<u>Eyafjallajökull volcano eruption</u> - (pronounced Eye-yaf-yalla-yokool). The Eyafjallajökull volcano is situated in southern Iceland and erupted in 2010. Iceland is a small, remote, island nation located in the North Atlantic Ocean. It is a HIC (High Income Country) which has many volcanoes and geysers. The eruption did not result in any deaths but did produce a very large cloud of ash. This ash plume contained <u>large amounts of tiny particles of hard volcanic rock</u>. It rose 9km into the atmosphere and covered large areas of N Europe. The ash poisoned farm animals and people across Iceland had to remain indoors. The ash plume spread across Europe, causing air flights to be cancelled. People could not go to work and perishable foods were wasted. Businesses and air operators lost millions of pounds daily for over two months.	<u>Tsunami</u> – giant, waves often caused by earthquakes/eruptions under the sea. They are NOT tidal waves! Tsunamis can have wavelengths hundreds of kilometres long. You tend not to notice them at sea; they increase in height in shallow water at the shore. In deep water, tsunamis travel over 500 mph or as fast as a jet plane. A sign that a tsunami is coming is often the withdrawal of water from a beach. These waves can destroy buildings and carry items such as cars, causing a lot of damage.  How a tsunami forms  1. Tectonic The tectonic plates move, creating a fault line. When the plates move, they create a large amount of pressure. 2. Build The pressure builds up, creating a large amount of energy. This energy is stored in the tectonic plates. 3. Travel The energy travels along the fault line, creating a large amount of energy. This energy is stored in the tectonic plates. 4. Approach The energy travels along the fault line, creating a large amount of energy. This energy is stored in the tectonic plates. 5. Impact The energy travels along the fault line, creating a large amount of energy. This energy is stored in the tectonic plates.

What was it like to live through the Black Death?

How did the Black Death end up in England?

- A mysterious disease was reported first in Asia (north of modern day India) along the Silk Road trade route.
- The Mongolian soldiers attacking the city of Caffa got sick with the disease.
- From Caffa the disease was spread onto the ships and trade routes to Italy.
- French and English trade ships brought the disease to Western Europe.

How did people try to avoid or cure the Black Death?

- The disease was named the "Black Death" because it caused dark patches to appear on the skin (caused by internal bleeding and rotting).
- The Black Death caused fear and panic because the symptoms were visible and death could be sudden. The main symptom was the "buboes" (swelling of the lymph glands) and it took only three days to kill a healthy person.
- People at the time blamed the disease on a punishment from God, an imbalance of the Four Humours, and bad smells caused "miasmata".
- As a result people tried to cure the plague with praying, not eating, lancing the buboes, and strong herbal smells.
- Likewise, people tried to avoid the Black Death by whipping themselves, going on pilgrimages, carrying herbs in a posey, and blood letting.

What was the wider affect of the Black Death around the world?

- In Islamic countries the disease was more controlled as people were told to accept their deaths as a sacrifice to Allah and not to run away. Islamic scholars and doctors were more advanced than their Christian counterparts at the time.
- In modern day Austria, Germany, and Hungary; Jewish people and other minority groups were blamed for the Black Death and attacked.
- Historians believe that 40% of Europe's population died as a result of the Black Death.

How did the Black Death save England from Scotland?

- In 1349, Scotland took advantage of a weakened England and invaded the north.
- However, some of the Scottish soldiers got sick in the city of Durham and took the disease home with them.
- The next summer (1350), the Black Death spread throughout Scotland and prevented further invasions.

How did the Black Death affect England?

- The loss of life in England was 30%-50%. This reduced the amount of farmers and workers.
- Villages were deserted and towns such as Bristol lost up to 60% of their people.
- Workers demanded higher pay, and the survivors inherited from the dead.

HISTORIAN SKILLS

Knowledge
Explanation
Using Sources
Interpretation

KEYWORDS

Contagious = something that spreads from one person to another
Flagellants = people that whipped themselves
Miasma = bad air
Pandemic = a disease that affects many people in a large area
Quarantine = isolation
Trade route = the path taken by people selling things. These can be on land or sea

IMPORTANT DATES

1127 = The word "quarantine" used for the first time as a 40 day isolation to avoid the spread of disease in Venice.
1337 = Hundred Years' War between England and France began
1345 = Black Death appears in Asia along the Silk Road
1346 = Siege of Caffa
1347 = Plague arrives in Italy along trade routes
1348 = Plague arrives in Weymouth, Dorset on a trade ship
1349 = Scotland invaded England and attacked the city of Durham.
1350 = Plague spreads in Scotland
1351 = Wages reduced to pre-plague levels and workers not allowed to demand more
1377 = New poll tax
1381 = Peasants' Revolt

FAMOUS SOURCE

Nature = an extract from a book called "History of the Scottish Nation"

Origin = John Fordan in c.1380

Purpose = to record and remember events for future generations

In the year 1350, there was, in the kingdom of Scotland, a great plague. Nearly a third of mankind died. By God's will, this evil led to a strange kind of death, the flesh of the sick was somehow puffed out and swollen. Now this attacked everywhere, especially the common people but rarely the nobles.

What was the most significant medieval event?

How do historians decide if an event is significant?

Historians decide what events are significant by working out which events are more important than others. This is worked out by looking at:

- What impact and consequences did the event have?
 - What changed as a result of the event?
 - Did it affect a lot of people for a long time afterwards?
- When was the First Crusade and what was the impact of it?
- The Crusades were military attacks aimed at taking the city of Jerusalem.
 - In 1095, Pope Urban II gave a speech that asked Christians to take the city of Jerusalem.
 - The city was captured in 1099 by the thousands of people that volunteered.
 - Many new ideas were learnt from the people that lived in the area such as Arabic numerals and paper. However, relations between Christians and Muslims got worse.
- Why is the year 1170 significant in British history?

- In 1170, the Archbishop of Canterbury was murdered by knights sent by the King of England.
 - The King and the Archbishop had argued about how to run the Church and the king had finally lost his temper.
 - King Henry II had to walk barefoot to Canterbury to show that he was sorry, and the Church was kept separate from the King's control for another 400 years.
- Why did the English Lords force King John to sign the Magna Carta?

- King John abused his power by demanding illegal taxes from his people.
 - The lords and barons got so angry they led a rebellion against the King and forced him to sign a document called the "Magna Carta" in 1215.
 - The Magna Carta contract said that the law was above the power of the monarch.
- What was the impact of the Black Death?

- A new disease called "plague" arrived in England in 1348.
- The disease killed up to half the population, villages were deserted, and the people thought it was the end of the world.
- The survivors felt blessed by God and they started to question ideas about society, and the universe.

Did England become stronger or weaker between 1381 and 1485?

- In 1381, the peasants (angry about a new tax) rebelled against the lords.
- The peasants attacked London but the King betrayed them and crushed the revolt.
- In 1415 King Henry V won a victory at Agincourt that won England lots more land in France. This was part of the "Hundred Years War" between England and France.
- England was torn apart by civil war for 30 years after 1455 with many members of the royal family being killed or going missing (as with the Princes in the Tower in 1483).

HISTORIAN SKILLS

Knowledge
Explanation
Using Sources
Interpretation

KEYWORDS

Archbishop = leader of the Church
Civil war = a fight inside a country
Crusade = fight for God
Epidemic = lots of people get sick
Peasant = poor farmers
Revolt = fight against leaders
Significant = most important

IMPORTANT DATES

1096-1099 = The First Crusade to take Jerusalem
1170 = Thomas Becket murdered in Canterbury Cathedral
1215 = Magna Carta signed
1348 = Black Death arrives in England
1381 = The Peasants' Revolt
1415 = The Battle of Agincourt
1455-1485 = Wars of the Roses
1483 = Princes go missing from the Tower of London

FAMOUS SOURCE

Nature = The Magna Carta (Great Charter)

Origin = Written by the English barons and signed in 1215 by King John

Purpose = To force the king to follow the laws of the land

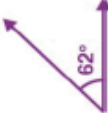
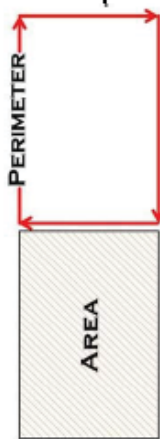
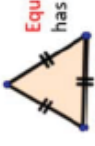
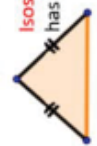
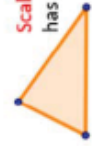
The Magna Carta was forced on the king by his barons and nobles. It made the law more important than the monarch. Even the king or queen now had to follow the law of the land. It also set up the idea of a jury in a court case.

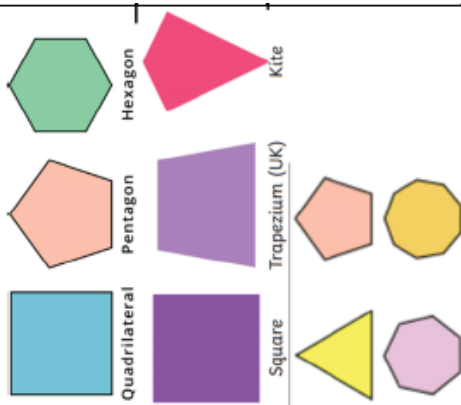
Using ICT

Topic of Learning	I will need to know:	So that I can:
ASAP Computer Network	What a computer network is and how they work. To include the benefits of using a computer network along with the different drives on the school network. The purpose of the Home area of the school computer network and its benefits along with the purpose of the shared network area. The importance of being able to log into the school computer network correctly and also to save work and log off correctly.	Confidently log on to the school computer network and successfully save work to the Home area and access files from the shared area.
Effective file and folder management	The importance of saving work files using appropriate file names so that they can be easily accessed in the future. How to create new folders and name them using logical folder names. How to search for files and folders on a network directory and open required files.	Navigate a network directory and locate folders in order to successfully open required files. Create and name new folders appropriately.
Using E-mail	The benefits of using email and how an e-mail system works. The process of setting up, writing and sending an e-mail such correctly using the To, From, Subject, Message sections and knowing the purpose of CC and BC when sending e-mails. How e-mails can be used in a malicious way for example phishing, spam, identity theft and sending viruses.	Write, send and save e-mail messages and manage my own school e-mails effectively and use the system in an appropriate way.
Digital Footprint	What the term digital footprint means, how it can be created and the steps that can be taken to manage a digital footprint. How a digital footprint can be used to create an online reputation or impression depending on what is accessed online. Online posts, shares, likes can be permanent and can be used to gain personal information about an individual. How to manage a digital footprint and take steps to stay safe whilst online.	Manage my own digital footprint and be aware of my online presence and take steps to reduce my digital footprint.
E-Safety	The term e-safety and what it relates to. That e-safety is defined as the safe and responsible use of technology including the internet, social media, gaming and email. The potential risks when using the internet and being online and some of the responsibilities of users of digital technology. The SMART rules and how to apply them when online.	Use the internet in a safe and responsible way. Recognise the risks and know how to avoid them.

Using ICT

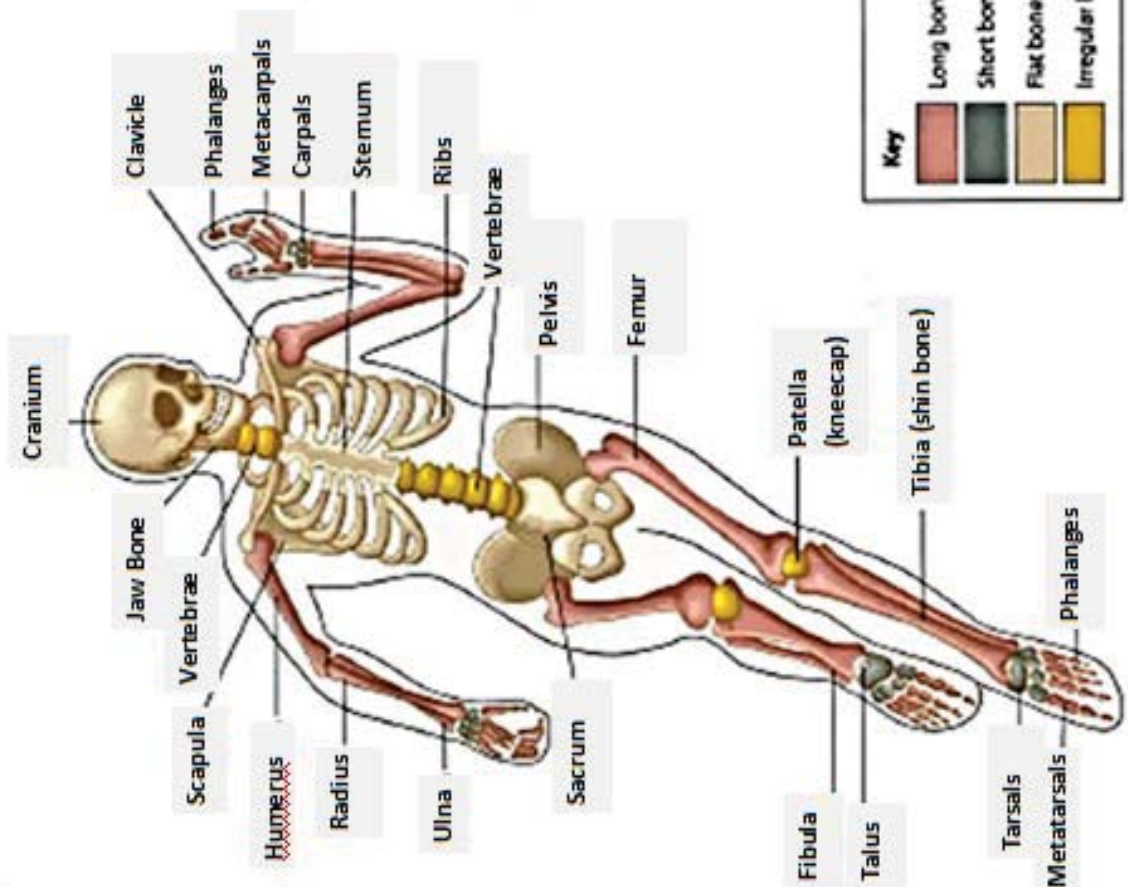
Topic of Learning	I will need to know:	So that I can:
Input and output devices	Input and output devices can be connected to a computer via a cable or wireless. An input device allows a user to input data into a computer. An output device allows a user to get information out of a computer. These devices can be adapted to suit computer users who may need to use the devices in a different way.	Correctly identify examples of input/output devices and explain their purpose.
Storage devices	Secondary storage devices are used to store data (work). Secondary storage devices are typically high capacity e.g. can store a lot of data, and portable e.g. can be moved from one computer to another. There are two types of storage device used with computers, primary storage, such as RAM, and secondary storage such as a hard drive. Secondary storage can be removable, internal or external. There are three types of media storage used to store computer data, magnetic storage, optical storage and solid-state storage.	Identify examples of secondary storage and be able to group them into their correct media type.
Communication methods	How communications technology has revolutionised the way in which we can communicate with family, friends, teachers, and the way in which businesses can communicate with their staff and customers. Examples include, email, text, direct and instant messaging, social media and VoIP. Some of the benefits and drawbacks of using this technology along with future communication technology.	Confidently use a range of communication technology effectively and comment on their benefits and drawbacks.
Hardware and software	A computer system is made up of two parts, hardware and software. Hardware is any physical part of the computer system that can be touched, picked up or moved. Software contains the instructions that the computer needs to carry out specific tasks. There are two main types of software, 'system software' and 'application software'. System software controls the way the computer works and tells it what to do. Application software is software that is used to complete work or to have fun such as word processing software and gaming software.	Identify the hardware components of a computer and explain their use/purpose. Explain examples of system and application software.
Health and safety using computers	When using computers, there are a number of health and safety issues that need to be taken into consideration. Health issues include eyestrain, neck and back strain and injuries to the wrists. Steps that must be taken to reduce the possibility of these health issues. How computer cables should be secured to avoid causing trip hazards. Electrical sockets should not be overloaded and electrical equipment should be tested once a year.	Identify health and safety issues when using computers and know how to avoid issues occurring.

<u>Word</u>	<u>Used in context</u>	<u>Definition</u>	<u>Example</u>
Acute	Identify the acute angle in the triangle	An angle measuring between 0° and 90°	
Obtuse	Which of these angles are obtuse ?	An angle measuring between 90° and 180°	
Reflex	Identify the reflex angle	An angle measuring between 180° and 360°	
Right Angle	A rectangle has four right angles	An angle equal to 90°	
Parallel	A square is made up of two sets of parallel lines	Lines that do not meet or cross and are always the same distance apart	
Perpendicular	Two sides of a square meet at a right angle. Therefore they are perpendicular	Two lines intersecting to form a right angle	
Perimeter	Find the perimeter of the hexagon	The total distance around the outside of a shape	
Area	Find the area of the rectangle	The 2D space taken up by an object or shape	
Equilateral triangle	All angles in an equilateral triangle equal 60°	A triangle with three equal angles and three sides of equal length	
Isosceles triangle	Identify the isosceles triangle	A triangle with two equal angles and two sides of equal length	
Scalene triangle	All sides are unequal on a scalene triangle	A triangle with three unequal sides	

<u>Word</u>	<u>Used in context</u>	<u>Definition</u>	<u>Example</u>
Polygon	Square, rectangle, triangle and pentagon are all examples of polygons	A closed shape with straight sides	 Quadrilateral Pentagon Hexagon Square Trapezium (UK) Kite
Quadrilateral	A rectangle is a quadrilateral	A four sided polygon	
Regular polygon	A pentagon with all sides the same length is a regular polygon	A polygon with all angles equal and all sides the same length	
Probability	What is the probability of flipping a coin and it landing on heads	The likelihood of an event happening	P(Heads) = 0.5
Data	Display the data in either a bar chart or a tally chart	A collection of facts e.g. numbers, measurements	Heights of students in a class, age of people visiting the cinema
Primary data	If you conduct a survey, you have collected primary data	Data collected from an original source	Surveys, experiments
Secondary data	I found a pie chart online displaying how people travel to work in London. This is secondary data	Data that has not been collected by the user	Data collected from the internet, experiments run by somebody else
Mean	To find the mean of a set of data, add all the numbers and divide by the frequency	The average of a set of values	$1, 4, 6, 5$ Mean = $16 \div 4 = 4$
Median	Find the median value	The middle value in a sorted list of numbers	1, 3, <u>7</u> , 8, 10
Mode	Find the modal value	The most frequent number	1, 4, 2, 3, 1, 6, 1 Mode = 1
Range	What is the range of the data?	The difference between the lowest and highest values	3, 7, 5, 2 Range = $7 - 2 = 5$

Week 1, 3, and 5- Can you recall the location of the bones.

Week 2- Look at the colour coding for different bones. Make sure



Types of Bones and their function– Can you link the role that the types of bones have to different sporting examples **Week 5**

Flat Bones (Cranium, Ribs, Clavicle, Sternum)	Protect vital organs and the brain
Long Bones (Humerus, Radius, Ulna, Metacarpals, Metatarsals, Phalanges, Femur, Tibia, Fibula)	Enable gross (large) movements– Running, jumping, kicking, throwing
Irregular Bones (Patella, Vertebrae Column)	Specifically shaped to protect.
Short Bones (Carpals, Tarsals, Talus) e.g. Using wrist to add spin to table tennis shot or spin bowling in cricket	Enable finer, controlled movements

Functions of the Skeletal System (Memory Tip: My super skeleton makes big plays) Week 6– Explain why we have a skeleton.



Movement	Occurs at joints (where two or more bones meet). Muscles contract and pull on bones.
Shape and Structure	Provide basic body shape
Support	Point of attachment for the muscles
Mineral Storage	Essential for major body functions (i.e. Calcium).
Blood Cell Production	Takes place in bone marrow. Red Blood Cells, White Blood Cells and Platelets.
Protection	Protect vital organs and decrease injury risk.

Types of Joints and movement produced

Hinge Joints- Knee (**Flexion and Extension**), Elbow (**Flexion**

Ball and Socket Joints- Hip and Shoulder (**Abduction,**

Religious Studies

1: What is a worldview?

- ⇒ A worldview is a collection of attitudes, values, stories and expectations about the world around us, which inform our every thought and action.
- ⇒ Everyone has a unique worldview.
- ⇒ A worldview is based on beliefs.
- ⇒ A worldview influences your actions and thoughts.
- ⇒ It makes up who you are as an individual.

Enquiry task: Look at each of the following beliefs and explain how they could influence someone's worldview.

1. Friends are more important than family.
2. There is NO afterlife.
3. Humans should not eat animals.

Challenge: Write out a different interpretation for each belief.

2. What builds a world view?

- ⇒ A worldview is built by personal experiences and beliefs.
- ⇒ This means worldviews can change over your lifetime as you experience more things in your life.
- ⇒ A sibling who has experienced the same things you have will still have a unique worldview as they will have had different feelings and understood things in their own unique way.
- ⇒ This means there is only one worldview that is the same as yours in the whole world.

Enquiry task: Explain 3 ways of your worldview changing since you were in primary school.

Explain 3 ways your worldview has not changed since primary school.

3. To what extent are beliefs unshakable?

- ⇒ There are many beliefs people have different opinions on.
- ⇒ People as a result of their beliefs have gone to great lengths to protect or show their beliefs publicly.
- ⇒ Some people have boycotted companies (refused to buy things from the company) or participated in marches/protests.
- ⇒ Others have gone to jail for their beliefs.
- ⇒ There are even individuals who have been killed for their own beliefs.



Enquiry task:

“There are some beliefs that should NEVER be supported.”

Evaluate the statement.

In your answer you need to include:

1 paragraph supporting the statement

1 paragraph of a different view

1 conclusion showing your personal view point

4. Different beliefs about God.

There are many beliefs about God throughout all of humanity.

These beliefs can be broken down into 3 main categories:

- ⇒ **Atheist** - A person who disbelieves or lacks belief in the existence of God or gods.
- ⇒ **Agnostic** - A person who believes that nothing is known or can be known of the existence or nature of God.
- ⇒ **Theist** - A person who believes in the existence of a god or gods, specifically of a creator who intervenes in the universe.

The belief about God is part of someone's worldview. This belief for some people never changes during their lives. For others their belief in God may change multiple times in their life time.

Enquiry task: Explain 2 beliefs about God. (4 marks)

5. Atheist verses Humanist worldview

An atheist believes that there is no God. Richard Dawkins is an atheist and he has a strong belief that religious “truths” harm society. He argues that just because something is believed to be true doesn’t mean it is true. Instead humans have a duty to believe in something only if there is evidence to support its existence. So humans should be motivated to find out the truth about the world.

A Humanist believes that there is no God. However unlike Dawkins they don’t believe the belief in a religious “truth” harms society. Instead humans should be motivated to be good people because there is no life after this one.

Enquiry task: Compare a humanist and a atheist view point.

6. Bonhoeffer—Christian case study

Dietrich Bonhoeffer was a German Christian who lived in Germany during WW2 and apposed Hitler’s regimes. The reason he did this was because Hitler’s ideals went against his own personal religious world view and the rules he lived his life by.



Dietrich Bonhoeffer followed the Golden rule during Hitler’s reign. “Do for others what you want them to do for you” Matthew 7:12. As a result of his belief he planned to assassinate Hitler to stop him from causing anymore pain/hurt to people. Bonhoeffer thought this was the most loving action as a Christian.

Enquiry task: Explain how plotting to kill Hitler was the most loving action.

Explain how Bonhoeffer was still following the Golden rule by plotting to kill Hitler.

. Doss—Christian case study

- ⇒ Desmond was an American Christian during WW2.
- ⇒ Desmond was heavily influenced at a young age by the Sixth Commandment of ‘Thou shalt not kill’.
- ⇒ During WW2 Desmond felt it was an honour to serve God and country, but he wanted to do it as a medic, by saving life instead of taking life.
- ⇒ Some of Desmond’s fellow soldiers believed he should carry a weapon for protection, but he told them that he would put his trust in God. He said that “they could do the fighting and I would do the patching”
- ⇒ In May 1945, his battalion were sent up on the top of a 400-foot-high cliff named Hacksaw Ridge to fight the Japanese.
- ⇒ In this battle about 75 men were wounded and could not move. Desmond was the only medic and would not leave his men.
- ⇒ He stayed at the top of the cliff and let them down one by one to where they could be taken on down to the aid station.
- ⇒ He kept praying: ‘Lord, help me to get one more.’ And Desmond felt God did help him that day. He got all the men down safely and did not get a scratch from the bullets that were going past him as he worked to help his fellow men.



Enquiry task: How did Doss’ worldview effect his service in during WW2?

How might someone argue that Doss was a war hero.

8. Nicky Cruz—Conversion Case Study

Nicky Cruz was born in Puerto Rico. When he was 15 his parents sent him to live with his brother in New York City. In the 1950s he became a member of the Brooklyn ‘Mau Mau’ street gang, and later was selected leader of the gang.

His life revolved around drugs, alcohol and violence. He was arrested many times and a court psychiatrist said that Nicky would be soon ‘heading to prison, the electric chair and hell’.

No one could reach Nicky until he met a Christian street preacher called David who was trying to stop the violence by teaching the gang about Christianity.

David showed Nicky something he had never experienced before: love, care and interest.

At a religious meeting David’s preaching of the gospel message of Jesus’ love and forgiveness got through to him. Nicky felt called to go to the front where he prayed and asked God to forgive him.

After this Nicky became a Christian and left the gang.

Enquiry task: Have you had an experience that changed your life dramatically?

Cruz converted to Christianity. Explain how his worldview changed by meeting David.

Keywords and their definition

1

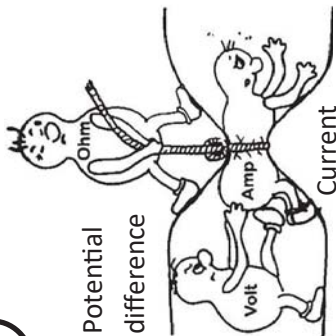
Keyword	Definition	Measured in
Potential difference	The amount of energy that an electron has between two points in a circuit. The energy is transferred to the electrical components in a circuit when electrons pass through them.	Volts (V)
Current	The flow of charge around the circuit	Amps (A)
Resistance	The measure of how easy it is for the current to flow around a circuit	Ohms (Ω)

Relationship between the variables

1

Resistance

Potential difference

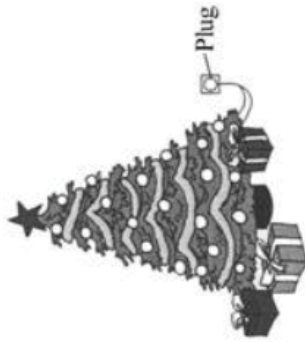


Resistance is restricting the current (flow of electrons) around the circuit.

The higher the resistance, the harder it is for electrons to flow around the circuit

A set of Christmas tree lights is made from twenty identical lamps connected in series

1

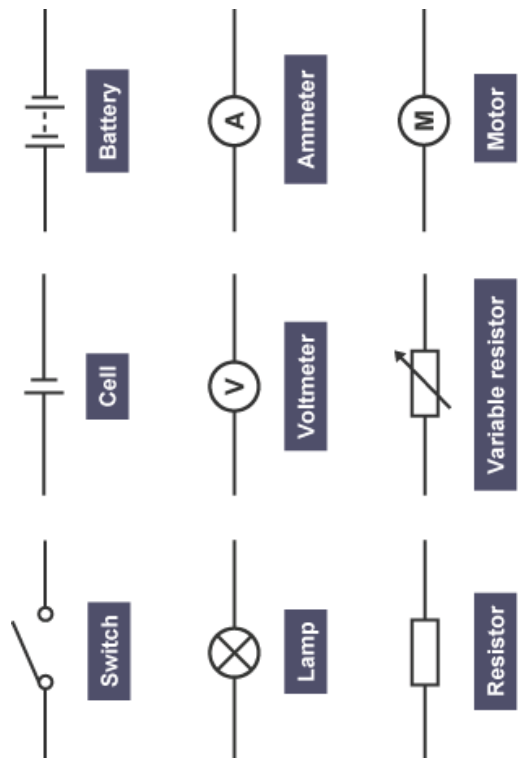


Each lamp is designed to take a current of 0.25 A. The set plugs directly into the 230 V mains electricity supply

- Write down the **equation** that links current, potential difference and resistance.
- Calculate the **resistance** of **one** of the lamps. Show clearly how you work out your final answer and give the unit.

Electric circuit symbols

2



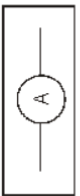
Measuring/ calculating the variables:

2

Current	Use an ammeter
Potential difference	Use a voltmeter
Resistance=	Potential difference / current

2

Draw a line from each circuit symbol to the correct name. lines.



ammeter

switch

motor

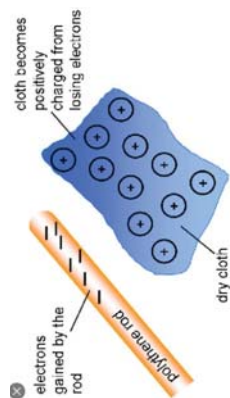
battery

bulb

Static Electricity

3

When you rub two different materials against each other, they become electrically charged. This only works for electrically insulated objects and not with materials like metals, which conduct. For example, if you rub an acetate plastic rod with a duster



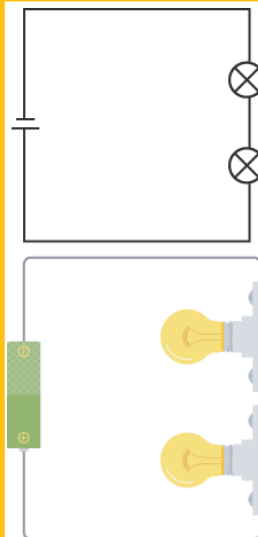
- electrons move from the rod to the duster
- the duster becomes negatively charged and the rod becomes positively charged

Task: research how static electricity could be removed from a charged item.

Series circuit

4

If you follow the circuit diagram from one side of the cell to the other, you should pass through all the different components, one after the other, without any branches.

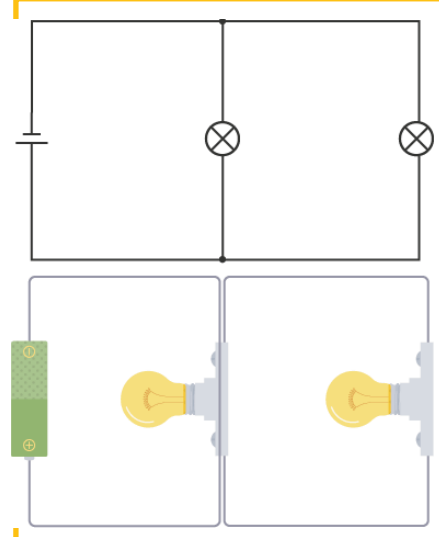


In a series circuit, if a lamp breaks or a component is disconnected, the circuit is broken and all the components stop working.

Parallel circuit

4

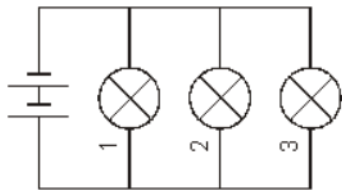
In a parallel circuit, different components are connected on different branches of the wire.



In a parallel circuit, if a lamp breaks or a component is disconnected from one parallel wire, the components on different branches keep working.

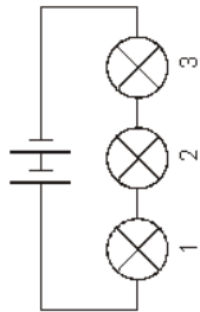
4th circuit below, **bulb 1 breaks** and goes off.

Under each circuit diagram below, tick the correct boxes to show if bulb 2 and bulb 3 are **on** or **off**.



circuit B

	on	off
bulb 1 breaks		?
bulb 2		
bulb 3		



circuit A

	on	off
bulb 1 breaks		?
bulb 2		
bulb 3		

Give the name of the part that provides energy for each circuit.

.....

Why is copper used for wires in a circuit?
Tick the correct box.

Copper does **not** stick to a magnet. ☐

Copper is a good conductor of electricity. ☐

Copper is a brown metal. ☐

Copper is a good conductor of heat. ☐

Motion—Calculating Speed

Speed is a measure of how **fast** something or someone is moving. The average speed can be calculated from the distance travelled and the time taken. You can calculate average speed using this equation:

$$\text{Speed} = \text{Distance} \div \text{Time}$$

$$s = d \div t$$

The unit for speed depends on the units for distance and time. For example:

- Distance = m (meters); time = s (seconds); **Speed = m/s (meters per second)**
- Distance = km (kilometres); time = h (hours); **Speed = km/h (kilometres per hour)**

Example:

Calculate the average speed of a runner who runs 100 meters in 10 seconds.

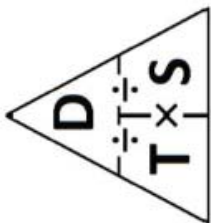
$$S = d \div t$$

$$S = 100 \div 10$$

$$S = 10 \text{ m/s}$$

Enquiry Task

Design an investigation to find out who is the fastest person in your class. Think about what measurements need to be taken and what equipment you will need. How will you ensure it is a fair test? How will you calculate their speed?



Distance—Time Graphs

When an object travels in a straight line, we can show the distance which has been covered in a **distance-time graph**

The line of the graph represents the speed the object is travelling at:

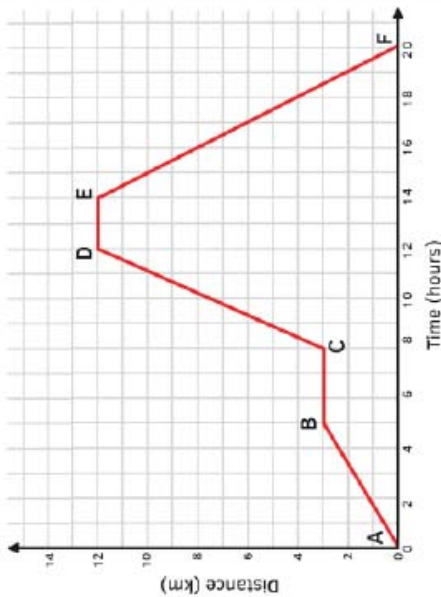
- A steeper line means more distance is covered in the same time, i.e. **the speed is faster**.
- A shallower line means less distance is covered in the same time, i.e. **the speed is slower**.

- When the line is horizontal it means the object is not moving at all, i.e. **it has stopped**.

Enquiry Task

Can you describe the journey of the object in the graph above between each point.

“from A to B the object is.....”. Include the keywords: Constant speed and Stationary,



Relative Motion

The motion of an object is always **relative** to the observer.

- * If two trains, A and B, are travelling at the same speed on the tracks parallel to one another it would appear to an observer on either train that both trains were at a standstill.
- * If the trains were travelling on parallel tracks towards each other at the same speed, then an observer on either of the trains would get the impression that the other train was travelling twice the speed of their train.

To calculate relative speed to an observer:

- * If the object is moving towards the observer, add the Speeds.
- * If the object is moving away from the observer, subtract the speeds

For trains moving parallel to each other

Observer 10m/s Object 10 m/s →
Relative velocity = 10—10 = 0 m/s

For trains moving in opposite direction

Observer 10 m/s object 10 m/s ←
Relative velocity = 10 + 10 = 20 m/s

Enquiry Task

1. Hannah's Ferrari goes a distance of 350 km in a time of 2 hours. What was her average speed in km/h?
 2. Kenny and Chris are walking down the road. They walk a distance of 250 meters in 30 seconds. What was their average speed in m/s?
- Rearrange the equation: $t = ?$ And $d = ?$
3. Amaro and Pete have robbed a bank. Their getaway car drives a distance of 45 kilometers at a speed of 15 km/h. How long did their journey take
 4. Gina and Justin are going to a party together. They walk at a speed of 3.4 m/s for 63 seconds. How far away is the party? (in **meters**)
- A. A car is travelling east at 15 m/s and another car is travelling west at 30 m/s. What is their relative speed?
- B. Two horses are racing parallel to each other galloping at 15 m/s. What is their relative speed to each other?

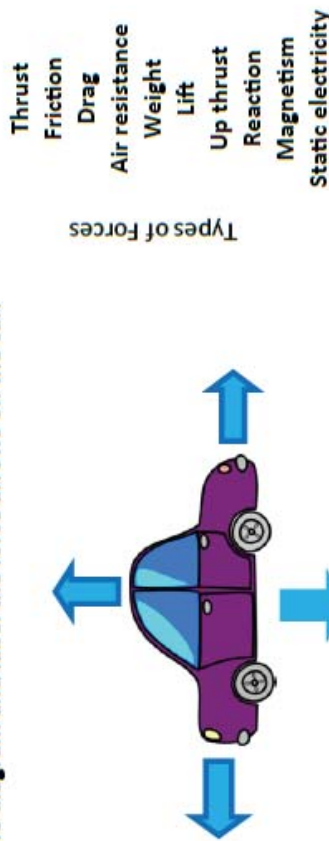
Forces

Forces are pushes or pulls between two objects. Force arrows can be drawn to show the direction the force is acting in. When a force acts on an object there will be a consequence:

- * The object can become deformed
 - * The object can become warm due to rubbing and the friction between two surfaces
 - * The object can be pushed out of the way
 - * The object can provide resistance to the motion of water or air.
- Forces act in opposite pairs and force arrows are drawn to show this.

Enquiry Task

Draw the diagram and label the force arrows on the car.



Mass and Weight

Mass

Mass is the amount of matter an object is made up of. Mass is measured in **kg**. The value of mass will stay the same when the location of the object changes.

Weight

Weight is the total amount of force acting on an object due to gravity. Weight is measured in Newton's (N). The value of weight will change depending on the gravitational field strength acting upon the object.

To calculate weight we use the equation:

$$\text{Weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/kg)}$$

$$W = m \times g$$

The gravitational field strength on Earth is 10N/kg

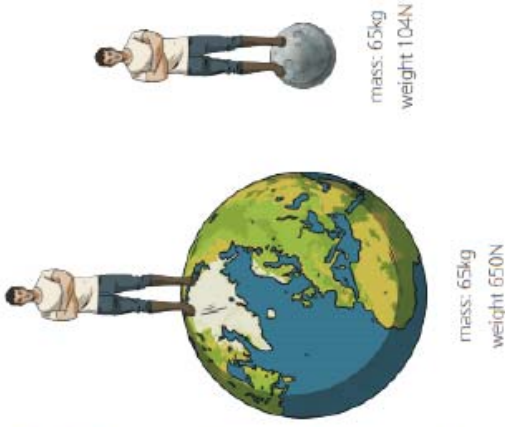
Mass and Weight

All matter has a mass which means all matter will have a gravitational field strength that will attract other matter. The more mass an object has the more gravitational force it will have.

The Earth is a much larger object than the Moon, this means the Earth has a stronger gravitational field strength.

The size of the force also depends on the distance between the two objects. The closer they are the stronger the force.

Gravity always acts towards the centre of the object.



Enquiry Task

1. Draw a simple diagram of a boat and show the forces acting upon it as it floats and moves forward at constant speed.
2. Explain the relationship between gravity and weight.
3. Using the equation **weight = mass x gravitational field strength**, calculate the following.
 - a) Calculate the weight of an object on Earth when its mass is 15 kg and the force of gravity is 10 N/kg?
 - b) What would the weight of the object be if it was on the Moon? Gravity on the moon is 0.6 N/kg?
 - c) Can you explain why the mass of the object stays the same but its weight decreases when it is on the moon?

EXTENSION

Explain how 'reduced gravity aircraft' (also known as vomit comets) can reproduce conditions of zero gravity.

RESPIRATION:

1

We need energy for movement, warmth, growth and to keep all organs working. We get energy from respiration. The differences between oxygen and respiration are outlined in the table below:

	Respiration	Breathing
What it is	Chemical reaction	Physical movement of gases
Where it takes	In mitochondria inside of cells	In lungs
What the process involves	Glucose + oxygen → carbon dioxide + water	Air that contains oxygen and carbon dioxide moves through respiration

When oxygen is available, plants and animals transport it, together with glucose, to tiny structures in their cells, called mitochondria. Here, the glucose and oxygen take part in **aerobic respiration** which produces energy

Aerobic respiration makes two waste products: **carbon dioxide and water**. Animals remove carbon dioxide from their bodies when they breathe out. In daytime, plants use some of this carbon dioxide for photosynthesis. At night, they release the carbon dioxide to their surroundings.

Most living things use aerobic respiration but switch to **anaerobic respiration**, which provides less energy, when oxygen is unavailable.

RESPIRATION AND EXERCISE:

2

When you need to transfer energy from glucose to your muscles very quickly (for example in intense exercise), your body cannot get oxygen to its muscles quickly enough for aerobic respiration to occur; the glucose breaks down **without oxygen**.

The **anaerobic respiration** equation:

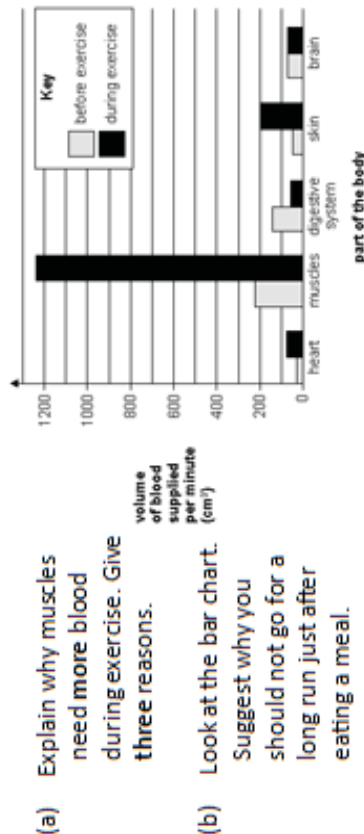


Unfortunately this can lead to **painful muscle cramps**. When you finish exercising you keep breathing heavily to get the oxygen needed to break down the lactic acid. This is called the oxygen debt.

When people exercise, the volume of blood per minute needed to supply different parts of the body changes.

1

This is shown in the bar chart below



- Explain why muscles need **more** blood during exercise. Give **three** reasons.
- Look at the bar chart. Suggest why you should not go for a long run just after eating a meal.
- Why is it important that the blood supply to the brain stays constant? Explain why muscles need **more** blood during exercise.

2

Paula is training for a marathon. When she runs, her heart beats faster than it does when she is resting.

Complete the sentences, using words from the box.

blood	breathe	carbon dioxide	glucose
heat	nitrogen	oxygen	respire

When she is running, Paula's muscle activity increases. To do this, her muscle cells at a faster rate to give her more energy. Her muscles need to be supplied with and more quickly. Her heart beats faster to increase the flow if which carries the products away from her muscles. and

3 Photosynthesis

Photosynthesis is the process by which plants make glucose from Carbon dioxide and water using light energy from the Sun.



The glucose is used for energy, to build new tissues or to store as starch.

Plants and algae make their own food (glucose) through photosynthesis. They have specially adapted organs that allow them to get what they need for photosynthesis. Plants and algae can only carry out photosynthesis in the light.

FACT: iodine can be used to test the presence of starch. Iodine turns black in the presence of starch.

4

Carbon dioxide: Plants get the carbon dioxide they need from the air through their leaves. It moves by diffusion through small holes in the underside of the leaf called stomata. Guard cells control the size of the stomata so that the leaf does not lose too much water in hot, windy or dry conditions.

Water: The water needed for photosynthesis is absorbed through the roots and transported through tubes to the leaf. The roots have a type of cell called a root hair cell. These cells have a big surface area and thin walls. This lets water pass into them easily. Since they are in the soil, they do not have chloroplasts nor can they photo-

SUNLIGHT synthesis.

Sunlight: Photosynthesis takes place inside plant cells in small objects called chloroplasts. Chloroplasts contain a green substance called chlorophyll. This absorbs the light energy needed to make photosynthesis happen.

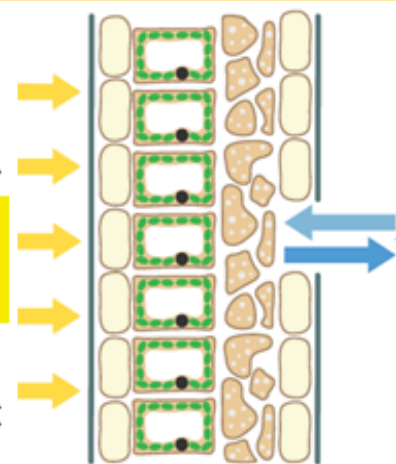


Fig. 1

Exchange of gases through stomata

You will need to complete extra research for these questions

3 TASK:

- Can you write the word equation for photosynthesis?
- Which part of a plant cell absorbs light energy?
- The ends of roots are normally covered in tiny root hair cells. What is their function?



Number the sentences to explain how to test a leaf for starch.

	Cover the leaf with iodine – the areas with starch in will stain black
	Take the leaf out of the ethanol carefully as it will be brittle – then wash it in the water bath to soften it.
	Place the leaf in boiling water for 1 minute to stop it photosynthesising
	Spread the leaf out on a white tile
	Place a test tube full of ethanol into the hot water and place the leaf into the ethanol – this will remove the chlorophyll

4 TASK:

- Copy and label the diagram of the leaf (fig. 1).
- What is the purpose of the small holes in the lower layer of the leaves?
- Tick **one** box in each row to show whether the statement is true for photosynthesis or for respiration.

statement	photosynthesis	respiration
carbon dioxide is produced		
light is needed		
it occurs in plants and animals		
oxygen is produced		



Need to Know Dictionary: English

Word	Definition
Imagery	Where the writer uses words to paint a picture to help the reader visualise what is being described.
Tone	The feelings and atmosphere created by language.
Stanza	A group of lines in a poem. Like a 'paragraph' in a poem.
Simile	A comparison using 'as' or 'like'.
Metaphor	A metaphor is a word or a phrase used to describe something as if it were something else.
Repetition	When a word, image or phrase is repeated in a text.
Theme	A recurring idea in a text.
Personification	When non-human objects are given human characteristics or form.
Alliteration	The repetition of the same letter at the beginning of two or more words.
Rhyme	The repetition of similar sounds.

Need to Know Dictionary: Math

Word	Definition
Trapezium	a quadrilateral with at least one pair of parallel sides
Surface area	total area of the surface of a three-dimensional object measured in square units
Cuboid	a polyhedron or 3D shape - a right prism with six rectangular faces, sometimes referred to as a right rectangular prism
Ratio	commonly a ratio is the comparison of two values of the same kind, which may be written as a to b, a:b
Equivalent ratio	ratios that are in proportion, e.g. 4:5, 8:10 and 16:20
Translation	move an item in any direction without rotating it
Quadrilateral	a polygon with four angles and four sides
Polygon	a plane shape having three or more straight sides
Perpendicular	at right angles to the horizon or another object
Data	data is a collection of information gathered by observation, questioning or measurement



Need to Know Dictionary: Science

Word	Definition
Electrical Conductor	A material that allows current to flow through it easily, and has a low resistance.
Electrostatic Force	Non-contact force between two charged objects.
Resistance	A property of a component, making it difficult for charge to pass through, in ohms (Ω).
Ecosystem	The living things in a given area and their nonliving environment.
Environment	The surrounding air, water, and soil where an organism lives.
Interdependence	The way in which living organisms depend on each other to survive, grow, and reproduce.
Community	The collection of the different types of organisms present in an ecosystem.
Resultant Force	Single force that can replace all the forces acting on an object and have the same effect.
Equilibrium	a state of rest or balance due to the equal action of opposing forces.
Gravitational force	A non-contact force that acts between two masses

Need to Know Dictionary: Geography

Word	Definition
Population distribution	The pattern of where people live and how spread out the population is.
Low Income Country (LIC)	A country with a gross national income per capita (per person) of \$1,025 or less.
Natural Increase	Birth rate (Number of babies being born per 1000 people per day) - Death rate (Number of people dying per 1000 people per day).
Overpopulation	when a country has too many people for the number of resources available.
Voluntary migrant	Someone who chooses to move.
Refugee	A person who has been forced to leave their country in order to escape war, persecution or natural disaster.
Rural-Urban Migration	Where people move from the countryside (rural areas) to the city (urban areas) within their own country.
Birth rate	the number of births in a country, usually recorded per thousand/per year
Death rate	the number of deaths in a country, usually recorded per thousand/per year
Population density	The number of people per area (mile/KM)



Need to Know Dictionary: French

Word/ Definition/ In a sentence/ Word Knowledge

- 1 Francophone (noun)** - A person who speaks French, especially a native speaker. Madagascar is a francophone country. The suffix 'phone' means 'sound' or 'speaking'.
- 2 Accent (noun)** - A mark indicating stress, vowel quality, form or pitch. The symbols above or below letters in French are called accents. From the Latin 'cantus' which means 'singing'.
- 3 Phonics (noun)** - A method of teaching people to read by matching sounds with letters or groups of letters. It is important to learn your phonics so you can pronounce words correctly. The prefix 'phone' means 'sound' or 'speaking'.
- 4 Language (noun)** - The main method of human communication. The French language is spoken by 220 million people. From the Latin 'lingua' meaning 'tongue'.
- 5 Indefinite article (noun)** - The word 'a' or 'some'. In French, there are two indefinite articles, depending on whether the noun is masculine or feminine. The indefinite articles in French are: 'un' or 'une'.
- 6 Definite article (noun)** - The word 'the'. In French, there are three definite articles, depending on whether the noun is masculine, feminine or plural. The definite articles in French are 'le', 'la' or 'les'.
- 7 Conjugate (verb)** - To change the verb, depending on who is performing the action. To conjugate a verb, you must start with the infinitive. The prefix 'con' means 'to join'.
- 8 Adjective (noun)** - A word that describes a noun. In French, the adjective must agree with the noun it's describing, both in gender and number. From the Latin meaning 'added to'.
- 9 Infinitive (noun)** - The verb in its unchanged state. An infinitive ends in either -er, -ir or -re. The Latin root word 'fin' means 'end'.
- 10 Cognate (noun)** - Cognates are words that share similar meaning, spelling and pronunciation. When trying to work out meaning, you should look for cognates. From the Latin word meaning 'of common descent'.

Need to Know Dictionary: History

Word	Definition
Banner	A flag that represents a group, person, or idea.
Cavalry	Soldiers on horseback
Century	100 years
Contemporary	At the same time of the event or person
Contender	A person who has a chance of winning
Decade	10 years
Intimidate	To scare or frighten
Morale	A feeling about how well or badly something is going
Rebellion	To fight back against the people in charge
Siege	To surround and wait for your enemy to give up



Need to Know Dictionary: Design and Technology

Word	Definition
Engineering	The branch of science and technology concerned with the design, building, and use of engines, machines, and structures.
Design	A process which includes: identify a problem, research the problem, generate possible solutions, select the best solution, create a model, test the model, refine and retest the model, and communicate the final solution.
Manufacture	Make (something) on a large scale using machinery.
Ergonomics	Designing for ease of use, comfort and making a task easier and more efficient.
Aesthetics	Designing for visual appearance, aiming to make a product look attractive / beautiful, visually appealing.
Sustainable	Designing products that cause less or no harm to the environment.
Pine	An evergreen coniferous tree which has clusters of long needle-shaped leaves. Many kinds are grown for the soft timber, which is widely used for furniture.
Tenon saw	A small saw with a strong brass or steel back for precise straight cuts.
Try-square	A try square or try-square is a woodworking tool used for marking and checking 90° angles on pieces of wood.
Steel rule	More accurate than a plastic ruler and often has half millimetres as well as millimetres.

Need to Know Dictionary: Art

Word	Definition
Emphatic	expressing something forcibly and clearly.
Evoke	Bring or recall (a feeling, memory, or image) to the conscious mind.
Expressive	Effectively conveying thought or feeling.
Composition	The position and layout of shapes on the paper
Post Impressionism	An art movement that explored colour, line, and form, and the emotional response of the artist.
Art movement	Is a tendency or style of art with a specific common philosophy or goal, followed by a group of artists during a specific period of time.
Psychiatric	relating to mental illness or its treatment.
Refine	To develop and improve a piece of artwork.
Formal Elements	The formal elements of art are the parts used to make up a piece of artwork.
Line	Defines shape, the outer edges of something.



Need to Know Dictionary: Drama

Word	Definition
Physical theatre	is a type of performance where physical movement is the primary method of storytelling; puts emphasis on movement rather than dialogue.
Cross- Cutting	is a device to move between two or more scenes staged in the space at the same time.
Tension	A sense of anticipation or conflict within characters or character relationships.
Atmosphere	the interaction between the audience and the mood of a drama performance.
Improvisation	created spontaneously or without preparation (making it up as you go along).
TIR	Teacher in Role refers to the teacher working in role, within class drama.
Role play	Communicating a story using physical and vocal skills.
Narrating	is adding a spoken commentary for the audience about the action onstage.
Vocal skills	Pitch, Pace, Pause, Emphasis, Volume, Accent.
Soundscape	Performers create sounds to mimic a real or imaginary environment.

Need to Know Dictionary: Music

Word	Definition
Melody	Melody is a series of different tones, or sounds, in a piece of music (tune)
Accompaniment	is the music that accompanies (goes with) something else. (A piece of music may have a melody (tune) and an accompaniment underneath).
Chords	in music is when three or more notes are played together at the same time.
Orchestra	An orchestra is a large group of musicians who play together on a variety of string, wind and percussion instruments.
BPM (beats per minute)	Unit of measurements of a piece's tempo.
Music notation	is a way of writing down music so that anyone can play it.
Treble Clef	shows you the notes to play with your right hand
Quaver	is a musical note that lasts half a beat.
Semiquaver	is a musical note played for half the duration of a quaver.
Semitone	is the distance from a white key to a neighbouring black key on the piano keyboard.



Need to Know Dictionary: PE

Word	Definition
Types of bone:	
Flat Bones	Protect vital organs and the brain. (Cranium, Ribs, Clavicle, Sternum)
Long Bones	Enable gross (large) movements– Running, jumping, kicking, throwing. (Humerus, Radius, Ulna, Metacarpals, Metatarsals, Phalanges, Femur, Tibia, Fibula)
Irregular Bones	Specifically shaped to protect. (Patella, Vertebrae Column)
Short Bones	Enable finer, controlled movements. (Carpals, Tarsals, Talus)
Functions of the Skeletal System:	
Movement	Occurs at joints (where two or more bones meet). Muscles contract and pull on bones.
Shape and Structure	Provide basic body shape.
Support	Point of attachment for the muscles.
Mineral Storage	Essential for major body functions (i.e. Calcium).
Blood Cell Production	Takes place in bone marrow. Red Blood Cells, White Blood Cells and Platelets.
Protection	Protect vital organs and decrease injury risk.

Need to Know Dictionary: Religious Studies

Word	Definition
Equality	the state of being equal, especially in status, rights, and opportunities.
Prejudice	unfairly judging someone before the facts are known; holding biased opinions about an individual or group.
Discrimination	actions or behaviour that results from prejudice.
Heterosexual	to be sexually attracted to members of the opposite sex.
Homosexual	to be sexually attracted to members of the same sex.
Exploitation	misuse of power or money to get others to do things for little or unfair reward.
Human rights	the basic rights and freedoms to which all human beings should be entitled.
Protest	an expression of disapproval, often in a public group.
Persecution	is the systematic mistreatment of an individual or group by another individual or group.
Reconciliation	restoring harmony after relationships have broken down.



Need to Know Dictionary: Food Technology

Word	Definition
Combine	This refers to when ingredients are mixed together when following a method for a recipe. For example this could be combining yeast and bread flour with water to make bread dough or to combine sugar with butter and then adding the eggs and flour to make a cake.
Knead	You knead the bread dough to make it smooth and stretchy. The palm of the hand is used to push the dough away from you then it is pulled back towards you by folding it back over from the front then it is pushed away again. This is repeated to make the dough soft and stretchy and it activates the gluten in the flour along with the yeast.
Consistency	This refers to how a food holds together or what it looks and feels like. The consistency of a sauce could be thick or runny, smooth or lumpy
Incorporated	This refers to different ingredients being mixed together to make one thing such as bread dough, pastry and cheese sauce.
Equal	This refers to quantities being the same such as cake mixture being divided into cupcake cases or equal amounts of bread dough to make into rolls.
Even	This refers to products made evenly when cut out or shaped such as scones being all the same size and height. It could also refer to the surfaces being flat and smooth.
Presentation	How something looks when it is made and then presented on a plate or dish. It could be the edges of a pie or cupcake icing that has been presented in a decorative way or the meal may have been displayed on a plate with a salad garnish to make it look good and appetising.
Management	This could refer to time management where you are planning your time when preparing a dish to ensure the dish and its accompaniments (side dishes) are ready at the same time or management within a team working in a kitchen environment.
Method	When making a dish or a product a method is followed using step by step instructions. This helps to get each ingredient combined together in the correct order and prepared correctly as well.
Independent	Where you work on your own or follow a recipe by yourself with no help from others.

Need to Know Dictionary: ICT

Word	Definition
Storyboard	A visual way to present information, created in a linear way to help explain a story, a process, a set of sequential drawings to tell a story.
Storyline	The plot of a story in a comic and the way in which it develops.
Comic genre	The style of comics e.g. fantasy, comedy, action, super hero, manga.
Textables	Speech or thought bubbles which contain a comic character's words. Used to help tell a story.
Infographic	A diagram or illustration that uses graphics to present information in a visually appealing way.
Edit	Changing, correcting or modifying an element of design.
Panel	One of the boxes on the page of a comic.
Webcomic	Comics that are made for viewing on the Internet.
Gutter	The space between the panels of a comic.
Caption	Words that are in a box separated from the rest of the panel, usually to give voice to a narrator, or used for a character's thoughts.