



ALL SAINTS
ACADEMY PLYMOUTH



**NEED TO
KNOW
BOOK**

**Year 8
Spring Term 2024**



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 compete up to 1hour 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 <i>Maths</i>	Subject <i>English</i>	Subject <i>Science</i>	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 _____

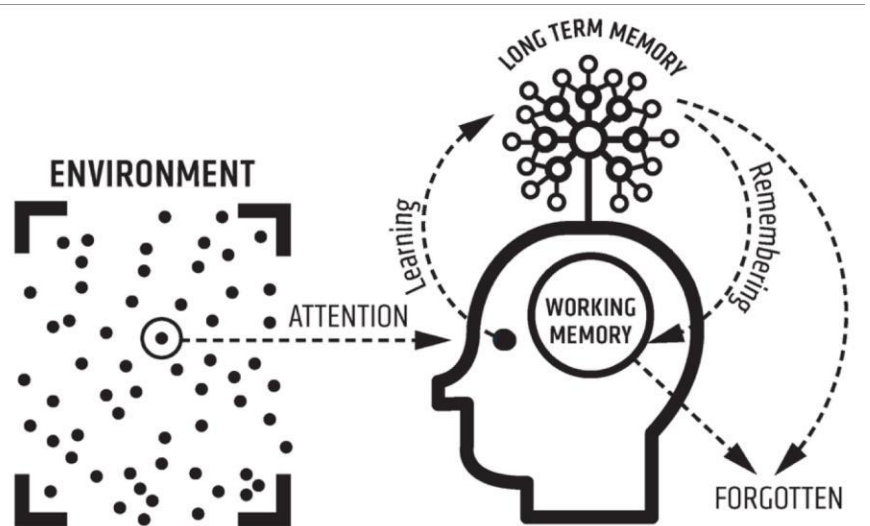
Tutor

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.

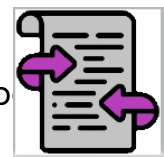
You can support your working memory by storing key facts and processes in long-term memory. These facts and processes can then be **retrieved** to stop your working memory becoming overloaded.



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.

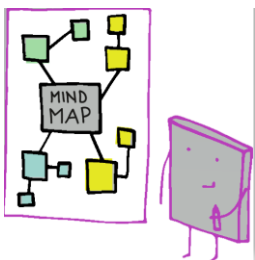
There is strong scientific evidence from cognitive psychology that shows the benefits of **self-quizzing** in promoting **retrieval strength**. This is your ability to quickly recall key facts related to your subject or topic

How should I self-quizz 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.



Visit our amazing careers section of the ASAP website or use your UNIfrog account to help you make those all important decisions for your future.

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

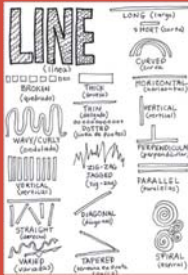
Support — Opportunities — Choosing a career — Parents guide — Writing a CV — Employability skills

Year 8: Hundertwasser and Architecture

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

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



Tone

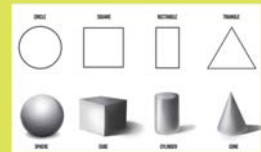
Tone means the lightness and darkness of something. This could be a shape and/or how dark or light a colour appears.



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

Colour

There are three primary colours:

Red, Yellow, Blue

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

Orange, Green and

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. }

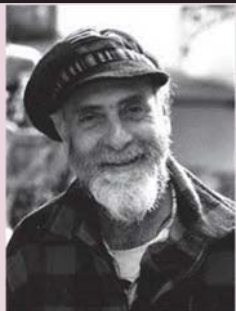
Complementary.... { Opposites on the color wheel are complementary. }

Analogous.... { Colors that are close neighbors on the color wheel are analogous. }

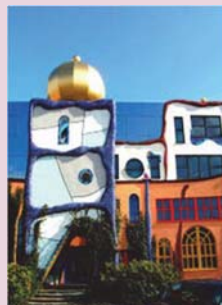
Rainbow.... { Using primary and secondary colors placed in order from the color wheel, I can make a rainbow }

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

Art & Design



Friedensreich Hundertwasser was an artist and an architect. He was born in Austria, but also had the nationality of New Zealand where he spent his later life. Hundertwasser was well known for his creative, colourful and abstract artwork. This artwork was reflected clearly in his architecture. He believed that architecture was another form of art and expression and that everyone should have the right to build. He was also famous for disliking the straight line and this is evident in all of his work. Hundertwasser other great passion was his love for the environment. He was an environmentalist and eco-activist. He designed original posters in support of the protection of nature, against nuclear power, for the saving of the oceans and the whales and for the protection of the rainforest, to name only a few examples.



Enquiry Task: At the start of your next lesson, you will be quizzed on what you have learned during this project. Spend time learning the meaning of these keywords and the concepts we have used. Parental signature required to show that 30min of revision has taken placed.

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.
Pattern	A repeated shape or line.
Texture	The feel or appearance of a surface, how rough or smooth it is.
Proportion	The size and shape of one object in comparison to another.
Relief	A relief is a wall-mounted sculpture in which the three-dimensional elements are raised from a flat base
Architect	A licensed professional trained in the art and science of building design.
Biomorphic shapes	Shapes that bear resemblance to fingerprints.
Collage	Sticking art materials down to create artwork.
Mixed media	Artwork made up of a mixture of art materials.
Photomontage	Creating an image by cutting, gluing and overlapping photographs.

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	RECORD	Observational drawings Collecting image Taking photos Annotating your work	PRESENT	Produce a final piece Link to prep work from project.
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Week	I will need to know:	So that I can:
1 Design Brief	A designer or engineer will begin every project with a design brief . This is either created with the client or given to the designer by the client. The client is the person or company requiring the design of the new product. A design brief will include important details about the requirements of the product to be designed. After receiving the design brief, the designer will begin market research in order to learn more about the target market and similar products already out there.	Respond to a design brief effectively.
2 Design specification	After the research phase, designers and engineers will write a design specification . This is a list of detailed and measurable criteria for the success of the product . It will take account of all that has been learnt in the research and state clearly what the product must be like. This includes, cost, materials, manufacture, features, ergonomics and aesthetics as well as other things too. This will then be used while designing to ensure that the designer is keeping on the right track.	Create and follow a design specification and design successful products as a result.
3 Generating design ideas	Designers will use many techniques to create a wide variety of designs. As the designer will want to find the best possible solution, they will produce a great many quick sketch ideas at the start. This allows them to narrow down to the best ideas often with the help of the client. Techniques include biomimicry (finding inspiration in natural forms) and user centred design (thoroughly investigating the user and their requirements while designing accordingly)	Create a variety of appropriate design ideas in response to a design brief.
4 User requirements	The user is the person that will buy or use the product. We talk about the target market when we are considering what type of people these are. Designers will investigate the user in order to hope to solve the issues they raise with the product. To find out what the requirements of the user are designers often carry out a focus group where they make a group of their target market and ask them questions. Sometimes product observations are useful where the designer will observe a product being used and then ask the user questions in order to improve the design.	Design products that meet the needs and wants of the user.
5 Product Analysis	Designers will investigate similar or competitor products to ensure that the product they design will be competitive and to learn from all the design decisions that have taken place in the design of the product. Often ACCESSFM is used, this is where the designer will analyse a product in terms of Aesthetics, Customer, Cost, Environment, Size, Safety, Function, Materials and Manufacture.	Create products that are effective and competitive.
6 Sustainable products	Products that are better for the environment are called sustainable products. A product can be sustainable in many ways. A re-usable plastic bottle will prevent hundreds of disposable plastic bottles being needed. An electric vehicle will produce less harmful emissions and use less fossil fuel. Products which have spare parts available can be repaired and made to last longer therefore not needing to be replaced. Some products are made to be biodegradable .	Be responsible and protect our planet through my design decisions.
7 The 6 Rs	These should be considered when designing any product and will help the designer create a more sustainable product . Recycle (can materials be recycled?), Re-use (can parts be used again?), Reduce (can less material or energy be used?), Re-think (can the design be changed), Refuse (refuse to use harmful materials or processes), Repair (spare parts? Easy to fix?)	Be responsible and protect our planet through my design decisions.
8 Quality Control	When manufacturing products, it is important that quality control checks are in place. These checks will ensure that the components or products are not faulty. These will take place at the end of manufacturer but also after each of the main stages of manufacture. The earlier mistakes are spotted the less likely an expensive problem will occur.	Make quality products that are consistent.
9 Testing and evaluating a prototype	Prototypes are models of a design, these are created so that a concept can be tested. Prototypes are carefully tested to see if they function as intended, look appealing to the target market, fit with other components, are strong enough and more. Evaluating prototypes takes account of these tests and looks at ways the design can be improved further.	Develop products to their best possible outcome.

Year 8 English – The Woman in Black

Text Summary:

The *Woman in Black* is a ghost story by Susan Hill. Arthur Kipps retells his haunting experiences at Eel Marsh House.

The tale begins on Christmas Eve, when Arthur's step-children invite him to tell a ghost story. Arthur is too disturbed by his memories to share his story aloud, so he writes it down. In his story, a young Arthur Kipps, a junior solicitor, is sent to settle the affairs of Alice Drablow. He sees a woman dressed in black at her funeral, though apparently no one else does. At Eel Marsh House, Arthur is haunted by noises and sightings of the woman. Eventually a local man, Sam Daily, reveals the full story of how Alice Drablow's sister, Jennet, haunts the house. He explains that a child dies each time the woman in black is seen. At the end of the story, Arthur sees the woman in black again.

Gothic Genre

Gothic writing is a **genre** of writing. This means that it includes some specific **conventions**. In gothic writing there are 7 conventions that are included.

1. Supernatural
2. Tension or fear
3. Aspects of the past
4. Sense of being isolated
5. Spooky uninhabited settings
6. Gloomy, dark atmosphere
7. Mystery



'The Woman in Black' is set in the early-1900s. In the early 1900s, King **Edward VII** was on the throne. This was **Edwardian** England. The time is called the **Edwardian era**. Edwardian daily life was quite different to ours. For example, there was very little of the technology we have today: landline telephones had been invented, but were still rare; there was no TV, no computers, no internet! most of the travelling is done by steam train, bicycle or pony and trap.

Key themes: Isolation Gothic Horror

The Past Trauma

Key Words

Definition

Tension	The feeling that something is about to happen.
Suspense	A feeling of excitement or uncertainty about what is going to happen.
Sinister	Cruel treatment by authorities.
Foreboding	The feeling that something bad is going to happen.
Foreshadowing	A hint or suggestion that something will happen later on.
Supernatural	Something that cannot be explained by science
Genre	A style of literature, film, music or art that follows certain rules.

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.



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.

Foods high in fats and sugars.

Eat less often and in small amounts.

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.

Oils and spreads (fats).

Choose unsaturated oils and use in small

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



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 8 French - Cycle 2



Week 1	Week 2	Week 3	Week 4	Week 5
<p>Week 1</p> <p>l'automne (m) - autumn l'été (m) - summer l'hiver (m) - winter le printemps - spring le musée - museum la place - (town) square la saison - season belge - Belgian (m/f) dernier - last (m) dernière - last (f) pendant - during la Belgique - Belgium Bruxelles - Brussels</p>	<p>Week 2</p> <p>emporter - to take with / taking with proposer - to suggest (doing) / suggesting (doing) traverser - to cross / crossing voyager - to travel / travelling la frontière - border la forêt - forest la montagne - mountain la vue - view suisse - Swiss (m/f) la Suisse - Switzerland Genève - Geneva il y avait - there was / were</p>	<p>Week 3</p> <p style="text-align: center;">Revision of Cycle 1 vocabulary</p>	<p>Week 4</p> <p>gérer - to manage (something) / managing (something) il/elle gère - he/she manages / is managing l'espace (m) - space le goût - taste la langue - language, tongue le plat - dish la recette - recipe le repas - meal d'abord - first of all puis - then par - by puisque - as, because Noël - Christmas la réveillon - Christmas Eve / New Year's Eve</p>	<p>Week 5</p> <p>la carte - menu à côté - nearby à coté de - next to le foot / football - football la guitare - guitar l'instrument (m) - instrument la pétanque - boules le piano - piano droit - right à droite - on the right gauche - left à gauche - on the left loin - far loin de - far from près - nearby près de - near, close to</p>
<p>Week 6</p> <p>acheter - to buy / buying coûter - to cost / costing peser - to weigh / weighing je pèse - I weigh / I am weighing il/elle pèse - he/she weighs / he/she is weighing l'eau (f) - water l'euro (m) - euro l'exercice (m) - exercise le fromage - cheese la glace - ice cream la natation - swimming le pain - bread le poisson - fish le sport - sport le travail - work</p>	<p>Week 7</p> <p>boire - to drink / drinking il/elle boit - he/she drinks / he/she is drinking gagner - to win / winning l'argent (m) - money la chance - luck le lait - milk le café - café, coffee le thé - tea la viande - meat le verre - glass un peu - a little (bit) beaucoup - a lot</p>	<p>Week 8</p> <p>apprendre - to learn / learning comprendre - to understand / understanding dire - to say / saying sortir - to go out / going out dormir - to sleep / sleeping devenir - to become / becoming partir - to leave / leaving beau / belle - beautiful aujourd'hui - today l'année - year le mois - month parfois - sometimes</p>	<p>Week 9</p> <p>sortir - to go out / going out nous sortons - we go out / are going out vous sortez - you (pl) go out / are going out venir - to come / coming nous venons - we come / are coming vous venez - you (pl) come / are coming sans - without s'il te plaît - please s'il vous plaît - please (formal) possible - possible seul - alone salut - hi le papa - dad la maman - mum</p>	<p>Week 10</p> <p style="text-align: center;">Revision of Cycle 2 vocabulary</p>

YEAR 8 CYCLE 2 GEOGRAPHY – Development & Resources Knowledge Organiser

WEEK 1

Development: the process of change by which people reach an acceptable standard of living or quality of life.

Gross National Income (GNI): the total value of goods and services in a country as well as income earned from investments overseas.

Birth and death rate: the number of people who are born/die in a year per 1000 people
In 2016, the richest 20% consumed 80% of the world's resources.

WEEK 2

Causes of **uneven development** around the world can be physical and human.

Physical factors: climate, natural disasters, mountainous land, being landlocked (means not having a coastline which has prevented trade), quality of soils, available natural resource
Human factors: colonial past (governed by other countries e.g. British Empire), education, political unrest, poor governance, war and conflict, disease and debt.

WEEK 3

Quality of life: the general wellbeing of people which includes income, health, education, employment and the environment.

North-South divide: refers to the economic and social differences between Southern England and the rest of Great Britain. The divide cuts through the Midlands.
In the north, life expectancy is lower, there is more unemployment and you are less likely to achieve high grades at school.

WEEK 4

Employment structure: dividing businesses and industries into sectors

Primary industries: involve collecting raw materials such as farming, mining & fishing
Secondary industries: making the raw material into a product e.g. factory worker
Tertiary industries: providing a service e.g. teacher, policeman
Quaternary industries: information and technology e.g. space science, pharmaceuticals

WEEK 5

Sustainable Development

Goals (SDGs): 17 goals defined by the UN in 2015. These goals call for action by all countries and aim to end poverty, fight inequality and injustice and tackle climate change by 2030.
Send a Cow: a charity which started in 1988 by sending cows from the UK to parts of Africa including Kenya and Uganda. They now teach farming techniques such as water harvesting, vegetable growing and tree planting.

WEEK 6

Natural resources: substances found in nature which can be used by humans e.g. wood, minerals and water.
Non-renewable: substances which are limited and so will run out one day or cannot be replaced during our lifetime e.g. oil.

Water scarcity: a lack of freshwater resources available to meet the demands of water use in an area.

Fossil fuel: a natural hydrocarbon fuel such as petroleum, coal or gas formed from the fossilised remains of ancient plants and animals.

WEEK 7

Crude oil: naturally occurring and unrefined petroleum that can be refined into diesel, petrol, gasoline, kerosene and other petrochemicals.

The Middle East region holds 48% of the world's oil reserves and 43% of the world's natural gas.

It has experienced 570 million years of uninterrupted sedimentation, an ideal setting for the creation of **hydrocarbons**.

Oil was discovered in 1908 in what is now Iran.

WEEK 8

Russia produces 20% of the world's natural gas and is the world's leading producer of oil. Russia **exports** steel and aluminium.

About 20% of the world's forests lie in Russia, supplying much of the world's timber including pine and cedar.

In 2007, Russian explorers carried out scientific research on the ocean floor, 4200 m below the North Pole. Two mini submarines planted a one-metre high titanium Russia flag on the underwater Lomonosov ridge.

WEEK 9

Iceland has the highest percentage of **renewable energy** contributing to its energy mix of any country in the world.

Renewable sources provide 100% of Iceland's electricity and heat. 80% of electricity is generated from **hydropower** and 20% comes from **geothermal power**. Water heated geothermally is used in the majority of Iceland's homes.

Iceland uses non-renewable fossil fuels for cars, other transport and some industry. This means CO₂ per person is still high.

WEEK 10

Malthus' theory: examines the relationship between population and food production. While population grows geometrically (1, 2, 4, 8, 16 etc), food production increases arithmetically (1, 2, 3, 4, 5 etc). Eventually, population will outstrip food production.

Boserup's theory: came in 1965. Suggests population growth is positive and we invent new methods to obtain food when supplies begin to run out e.g. genetically modified crops.

Did the English Civil War give power to the people?

1. What powers did the king have and how did they make money?

- By the 17th century, the kings of England were able to call and close Parliament. They needed Parliament to agree to all taxes and new laws. However, the king was rich from custom duties and their land that made lots of money.
- Kings believed they were chosen by God to rule the country and that no man could question them.

2. Why did the King and Parliament start fighting each other?

- King Charles of England believed that no one could question him except God.
- Charles married a French Catholic and he raised taxes, spent lots on his rich lifestyle, and made the Church of England more Catholic.
- The people were angry and Parliament tried to criticise the king.
- The king stormed into Parliament and tried to arrest some MPs—this was the start of a conflict that would last 7 years.

3. Who were the two sides in the English Civil War?

- The country divided into those people that supported the King, they were called “monarchists” and “cavaliers”.
- On the other side were Parliament’s supporters, known as “parliamentarians” and “roundheads”.
- Families, villages, towns, and cities had to decide if they wanted the king or parliament to rule England. The Civil War began in 1642.

4. How did Parliament win the Civil War?

- Parliament started badly, the king had the best soldiers; but eventually the parliamentarians created the “New Model Army” which was well-trained and well-paid.
- They started to win battles and finally defeated the king with pikes, muskets, cannons, and cavalry.

5. What groups appeared in England during the war and what did they want?

- While the war was being fought, radical groups appeared in England such as the Levellers, Diggers, and Fifth Monarchists.
- They wanted new freedoms such as voting for all men, sharing the land, and new types of Christian worship.

6. What did Oliver Cromwell do once he became the leader of England?

- Parliament tried the king, found him guilty of treason, and executed him in 1649.
- Oliver Cromwell took over the country as the leader of the New Model Army. Parliament didn't change laws fast enough for Cromwell, so he went into the chamber and closed it down.
- Cromwell put a group of soldiers and religious people in Parliament and they made radical changes to England, including closing pubs and cancelling Christmas Day.
- Cromwell took the New Model Army to Ireland and ended a rebellion there by killing everyone in a town (Drogheda).

7. What happened after Oliver Cromwell died?

- When Cromwell died, his son briefly took over the country, but the MPs and the Army got sick of him. They invited the king's son, Charles II to return to England and take back the throne.
- The new king cancelled all the laws passed during Cromwell's time in charge.

HISTORIAN SKILLS

Knowledge
Explanation

KEYWORDS

Civil War = conflict inside a country

Democracy = voting for leaders

Dictatorship = when one person runs a country and makes laws on their own.

IMPORTANT DATES

1625 = Charles I becomes king

1637 = King Charles introduces a new Prayer Book to Scotland—riots begin

1639 = people refuse to pay their taxes to the king

1642 = English Civil War begins

1649 = King Charles found guilty of treason by a Parliament court. He is executed.

1649 = Cromwell crushes the Irish rebellion at Drogheda.

1649 = The New Model Army defeats the Levellers.

1653 = Oliver Cromwell closes Parliament and is made Lord Protector of England.

1655 = Cromwell divides England into 11 areas, each controlled by a military Major General.

1657 = Cromwell is asked to become king but refuses.

FAMOUS SOURCE

Nature = a pamphlet called “The World Turned Upside Down”

Origin = printed in 1646 during the English Civil War

Purpose = to ridicule what was happening in the country at the time (satire)



From Libert , Egalit , and Fraternit  to terror and war: What went wrong with the French Revolution?

Why was there a revolution in France in 1789?

- France was controlled by an all powerful monarch; the rest of society was divided into the "three estates": the Church, the nobles, and the common people.
- France was in debt due to a chaotic tax system and spending on foreign wars. This led to inflation and the French people suffered from poverty.
- The French people had heard about the American Revolution (as France had helped the Americans gain freedom) and now the French wanted more rights.
- The French King needed more taxes, so he called the "Estates General" to discuss the problem - unfortunately for the King, they demanded more rights and power and set up a new National Assembly to run France.
- A mob attacked a famous prison called the Bastille on 14th July 1789, freed all the prisoners, and stole the gunpowder stored inside. This date is still a national holiday in France to remember the French Revolution.

Who was killing whom during the Terror and what device did they use?

- The National Assembly voted to execute the King after he tried to escape France.
- The French government became divided between those that wanted lots of radical change (they sat on the left at meetings), and those that wanted to limit change as much as possible (they sat on the right). The radicals gained power.
- Radical leaders such as Robespierre started to fear the enemies within France - and so suspected enemies were executed using the guillotine (a blade dropped from a great height to cut off heads).
- It is estimated that c.20,000 people were killed during this period of time and it became known as the "Terror".

Was Napoleon a hero or a villain?

- The French army took over the National Assembly in a coup, and a famous general called Napoleon Bonaparte became the leader of the nation.
- Napoleon reorganised France: he provided state education, a fair tax system, protected the Church, and brought in a standard trading system of weights and measures across Europe. He saw himself as the liberator of Europe.
- Napoleon achieved his aims by using absolute power (like a king), invading other countries, and putting his relatives in charge of other nations (like Spain).

Were the Napoleonic Wars the first "world" war?

- France took over most of Western Europe and established a "Continental System" of trade to exclude Britain. Fighting began at sea and in Spain.
- As France took over European countries, they also gained their empires in other parts of the world. As a result, fighting between the British and the French took place in the Caribbean, the Indian Ocean, South America, and in South-East Asia.

How does the French Revolution and the Napoleonic Wars affect us today?

- The French Revolution ideals of Liberty, Equality, and Brotherhood inspired other nations to change their governments.
- The French flag, national anthem, and legal system have their origins in the Revolution and Napoleonic Wars. Many countries copied the French flag.

FAMOUS SOURCE

Nature = a cartoon called "The Government of Robespierre"

Origin = c1795

Purpose = to show that the Terror had got out of control

The painting shows a sick and dying Henry VIII pointing to his son as the next King of England. Edward's councillors and advisors sit in his court and the English Bible crushes the Pope. Outside the window, Edward's soldiers are tearing down any Catholic images and statues in churches.

HISTORIAN SKILLS

Knowledge
Explanation

KEYWORDS

Absolute ruler = a leader that controls a country mainly on their own

Liberty = freedom

Radical = extreme view, person that wants change

Revolution = big change

IMPORTANT DATES

1770 = King Louis XVI marries Marie Antoinette

1776 = American Revolution

1788 = France bankrupt

1789 May = Estates General called to sort out tax income

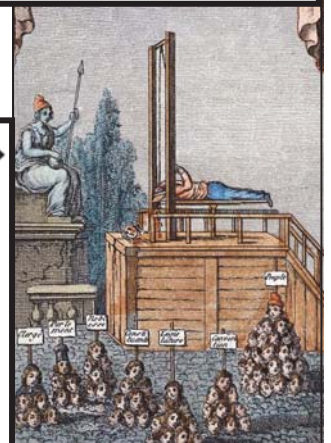
1789 June = National Assembly (Parliament) set up and begins establishing a democratic republic

1789 14th July = Storming of the Bastille

1793 21st Jan = King Louis XVI executed

1793-94 = The "Terror"

1799 = Napoleon Bonaparte takes over the government



Creating Digital Graphics

Topic of Learning	I will need to know:	So that I can:
Purpose of digital graphics	<p>Digital graphics feature in many areas of our lives and play an important part in today's world. The digital media sector relies heavily on using visual stimulants within products it produces to communicate messages effectively to a target audience. Digital graphics can be printed or used online and can be used for many different purposes, including to entertain, to advertise, to promote, to inform, to educate and instruct.</p>	<p>Design and create effective digital graphics to ensure it meets a given purpose.</p>
Digital graphics and target audience	<p>Graphic designers create digital graphics for a range of different uses, including on magazine covers, CD/DVD covers, online and printed adverts, multimedia products and computer games. Before a graphic is created, the target audience must be identified so that the final design is suitable and meets the intended purpose.</p>	<p>Understand the requirements of a client brief and target audience to ensure the final design of a digital graphic is appropriate.</p>
Digital graphics file formats	<p>When working with digital graphics, there are a number of different file formats that can be used to save them. These formats include, jpg, png, gif, tiff, psd, pdf, bmp. It is important to save a digital graphic using the most appropriate file format so that it can be opened or used within different software applications. A final version of a digital graphic will either be printed or used online.</p>	<p>Save digital graphics using the most appropriate file format depending on how the final product will be used.</p>
Project planning techniques	<p>When planning to create a digital graphic, there are various planning techniques that can be used during the design process. These techniques include mind maps, visualisation diagrams and mood boards. Using these planning techniques will make the production of the final product quicker and easier and will help to create a final product for the client which meets the intended purpose and target audience.</p>	<p>Use appropriate planning techniques to help plan the design, layout and content of a digital graphic.</p>
Desk-top publishing	<p>Desktop publishing is the use of computer software to produce content in various formats for publishing on different platforms – online and offline. Traditionally, DTP software was used to create layouts combining text and images for print publications such as newspapers, magazines, books, brochures and leaflets. However, DTP software has developed significantly and is now commonly used to create layouts for online content. This ranges from web and app design to interactive pdfs and traditional magazine layouts.</p>	<p>Use a wide range of DTP tools in order to create effective digital graphics.</p>

ICT and the way we communicate:

There was a time when people had limited options for communicating with one another. Face to face, letters and telephones were the main methods. Developments in ICT have given us limitless ways to communicate with others. Texting, skyping, social media, email, apps, instant messaging and virtual platforms are just some of these options.



ICT in Education:

The impact of ICT on how we learn has been significant. Learning has become more personal, knowledge, skills and talents can be shared with others in a fun and creative way. Computers for learning provides us with an interactive audio-visual tool. Animation and presentation software along with projectors, screens, microphones and speakers can be combined to create effective and engaging teaching and learning tools. Remote learning tools enable learning to take place outside a classroom.



ICT and Entertainment:

ICT has changed the way we access entertainment. The news can be read via the internet, we can read books by downloading e-books using e-readers. Our ability to download files onto our personal devices mean we have access to a vast range of music and films. Gamers can experience the very latest in AR and VR technology giving them a very immersive gaming experience.




ICT and the way we shop:

The way we shop has changed significantly in the past few years. We no longer have to physically go into a shop to buy the goods we want. The evolution of e-commerce enables us to shop online using a vast number of online shops 24/7 from the comfort of our own home. We can view products up close, watch videos of the product and read reviews to help us make decisions. Shops collect our data in order to make our shopping experience more personal.



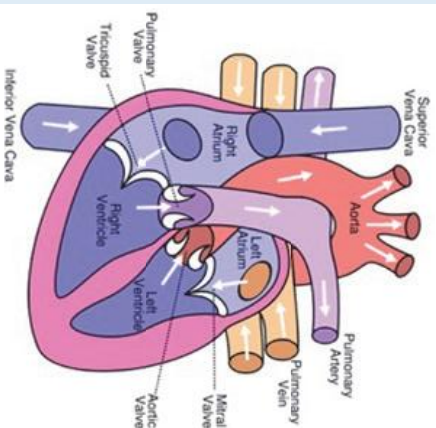
<u>Word</u>	<u>Used in context</u>	<u>Definition</u>	<u>Example</u>
Prime	Which of the following numbers are prime ?	A number with exactly two <i>different</i> factors; one and itself.	$\frac{2}{1\ 2} \quad \frac{3}{1\ 3} \quad \frac{5}{1\ 5}$
Indices (pl.) / Index (sing.)	Express $3 \times 3 \times 3 \times 3$ in index form .	A number which shows how many times a number or letter has been multiplied by itself.	$3 \times 3 \times 3 \times 3 = 3^4$
Triangular Numbers	What is the 2 nd triangular number ?	The result of adding all the previous integers together.	
Square Numbers	What is the 5 th square number ?	The result of multiplying a number by itself.	
Cube Numbers	What is the 3 rd cube number ?	The result of multiplying a number by itself and then itself again.	
Mixed Number	Express $\frac{12}{5}$ as a mixed number .	A number made up of an integer (whole number) and a proper fraction.	$2\frac{2}{5} \quad 5\frac{3}{4} \quad 12\frac{1}{10}$
Improper Fractions	Express $2\frac{1}{2}$ as an improper fraction .	A number where the numerator is greater than the denominator.	$\frac{6}{4} \quad \frac{17}{5} \quad \frac{23}{7}$
Simplest Form (Fractions)	Write the fraction $\frac{5}{10}$ in its simplest form .	Smallest possible equivalent fraction where the numerator and denominator have no common factors.	$\frac{24}{30} = \frac{12}{15} = \frac{4}{5}$
Cross-cancelling	By using cross-cancelling , multiply the following fractions and give your answer in its simplest form.	The process of finding a common factor between the numerator of one fraction and the denominator of another fraction and dividing each by this.	$2\frac{2}{7} \times \frac{3}{7} = \frac{2 \times 1}{3 \times 7} = \frac{2}{21}$
Percentage	A class contains 10 students, 5 of them are boys. What percentage of the class are boys?	Number of parts per hundred.	$\frac{30}{100} = 30\%$

Word	Used in context	Definition	Example
Term	In the expression $4x - 7$, $4x$ is the x-term and 7 is the number term .	A single number or variable (letter).	EQUATION
Variable	The variable in the expression $4x - 7$ is the letter x .	A symbol (usually a letter) that represents an unknown number.	EXPRESSION
Co-efficient	The co-efficient of $5x^2$ is 5 .	A number used to multiply a variable. Variables with no number have a co-efficient of 1 .	TERM
Equation	The equation only has a variable on one side.	Two collections of terms that are equal.	COEFFICIENT CONSTANT VARIABLE
(To) Solve	Solve the following equation to find the value for x	Finding the value of an unknown variable.	$y + 14 = 20$ $-14 \quad -14$ $y = 6$
Inverse	What is the inverse operation for addition?	The process of undoing a calculation by doing the opposite operation.	$3 + 0 = 3$ SUBTRACT
Linear Equations	Solve the linear equation .	An equation where the variable has a power of 1 .	$y = 6x + 8$
Substitute	Substitute $y = 4$ into the expression: $3y + 6$.	The process of replacing a variable in an equation, expression or formula with a known value.	$5x + y$ If $x = 4$ and $y = 3$ $5 \times 4 + 3$
Inequalities	There are four inequality symbols; $>$ $<$ \geq \leq	$>$ means "Greater/more than", $<$ means "Less than", \geq mean "greater than or equal to" and \leq means "less than or equal to."	$6 > 2$ $-2 < 5$ $2x > 6$
Ratio	The ratio of boys to girls in my class is $5 : 4$.	A ratio says how much of one thing there is compared to another.	3 : 1
Proportion	What proportion of my class are boys?	A number considered in comparison to the whole amount.	
Direct Proportion	Speed and distance are in direct proportion	When two amounts are in proportion, and one increases as the other increases.	
Scale Factors	Find the scale factor that transforms shape A to Shape B.	The number you multiply one amount by to get to another amount.	

What is the cardio-respiratory system? Why is it important for exercise?

TASK 1– Identify the parts of the two systems. Draw and label the heart.

The system is split into the **circulatory system** (heart, blood vessels and blood) and **respiratory system** (lungs and airways). It is needed to support breathing and pump blood and oxygen around the body.



Why is exercise important for my circulatory system?

TASK 3– From memory, identify the positive effects of exercise on the circulatory system.

By regularly exercising for at least 30 minutes a day for 3-5 times a week, **your heart becomes stronger**. This means that it can **pump**

more blood in one beat (Stroke Volume) and therefore needs to **beat less per minute (Heart Rate)** to meet the demands of exercise (Cardiac Output). The blood vessels work more efficiently as exercise helps to lower cholesterol which clogs up blood vessels. This also means that at rest blood pressure will be more likely to be normal and the risk of heart disease reduces.

How can I improve my cardiovascular fitness?

You should exercise for at least 20 minutes without any rest periods.

The intensity should be moderate/high and around 60 to 80% of Maximum Heart Rate. This would be **working in the Aerobic Training Zone**. **Maximum Heart Rate** can be **calculated by 220– your age**. Any

activity that meets these requirements is effective, but good examples are jogging, cycling and swimming. **TASK 6**– **Be physically active for 20 minutes**. Describe the short and long term effects on the body.

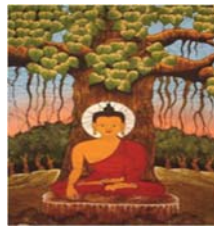
Type of Blood Vessel	How does blood circulate around the body?
Arteries (A= Away from the heart)	TASK 2 – Describe the differences between Arteries and Veins. Why is it important for blood to circulate quickly during exercise? - Thick muscular walls - Blood is carried quickly at high pressure - Carry oxygenated blood away from the heart (apart from the pulmonary artery which carries deoxygenated blood)
Veins (IN= Towards the heart)	- Thinner walls - Blood is carried slowly at low pressure - Carry de-oxygenated blood towards the heart (apart from pulmonary vein which carries oxygenated blood) - Have valves to prevent backflow
Capillaries	- One cell wall thick to allow gases to be exchanged (oxygen and carbon dioxide) -The number of capillaries increases with training, meaning gases are exchanged quicker.
TASK 4 - Lay down flat on your back and relax for 1 minute. Find your resting heart rate. Are you above or below the average? Jog on the spot for 30 seconds, record your new heart rate. Explain why your heart rate has changed.	
Key Term	Change as a result of exercise
Heart Rate – Can be found by taking your pulse (placing two fingers on side of neck)	Increases with exercise as the demand for oxygen increases. The average persons resting heart rate is 72 beats per minute .
Tidal Volume – the amount of air inhaled or exhaled per breath.	Increases during exercise as more oxygen is required to the working muscles. At rest this is 500ml of air.
Minute Ventilation – the amount of breaths per minute	Increases as more oxygen is required. At rest 12 breaths per minute, depending on how hard you are exercising (and fitness) can increase to 30 to 60 breaths per minute.
Stroke Volume – the amount of blood pumped out of the heart per beat.	Increases during exercise.
Cardiac Output – the amount of blood pumped out of the heart in one minute.	Increases during exercise as stroke volume and heart rate increase to meet energy demands of exercise. Cardiac Output= Stroke Volume x Heart Rate

Week 1: Who was the Buddha and what did he teach?

Siddhartha Gautama was an Indian Prince in the Fifth Century BCE. Before he was born his Father asked 8 wise men what Siddhartha would grow up to be. **The wise men all said that he would be a great man, but if he saw any suffering, he would become a great religious leader; not a great King.** Siddhartha grew up sheltered in the palace where he did not see any old or sick people. One day he left the palace and on his outing, he saw four things that disturbed him: 1) an old man 2) a sick man 3) a funeral 4) a holy man who had nothing but was very happy.

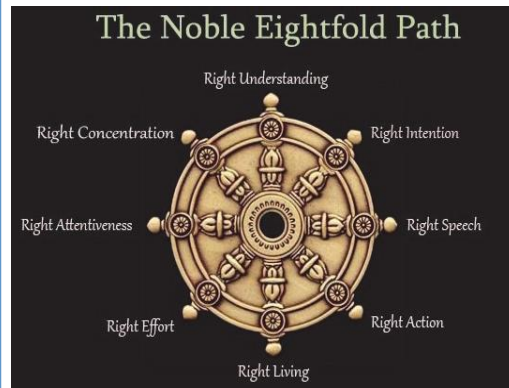
Siddhartha decided that he did not like to see suffering and **wanted to find an answer to the problem of suffering.** He left the palace and decided to live a hard life, one where he **ate and drank very little.** Siddhartha continued to travel around looking for answers. One day he stopped under a tree and started to meditate. During his meditation Siddhartha achieved **enlightenment**.

Enquiry Task: if Siddhartha had stayed out a little longer what else do you think he may have seen?



Week 2: Who was the Buddha and what did he teach?

- ⇒ **The four Noble Truths are the most important part of the Buddha's teachings.**
- ⇒ **1st Noble Truth:** Suffering (Dukkha) happens everywhere all the time.
- ⇒ **2nd Noble Truth:** Suffering is caused by people being greedy and selfish.
- ⇒ **3rd Noble Truth:** Greed and Selfishness can be stopped.
- ⇒ **4th Noble Truth:** The way to stop being Selfish and end suffering is to follow the Eightfold Path.



Enquiry Task:

Explain why people often liken the Buddha to a doctor with regards to the Four Noble Truths.

Week 3: What is the difference between a Buddhist and a Buddhist monk?

There are **two main groups** (schools) of Buddhists. Both groups follow the teaching of the Buddha however they **disagree** about the way things should be done. The two schools of Buddhism are **Theravada Buddhists** and **Mahayana Buddhism.**

Theravada Buddhists means 'teaching of elders'. This school of Buddhism focuses on the idea that you can **only gain enlightenment for yourself nobody else can do it for you. They think that the best way to live your life is as a monk or a nun.** Mahayana Buddhists means 'great vehicle'. Mahayana Buddhists believe in Bodhisattvas. **A Bodhisattvas is someone who has reached Enlightenment and could reach nirvana but chooses to be reborn so they can help others reach enlightenment**

Buddhist Monks live in a monastery. Many Buddhist men become monks for a few months or years, so they can have time to study their religion. **Monks spend most of their day alone studying and meditating** alongside working to help other people, this may be teaching and giving advice to people who need it. **Monks only own: two sets of robes, a needle and thread, razor, a bowl, a cup and a strainer (to remove any insects from drinking water.**

The additional Five Moral Precepts are adopted by monks:

- ⇒ **Eat after midday**
- ⇒ **Attend music or dancing**
- ⇒ **Use perfume or jewellery**
- ⇒ **Sleep on a soft bed**
- ⇒ **Accept gifts of money**

Enquiry Task: outline the day in a life of a Buddhist monk



Week 4: Where and how do Buddhist's worship?

- ⇒ **Temple:** a building that allows many people to come together to learn, meditate, celebrate and offer devotion. A temple will contain a shrine and space for community activities.
- ⇒ **Vihara:** a monastery for monks or nuns who have decided to devote themselves to the Buddhist path. Members of the wider community support the vihara and earn positive karma.

Lay people often have a **shrine room in their home that contains an image of the Buddha, candles, flowers, an incense burner and food offerings. They pray /meditate before the Buddharupa. Prayers may include requests for a good rebirth.**

All Buddhists consider worship in the home important for 'merit-making' and for developing the qualities of compassion and wisdom needed to reach Nirvana.



Enquiry Task: sketch out what a shrine would look like including all the items

Week 5: What festivals do Buddhist celebrate?

Vesak, is the most important of the Buddhist festivals, it honours the Buddha's Enlightenment and is celebrated on the full moon in April or May.

To celebrate, they might do some or all of these things:

- ⇒ visit the local temple for services and teachings
- ⇒ observe extra precepts
- ⇒ wear white clothing, at least on their upper body and generally look smart
- ⇒ give offerings to the monks, e.g. money, food, candles and flowers
- ⇒ take part in processions
- ⇒ decorate shrines
- ⇒ chant and pray
- ⇒ clean and decorate their homes



After the death of the Buddha, it became a tradition of bathe the statue of a little Buddha to commemorate His birth.

Vesak is significant today because it reminds Buddhists of the importance of the life of the Buddha. While it is a time of celebration, it is also a time for reflection. Vesak gives Buddhists the opportunity to think about what they can learn from the Buddha's life. They remember his teachings and spend time celebrating with other Buddhists.

Enquiry Task: create a Venn diagram and compare three festivals of your choice

Week 6: How does Buddhist family life compare to mine?

There is no general birth rite or obligations across the Buddhist world. Practices vary from one country and culture to another.

What they all share is that within a month of the birth, **the parents take the baby to the local temple and put him or her in front of the statue of the Buddha. They ask for the blessings of the Three Refuges - the Buddha, the dharma and the Sangha.** The parents make an offering to the temple in thanksgiving for the child.

For most Buddhists marriages are arranged by the parents of the couple.

This is because they have had more experience of life, so are thought to know best. It is also because marriage joins two families, so it is thought that the families should be involved in the decision.



had more experience of life, so are thought to know best. It is also because marriage joins two families, so it is thought that the families should be involved in the decision.

Enquiry Task: why do you think all Buddhist's take children to the temple shortly after birth?

Week 7: Do Buddhist believe in an afterlife?

All life is in a **cycle of death and rebirth called samsara**. This cycle is something to escape from. When someone dies their energy passes into another form.

Buddhist believe in **karma or 'intentional action'**. Through good actions, such as ethical conduct; and by developing concentration and wisdom, Buddhists hope to either gain enlightenment or to ensure a better future for themselves.

These good actions are set out in the Eightfold Path, which includes right speech, right livelihood, and right concentration. **Good actions will result in a better rebirth, while bad actions will have the opposite effect.**

Depending on the actions performed in previous lives, rebirth could be as a human or animal or even ghosts, demi-gods, or gods. Being born as a human is seen by Buddhists as a rare opportunity to work towards escaping this cycle of samsara. **The escape from samsara is called Nirvana or Enlightenment.**

Enlightenment.

Once Nirvana is achieved and the enlightened individual physically dies, Buddhists believe that they will no longer be reborn. **The Buddha taught that when Nirvana is achieved, Buddhists are able to see the world as it really is.** Some Buddhists believe that enlightened individuals can choose to be reborn in order to help others become enlightened.

Others believe that when Nirvana is achieved, the cycle of samsara, all suffering and further existence for that individual itself ends.

Enquiry Task: Explain two contrasting beliefs about what happens when we die [4]



Evolution

Change in the inherited characteristics of a population over time through a process of natural selection, which may result in the formation of a new species. The theory of evolution by natural selection states that all species of living things have evolved from simple life forms that first developed more than three billion years ago. Charles Darwin is the scientist who developed the theory of evolution by natural selection. He studied Galapagos finches which demonstrated the principle of 'Survival of the Fittest', as each had adapted to its environment.

Enquiry task:

Describe how you might persuade someone that the theory of natural selection is correct

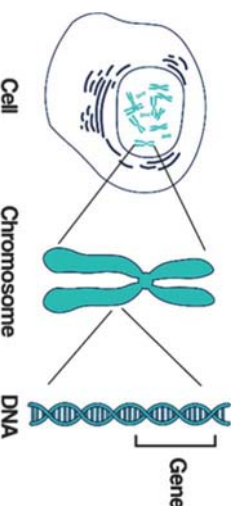


1. DNA

DNA is found in the nuclei of cells and organized into chromosomes. This genetic information is passed from one generation to the next. It is called heredity and why we resemble our parents.

The genetic information itself is contained in a complex molecule called DNA.

DNA molecules contain two strands. The strands are twisted around each other to form a double helix. These strands are held together by bonds between base pairs. (A, T, C and G).

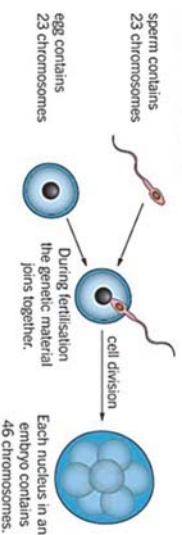


Chromosomes and Genes

DNA molecules are so long and thin, it is coiled into structures called chromosomes. The chromosomes are found in the nucleus of each cell.

Human body cells each contain 23 pairs of chromosomes, half of which are from each parent. Human gametes (eggs and sperm) each contain 23 chromosomes. When an egg is fertilized by a sperm, it becomes a cell with 23 pairs of chromosomes. This is why children resemble both their parents—half of their chromosomes and DNA come from their mother, and half from their father.

A gene is a section of DNA that is responsible for characteristics such as eye colour. Humans have around 20,000 genes. One copy of all your chromosomes is called your genome.



Enquiry tasks

- State what a DNA molecule looks like.
- Describe the difference between a gene and chromosome.

Extinction

If the species is not adapted to its environment, it will not survive. Fossil records show how many organisms have become extinct.

The factors can lead to extinction are:

- Changes to organism's environment (e.g. destruction of habitat)
- Outbreak of new disease
- Introduction of new predators
- Human activity

Preventing extinction:

- Conservation: ensure habitats are not lost, reduce disruption to food chains and webs
- Captive breeding: create stable and healthy population of species to re-introduce back into natural habitats. But, it can be difficult to maintain genetic diversity and organisms may not be suited to return, e.g. if they cannot hunt.
- Gene banks; seed banks (plants), tissue banks (plants), cryobanks (seed/ embryo/ sperm and egg cells); pollen banks.

Enquiry tasks

Research and explain why the dodo species died out.

1 Keywords and their definition		
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)

1 Relationship between the variables
Resistance

Potential difference

Current

Resistance is restricting the current (flow of electrons) around the circuit.
The higher the resistance, the harder it is

2 Electric circuit symbols

Switch

Cell

Battery

Lamp

Voltmeter

Ammeter

Resistor

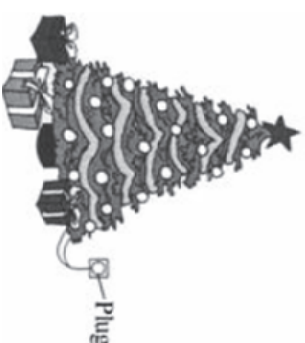
Variable resistor

Motor

2 Measuring / calculating the variables:

Current	Use an a ammeter
Potential difference	Use a voltmeter
Resistance=	Potential difference \div current

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



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.

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

ammeter

switch

motor

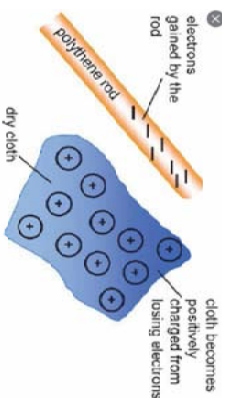
battery

bulb

3

Static Electricity

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.

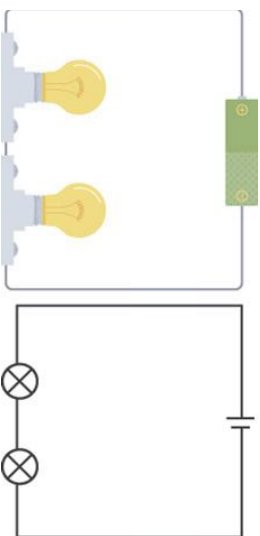
4

4

Series circuit

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.

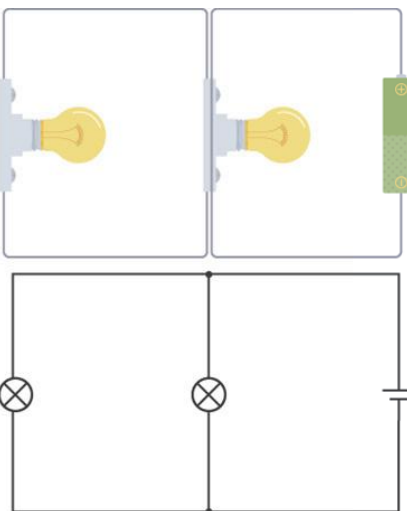


4

Parallel circuit

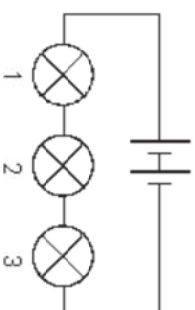
In a parallel circuit, different components are connected on different branches of the wire.

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



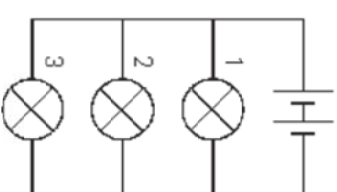
In each circuit below, **bulb 1 breaks** and goes off.

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



circuit A

	on	off
bulb 1 breaks		?
bulb 2		
bulb 3		



circuit B

	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.

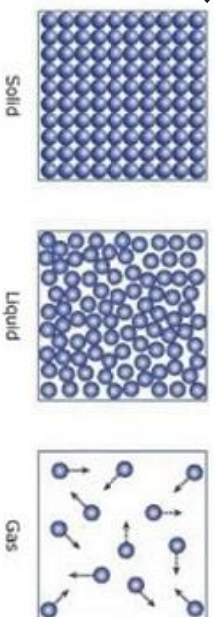
Copper does **not** stick to a magnet.

Copper is a good conductor of electricity.

Copper is a brown metal.

Copper is a good conductor of heat.

1



The 3 states of matter are solid, liquid and gas.

For substances to change from one state to another, energy must be transferred.

The particles gain energy, this results in the breaking of some of the attractive forces between particles during melting.

To evaporate or boil a liquid, more energy is needed to overcome the remaining chemical bonds between the particles.

When a liquid evaporates, particles leave the surface of the liquid only. When a liquid boils, bubbles of gas form throughout the liquid before rising to the surface and escaping.

The amount of energy needed for a substance to change state is dependent on the strength of the attractive forces between particles.

The stronger the forces of attraction, the more energy is needed to

State Symbols

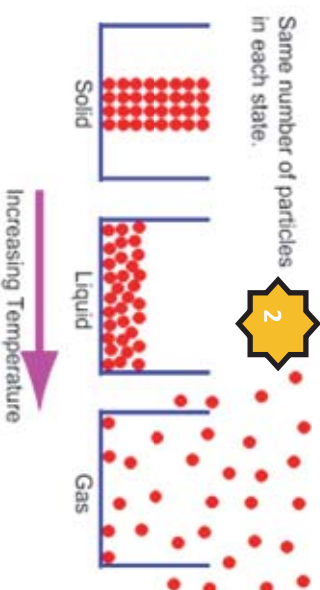
In chemical equations the three states of matter are represented as symbols:

Solid (s) Liquid (l) Gas (g) Aqueous (aq)

Aqueous solutions are those that are formed when a substance is dissolved in water.

3

2



Solid: the particles in a solid are arranged in a regular pattern. The particles in a solid vibrate in a fixed position and are tightly packed together. The particles in a solid have a low amount of kinetic energy.

Solids have a fixed shape and are unable to flow like a liquid; the particles can not be compressed because they are very close to each other.

Liquid: the particles in a liquid are randomly arranged and are able to move around each other. The particles in a liquid have a greater amount of kinetic energy than particles in a solid.

Liquids are able to flow and can take the shape of the container they are placed in. As with a solid, liquids cannot be compressed because the particles are close together.

Gas: The particles in a gas are randomly arranged, they are able to move around very quickly in all directions. Of the three states of matter, gas particles have the highest amount of kinetic energy.

Gases are able to flow and can fill the container they are placed in. The particles are far apart from one another which allows them to move in any direction. Gases can be compressed; when squashed the particles have empty space to move into.

Formation of Ions

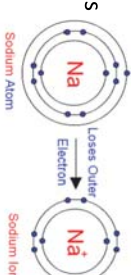
Ions are charged particles. They can be either positively or negatively charged, for example Na^+ or Cl^- .

When an atom loses or gains electrons, it becomes an ion.

Metals lose electrons to become positively charged.

Non-metals gain electrons to become negatively charged.

Group 1 and 2 elements lose electrons and group 6 or 7 gain electrons.



Group	Ions	Element Example
1	+1	$\text{Li} \rightarrow \text{Li}^+ + \text{e}^-$
2	+2	$\text{Ca} \rightarrow \text{Ca}^{2+} + \text{e}^-$
7	-1	$\text{O} + 2\text{e}^- \rightarrow \text{O}^{2-}$
6	-2	$\text{Br} + \text{e}^- \rightarrow \text{Br}^-$

$\text{Li} \rightarrow \text{Li}^+ + \text{e}^-$

$\text{Ca} \rightarrow \text{Ca}^{2+} + \text{e}^-$

$\text{O} + 2\text{e}^- \rightarrow \text{O}^{2-}$

$\text{Br} + \text{e}^- \rightarrow \text{Br}^-$

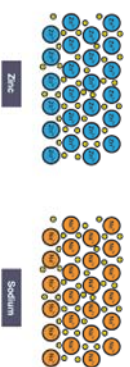
Metals and Non-metals

Metals are found on the left hand side of the periodic table; metals are strong, shiny, malleable and good conductors of heat and electricity.

Non-metals are brittle, dull, not always solids at room temperature and poor conductors of heat and electricity. Non-metals are found on the right hand side of the periodic table.

4

5



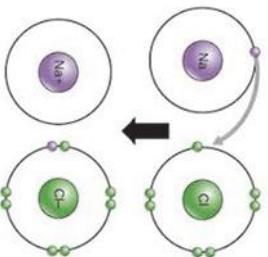
Metallic Bonding
Metallic bonding occurs between metals only. Positive metal ions are surrounded by a sea of delocalised electrons. The ions are tightly packed and arranged in rows. There are strong electrostatic forces of attraction between the positive metal ions and negatively charged electrons.

Pure metals are too soft for many uses and are often mixed with other metals to make alloys. The mixture of the metals introduces different sized atoms. This distorts the layers and prevents them from sliding over each other. This makes it harder for alloys to be bent and shaped like pure metals.



6

Ionic Bonding
Ionic bonding occurs between a metal and a non-metal. Metals lose electrons to become positively charged. Non-metals gain electrons to become negatively charged. Opposite charges are attracted by electrostatic forces—an ionic bond.



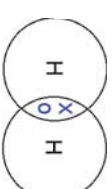
Ionic compounds form structures called giant lattices. These are strong electrostatic forces of attraction that act in all directions and act between the oppositely charged ions that make up the giant ionic lattice.

Properties of Ionic Compounds

- High melting point—lots of energy needed to overcome the electrostatic forces of attraction.
- High boiling point.
- Cannot conduct electricity in a solid state as the ions are not free to move.
- Ionic compounds, when molten or in solution, can conduct electricity as the ions are free to move and can carry the electrical current.

7

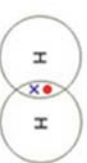
Covalent Bonding
Covalent bonding is the sharing of a pair of electrons between atoms to gain a full outer shell. This occurs between non-metals only. Many of these are just two atoms bonded together and can be called diatomic molecules. They can be the same or different chemical elements.



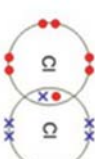
Simple covalent structures have low melting and boiling points—this is because the weak intermolecular forces that hold the molecules together break when a substance is heated, not the strong covalent bonds between the atoms. They do not conduct electricity as they do not have any free delocalised electrons.

You need to be able to draw the dot and cross diagrams for the following simple covalent structures:

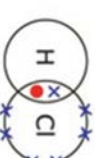
Chlorine, oxygen, nitrogen, water, ammonia, hydrogen chloride and methane.



hydrogen (H_2)



chlorine (Cl_2)



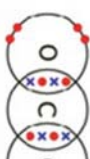
hydrogen chloride (HCl)



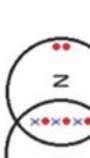
water (H_2O)



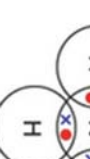
oxygen (O_2)



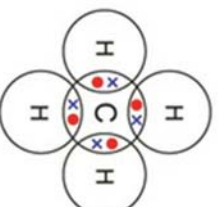
carbon dioxide (CO_2)



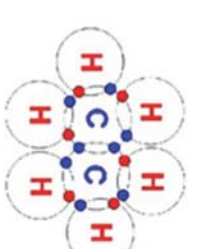
nitrogen (N_2)



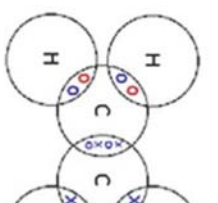
ammonia (NH_3)



methane (CH_4)



ethane (C_2H_6)



ethene (C_2H_4)

Need to Know Dictionary: English – Gothic and Frankenstein (play)



Word	Definition
Gothic	A genre of literature and film characterised by mystery, horror, gloom, and at times, romance.
Atmosphere	The pervading tone or mood of a place, situation, or creative work.
Supernatural	The supernatural is defined as events or things that cannot be explained by nature or science and that are assumed to come from beyond or to originate from otherworldly forces. Ghosts and witches are an example of the supernatural.
Eerie	Someone or something that is mysterious, frightening, spooky and creepy.
Personification	Writers use personification to give human characteristics, such as emotions and behaviours, to non-human things, animals, and ideas.
Playwright	A playwright is someone who writes plays. Playwrights are also known as dramatists.
Staging	Staging is the process of selecting, designing, adapting to, or modifying the performance space for a play or film.
Monologue	in literature and drama, an extended speech by one person.
Figuration	The act of shaping into a particular figure. A character representing an idea.
Characterisation	The process through which an author reveals a character's personality.

Need to Know Dictionary: Maths – Probability and Algebra

Word	Definition
Numerator	The number on the top of a fraction is the numerator.
Denominator	The number on the bottom of a fraction is the denominator.
Mutually exclusive	Two events are mutually exclusive if they cannot occur at the same time.
Expression	An expression is a set of terms combined using the operations +, -, x or ÷, e.g. $4x-3$ or $x^2-xy+17$.
Equation	A statement that the values of two mathematical expressions are equal as indicated by the sign =
Factorise	Factorising is the reverse process of expanding brackets. To factorise you find the highest common factors of each term.
Expand	To expand a bracket means to multiply each term in the bracket by the expression outside the bracket.
Substitute	Substitution means putting numbers in place of variables to calculate the value of an expression.
Variable	A letter used to stand for a value that can change (a variable) or for values that are not known (unknowns).
Inverse	In mathematics, the word inverse refers to the opposite of another operation. E.g. the inverse of multiplication is division.

Need to Know Dictionary: Science – Genes, Waves and Reactions



Word	Definition
Inheritance	When living things reproduce they pass on characteristics to their offspring. This is known as inheritance
Variation	Variation is the differences between individuals within a species.
Evolution	The process by which living things can gradually change over time.
Natural Selection	The process by which a species changes over time in response to changes in the environment, or competition between organisms, in order for the species to survive.
Transverse wave	the oscillations are at right angles to the direction of travel and energy transfer.
Transmission	Transmission of waves occurs when waves pass through a given point or medium.
Exothermic	When a chemical reaction happens, energy is transferred to or from the surroundings.
Endothermic	When energy is taken in from the surroundings, this is called an endothermic reaction and the temperature of the surroundings decreases.
Reactants	Substances that react together in a chemical reaction.
Products	Substances that are formed in a chemical reaction.

Need to Know Dictionary: Geography – Living World: Ecosystems and Resources

Word	Definition
Abiotic	Relating to non-living things.
Biotic	Relating to living things.
Consumer	Creature that eats animals and/or plant matter.
Decomposer	An organism such as a bacterium or fungus, that breaks down dead tissue, which is then recycled to the environment.
Ecosystem	A community of plants and animals that interact with each other and their physical environment.
Food chain	The connections between different organisms (plants and animals) that rely on one another as their source of food.
Food web	A complex hierarchy of plants and animals relying on each other for food.
Nutrient cycling	A set of processes whereby organisms extract minerals necessary for growth from soil or water, before passing them on through the food chain - and ultimately back to the soil and water.
Global ecosystem	Very large ecological areas on the earth's surface (or biomes), with fauna and flora (animals and plants) adapting to their environment. Examples include tropical rainforest and hot desert.
Producer	An organism or plant that is able to absorb energy from the sun through photosynthesis.
Biodiversity	The variety of life in the world or a particular habitat.
Commercial farming	Farming to sell produce for a profit to retailers or food processing companies.



Need to Know Dictionary: French

Word	Definition
Verb	A word that shows an action, such as 'jouer', or a state of being such as 'être' or 'avoir'.
Adjective	A word that describes a noun.
Adjectival agreement	In French, adjectives must agree with their noun, which means that they have to show whether they are masculine or feminine and singular or plural to match the noun.
First person singular	The pronoun 'Je' is first person singular.
Second person singular	The pronoun 'Tu' is second person singular.
Third person singular	The pronouns 'Il/Elle/On' are third person singular.
Masculine and Feminine	•All French nouns have a grammatical gender - they are either masculine or feminine. EG: - 'le père', •'la mère'.
Present tense	Use the present tense to describe what happens regularly and what is happening now.
Pronoun	Pronouns replace nouns in a sentence.
Liaison	When a word ends in s, x, t or n and the next word starts with a vowel or an h, the s and x will sound like z, and the t and the n will be pronounced. This is called a 'liaison', as the words are linked together. EG: '-C'est très ennuyeux'.
Silent final consonant	•In French, some letters are silent, either at the start or at the end of a word, e.g. 'hôtel', 'chaî'.
Phonics	The sounds that make up words.
Accent	Accents placed on words change the sound of a letter, e.g. é as in 'café'.
Question	Questions in French can be formed using 'Est-ce que', or by switching the verb and subject, 'Faites-vous vos devoirs ce soir?'
Modal verbs	EG: - pouvoir (be able to) devoir (have to, must, should) vouloir (want to).
Infinitive	An infinitive is a verb that has not been changed and is in its original form, e.g. ending in -er, -ir, -re meaning 'to...'

Need to Know Dictionary: History – Slavery and Empire

Word	Definition
Abolition	The act of officially ending or stopping something, e.g. the death penalty or slavery.
Because	A useful conjunction used to explain how or why something is the case.
Britain	Great Britain is the official collective name of England, Scotland and Wales and their associated islands, but not Northern Ireland.
Compensation	The act of compensating, as by rewarding someone for service or by making up for someone's loss, damage, or injury by giving the injured party an appropriate benefit.
Led	The past tense of the verb 'to lead' is 'led', not 'lead'.
Meant	The past tense of the verb 'to mean' is 'meant' not 'ment'.
Parliament	The group of people who make the laws. In the UK, this consists of the House of Commons and the House of Lords.
Petition	A list of demands or a call to action upon which people sign their names to show support.
Publicity	the public visibility or awareness for any product, service, person or organisation.
Therefore	An adverb that means 'as a consequence', 'as a result', or 'hence'.

Need to Know Dictionary: Design and Technology



Word	Definition
Printed Circuit Board (PCB)	A Printed Circuit Board or PCB is essentially a board that connects electronic components.
Soldering	The process by which solder, which is an alloy of lead and tin, is heated until liquid and then added to components allowing electricity to flow from one point to another.
Bridal joint	A carpentry joint connecting a slotted end of one timber to the double-notched end of another timber.
Soldering iron	An electrical tool used for melting solder and applying it to metals that are to be joined.
Function	The special purpose or activity for which a thing is designed or used.
Illumination	A branch of engineering that deals with planning the lighting systems of new buildings and outdoor areas (as streets, parking lots) and the study and correction of old lighting installations.
Precision	Precision is defined as the reproducibility or repeatability of a result from repeated measurements under unchanged conditions.
Dimensions	A measurement of something in a particular direction, especially its height, length, or width:
Resistor	A device having resistance to the passage of an electric current.
Light Emitting Diode (LED)	A semiconductor diode which glows when a voltage is applied.

Need to Know Dictionary: Art

Word	Definition
Formal elements	The Formal Elements are the parts used to make a piece of artwork. The art elements are line, shape, space, form, tone, texture, pattern, colour and composition.
Line	A line is a mark made on a surface that joins different points.
Shape	A shape is a two-dimensional area. Shapes have height and width but not depth. A shape might be defined by an outline or through contrast with its surroundings, such as through colour or tone.
Form	Form refers to three dimensional objects. While shapes have two dimensions (height and width), forms have three dimensions (height, width and depth).
Tone	Tone means how light or dark something is. The tones artists and designers use and the contrast between them can create very different moods and visual effects.
Composition	Composition is the arrangement of different elements within an artwork or design.
Texture	Texture means how something feels. There are two types of texture: actual texture and visual texture.
Architecture	the art or practice of designing and constructing buildings.
Refine	Refinement is the improvement of the idea. It does not involve radical changes, but is about making small changes which improve the idea in some way.
Relief	Where an image or sculpture is raised from its background.



Need to Know Dictionary: Drama

Word	Definition
Tension	A growing sense of expectation within the drama, a feeling that the story is building up towards something exciting
Genre	The genre of a play refers to the type of story being told, e.g. comedy, tragedy, and melodrama.
Improvisation	Improvised drama is work that hasn't been scripted but is made up as you go along.
Characterisation	The act of changing voice, body language, movement, gesture etc when in role.
Monologues	When one solitary character speaks to the audience and shares their feelings or point of view.
Direct Address	When a character speaks directly to the audience and connects with us in an unmistakable way.
Devising	Devising is a group collaboration in response to a stimulus leading to the creation of an original performance.
Stimulus	The starting point, idea or inspiration for your devised drama.
Rehearsal	An activity in the performing arts that occurs as preparation for a performance in music, theatre, dance and related
Conventions	A dramatic convention is a set of rules which both the audience and actors are familiar with and which act as a useful way of quickly signifying the nature of the action or of a character.

Need to Know Dictionary: Music

Word	Definition
Chords	A chord is when two or three pitched notes are played at the same time.
Syncopation	A rhythm pattern where stressed notes are placed off the beat.
Accompaniment	The musical part which provides the rhythmic and/or harmonic support for the melody or main themes of a song or instrumental piece.
Improvisation	Being able to create music on the spot.
Octave	A space of eight steps between musical notes.
Structure	The order that different parts of the music are played in.
Bass Clef	A bass clef is a symbol that you use when writing music in order to show that the notes on the staff are below middle C.
Major	A scale consisting of a series of whole steps except for half steps between the third and fourth and seventh and eighth degrees.
Minor	a scale having half steps between the second and third, fifth and sixth, and seventh and eighth degrees, with whole steps for the other intervals.
Treble Clef	A treble clef is a symbol that you use when writing music in order to show that the notes on the staff are above middle C.

Need to Know Dictionary: PE



Word	Definition
Heart rate	Heart rate (HR) is the number of times the heart beats in one minute. The average number of beats is 72 beats per minute.
Tidal volume	Tidal volume is the amount of air breathed in with each normal breath. The average tidal volume is 0.5 litres (500 ml).
Minute ventilation	Minute ventilation (VE) is the amount or volume of air inspired or expired in one minute and can be calculated by multiplying tidal volume (TV) by breathing rate (f).
Stroke volume	Stroke volume (SV) is the volume of blood pumped out of the heart with every beat. The average amount of blood per beat is 0.07 litres.
Cardiac output	Cardiac output (Q) is the amount of blood pumped from the heart every minute and can be calculated by multiplying heart rate (HR) by stroke volume (SV).
Cardio-respiratory system	The cardio-respiratory system works together to get oxygen to the working muscles and remove carbon dioxide from the body.
Aerobic training	In aerobic exercise, which is steady and not too fast, the heart is able to supply enough oxygen to the muscles. Aerobic training improves cardiovascular fitness.
Arteries	Carry blood away from the heart.
Veins	Carry blood to the heart.
Capillaries	Where gas exchange takes place. Oxygen passes through the capillary wall and into the tissues, carbon dioxide passes from the tissues into the blood.

Need to Know Dictionary: Religious Studies

Word	Definition
Alms	Money or food given to poor people.
Enlightenment	An awakening of intellect, knowledge or wisdom.
Meditation	Meditation is a practice where an individual uses a technique – such as mindfulness, or focusing the mind on a particular object, thought, or activity – to train attention and awareness, and achieve a mentally clear and emotionally calm and stable state.
Nirvana	A state in which there is neither suffering, desire, nor sense of self, and the subject is released from the effects of karma and the cycle of death and rebirth. It represents the final goal of Buddhism.
Mantra	A word or sound repeated to aid concentration in meditation.
Precepts	The Five Precepts are the Buddhist version of a code of conduct or rules to help people behave in a moral and ethical way.
Samsara	In Buddhism, samsara is often defined as the endless cycle of birth, death, and rebirth.
Dukkha	The first of the Four Noble Truths in Buddhism: Life is unsatisfactory (dukkha).
Annata	Anatta is the idea that humans have no soul or self.
Anicca	Anicca is the concept that nothing stays the same and everything is always changing. This concept is also known as impermanence.



Need to Know Dictionary: Food Technology

Word	Definition
Combine	To stir two or more ingredients with a spoon, or to beat on low speed with a mixer, until mixed together.
Knead	A method of mixing pliable dough by stretching, folding and pushing in order to form gluten in the flour.
Consistency	The right thickness or texture. Consistency also refers to uniformity or compatibility between things or parts.
Incorporated	Mixing ingredients so that they are evenly spread.
Equal	Being the same in quantity, size, degree, or value.
Even	Having a flat, smooth, level or equal consistency.
Presentation	The art of modifying, processing, arranging, or decorating food to enhance its aesthetic appeal.
Management	Food management involves the preparation, selection, display, and preservation of food items.
Method	A method is the process by which ingredients from a recipe are combined to create a complete food product.
Independent	Carrying out a food preparation task individually, without support.

Need to Know Dictionary: ICT

Word	Definition
Digital society	A society in which everything runs on digital technology where paperless and electronic means are the norm
Innovation	Innovation involves bringing this new idea to the market, that is, turning an invention into a product.
Robotics	The use of computers to control robots, which can be used in environments that are too dangerous or impractical for humans to work in. For example, robots are able to explore the planet Mars, without the risks involved in sending an astronaut into space.
Communication methods	These include email, phone calls and video conferencing, and many types of instant messaging like SMS and web chats.
Future technology	Companies are trying to save money, improve products, develop new materials and become more efficient. New technologies are developed to positively impact the manufacturing industry and society.
App technology	As the use of mobile devices continues to climb, use of dedicated apps (applications) is also on the rise. These apps are increasingly being used to support learning, social interaction and work practises.
Bluetooth	Bluetooth communicates using radio frequencies and requires no physical cable connections. It was designed to enable a range of portable devices to connect both to each other and to other, less portable, hardware.
QR codes	A Quick Response codes (QR code) is a type of matrix barcode (or two-dimensional code) designed to be read by smartphones.
Video conferencing	Video conferencing means using computers to provide a video-link between two or more people.
E-commerce	E-commerce, or electronic commerce, refers to the buying and selling of products and services using devices connected to an electronic network, such as the internet.