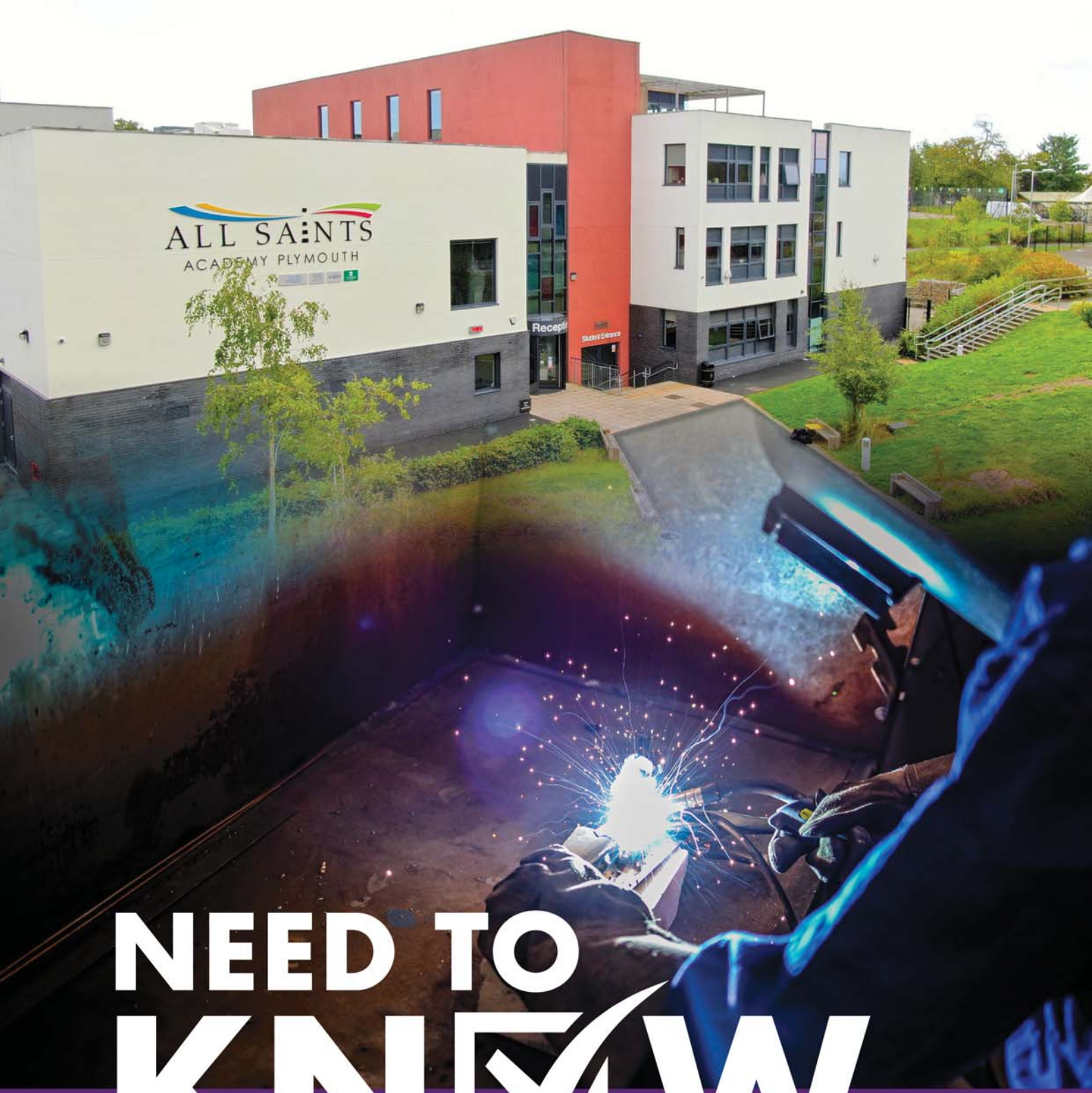

NEED TO KNOW BOOK

Year 10
Summer Term 2024

ALL SAINTS
ACADEMY PLYMOUTH

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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 and 30 minutes of Homework per night. This is split into 3 subjects at 30mins each.

	3 x 30 Minute Sessions		
	Subject 1 30 mins	Subject 2 30 mins	Subject 3 30 mins
Monday	Science	Science	
Tuesday	English	English	French
Wednesday	History/Geography/Travel & Tourism		Maths : Sparx
Thursday	Option A	Option A	Maths : Sparx
Friday	Option B	Option B	Maths : Sparx

Where is my homework?

Maths sparx

You 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.

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.

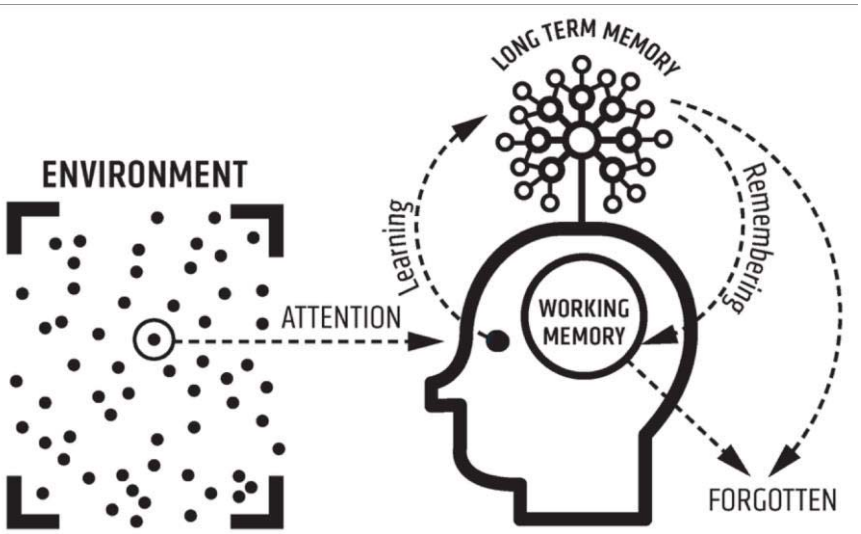
Other Subjects:

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.

Memory

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



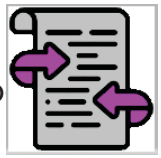
You can support your working memory by storing key facts and processes in long-term memory. These facts and processes can then be **retrieved** to stop your working memory becoming overloaded.

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

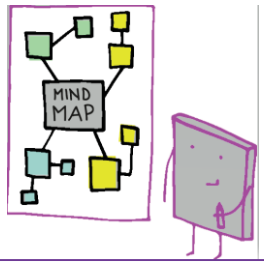
There is strong scientific evidence from cognitive psychology that shows the benefits of **self-quizzing** in promoting **retrieval strength**. This is your ability to quickly recall key facts related to your subject or topic

How should I self-quiz and how often?

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

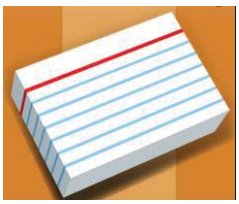


You could:



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.

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

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

Year 10: My Identity and Art

AQA Assessment Objective Checklist

AO1 Ideas & Artist Research	Develop ideas through investigations, demonstrating critical understanding of sources.	○ I have researched **a wide range** of artists' craftsmen and designers. ○ I have worked **in the style** of the artists using my own photographs. ○ I have written about the artist and how they have informed and influenced my practice.
AO2 Experimenting with materials	Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.	○ I have experimented with a wide range **of relevant media** and techniques. ○ All my work has been refined. ○ I have pushed ideas to their full limitations to show the process and development of my ideas.
AO3 Recordings and drawings	Record ideas, observations and insights relevant to intentions as work progresses.	○ I have **drawn from observation** using a range of different media. ○ I have worked from my **own photographs**. ○ I have used **annotation to explain the development** of my research and ideas.
AO4 Personal response/final piece	Present a personal and meaningful response that realises intentions and demonstrates understanding of visual language.	○ I have produced **my own** imaginative outcomes. ○ My work shows **a clear connection** and a journey throughout my project. ○ I have thought carefully about the **selection and presentation** of my work.

The Formal Elements:

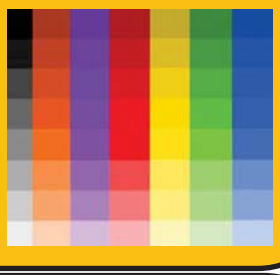
The Formal Elements of Art are the parts used to make a piece of art work. It is impossible to create a piece of art, even if it is only a doodle, without using some or all of them. The art elements are Line, shape, form, tone, texture, pattern, colour and composition. They are often used together and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

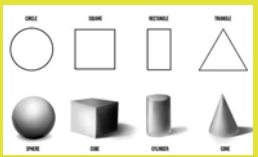
Tone means the lightness and darkness of something. This could be a shape and/or how dark or light a colour appears.



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

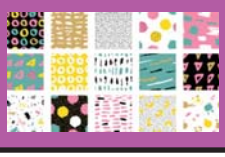
By mixing any two primary colours together, you get secondary colours.

Orange, Green and

Pattern

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

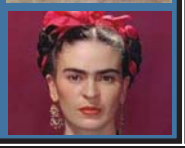
Patterns can be manmade such as a design on fabric or natural like the print on animal fur.



Art & Design

Frida Kahlo
6 July 1907 – 13 July 1954

Frida Kahlo was a Mexican painter best known for her uncompromising and brilliantly coloured self-portraits that deal with such themes as identity, the human body, and death. Today, Kahlo is remembered for being a woman who broke all social conventions. Her defiance against needing to fit in is nothing less than admirable – both back then and even now.



Louis Jover
April 1967

Louis Jover is an Australian artist. He likes to work with used sheets of paper, which he assembles into a single, large canvas, on which he paints in inks, oils, and gouache. Sometimes, he uses pages from books in a fusion of text, painting, and collage. Jover also incorporates photography into his art, making it his own through his painting.

Gillian Wearing
10 December 1963

Gillian Wearing CBE, RA is an English conceptual artist, one of the Young British Artists, and winner of the 1997 Turner Prize. In 2007 Wearing was elected as lifetime member of the Royal Academy of Arts in London. Her statue of the suffragist Millicent Fawcett stands in London's Parliament Square.

Keywords & Vocabulary:

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.
Identity	Who a person is, or the qualities of a person or group that makes them different from others.
Mixed Media	Artwork in which more than one medium or material has been used.
Expressive	Effectively conveying thought or feeling.
Personality	The characteristic sets of behaviours, mental behaviours, and emotional patterns that evolve from biological and environmental factors.
Narrative	A narrative, story or tale is any account of a series of related events or experiences, whether non fictional or fictional.
Culture	The position and layout of shapes on the paper.
Symbolic	A mark, sign, or word that indicates, signifies, or is understood as representing an idea, object, or relationship.
Discrimination	Relating to bodily structure.
Conceptual Art	Artwork that is created in a public space, typically without official permission.
Adversity	A difficult or unpleasant situation.
Satire	The use of humour, irony, exaggeration, or ridicule to expose and criticize people's stupidity or vices

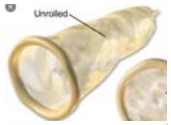
LO1 1.1- Factors which affect the decision to have children When is the best time to have a child?	
Relationship between partners	Couples should have been together long enough to form a happy, stable, caring and secure relationship. They should be able to trust, respect and be loyal to each other. Couples should be able to cope with demands of having a child.
Finance	Raising a child is expensive (i.e. feeding, clothing, housing, entertaining) **Factors to consider (Finance):** Is where they live big enough (enough bedrooms) to accommodate a child? Can they afford child care or a career break? Can they afford to provide a warm, clean, safe and secure home? Can they afford a child?
Parental Age (can affect fertility and suitability)	**Age of mother–** After the age of 35 quality of eggs declines. **Age of father–** Men produce sperm all of their adult life, so are capable of fathering children. **Factors to consider (Age):** Are they mature enough to take on responsibility of a child? Are they willing to change their lifestyle for a baby? Are they fit/healthy enough to have a child? Are they 'running out of time' due to fertility issues for older women?
Peer pressure/ social expectations	People can feel pressured if their friends are having babies or if their family expects them to.
Genetic counselling for hereditary conditions	Genetic disorders are inherited from either the mother of father, these include: -Down's syndrome - Cystic fibrosis - Sickle cell anaemia - Muscular dystrophy Genetic counselling (genetic tests) offered if there is a family history of birth defects, genetic disorders or some forms of cancer. Other reasons include: Mother has had repeated miscarriages Blood relationship between partners (cousins)

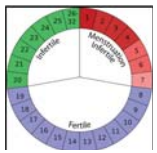
LO1 1.2– Pre-conception health How can couples ensure their health positively impacts the baby they conceive?	
Diet (what should parents eat)	- Eat a healthy diet (e.g. at least 5 portions of fruit and vegetables) - Reduce sugar intake- Risk of diabetes - Avoid foods at risk of food poisoning (e.g. raw meat) - Women should take FOLIC ACID during pregnancy to reduce risk spina bifada
Exercise	- Being fit helps a mother cope with pregnancy - Helps to maintain fitness and well-being
Healthy weight (dangers of being overweight)	- Being overweight can affect fertility and ovulation - Can increase likelihood of needing a caesarean - Being overweight can lead to diabetes
Smoking / alcohol / recreational drugs	- Men who smoke or drink may have a lower sperm count - Risk of premature birth, miscarriage, still birth and foetal abnormalities - Women are advised to avoid alcohol - Drugs can lead to addiction/fertility issues - Drugs should not be taken in the month prior to conception
Up-to-date immunisations	- Immunisations are good for women's health to avoid specific illnesses - Prevent risk of rubella - Genetic screening– be aware of genetic conditions they are at risk of

LO1 1.3– Roles and responsibilities of parenthood– What must a parent provide?			
Food	Food must provide the right nutrients to have energy for growth and development.	Shelter and Warmth	Housing must be safe and provide warmth. Damp conditions can lead to asthma and chest conditions.
Clothing	Clothing that fits, is clean and for all weather conditions.	Rest/sleep	Rest and sleep is needed for a child's wellbeing, learning, growth and development.
Love and nurture	Helps a child to feel supported and thrive. Supports social and emotional development.	Socialisation/ Customs / Values	Children can be taught understand social acceptable behaviour. Parents act as role models.

LO1 1.4 To recognise and evaluate methods of contraception, their efficiency and reliability

Method	Description	How effective?	Advantages	Disadvantages
Male condom (Barrier method)	Latex sheath placed onto erect penis before contact with vagina	98% effective if used correctly	- Widely available / sometimes free - Protects against many STIs - No serious side effects	- Condom can split or come off - Can only be used once - Sex might have to be interrupted
Female condom (Barrier method)	Polyurethane sheath put inside vagina before contact with penis, creates barrier between sperm and cervix	95% effective if used correctly	- Widely available to buy - Protects against many STIs - No serious side effects	- Condom can split or come off - Can only be used once - Expensive - Sex might have to be interrupted
Diaphragm or cap (Barrier method)	Dome shaped piece of latex, covers the cervix. Inserted into vagina before sex, used with spermicidal gel to kill sperm.	92% effective if used correctly	- Inserted by woman herself - Can be washed and reused - Can be fitted in advance of sex	- A GP/nurse must fit for correct size - Little protection against STIs - Takes time to learn how to use
Combined pill (Contraceptive pill)	Tablet containing hormones (oestrogen and progestogen) that prevent ovulation and sperm reaching egg.	99% effective if used correctly	- Highly effective if taken as instructed - Reduces period pain and can prevent heavy, painful periods - Can protect against ovary, womb and colon cancer - Doesn't interrupt sex	- Woman needs to remember to take at same time (inconvenient) - No STI protection - Woman can still become pregnant if sick or they have diarrhoea (or forget) **Combined pill=** Mood swings, headaches and weight gain **(side effects)** **Progestogen pill=** Spotty skin, tender breasts and irregular periods **(side effects)**
Progestogen-only pill (Contraceptive pill)	Tablet containing progestogen only. Taken daily, within a three hour time period. Thickens mucus in the cervix, preventing sperm contacting the egg.	99% effective is used correctly		
Intrauterine device/ system (IUD or IUS)	A small, t-shaped plastic device inserted into the uterus by doctor/nurse.	99% effective **if fitted** correctly	- Do not have to think about contraception - Doesn't interrupt sex - Provides some protection against some cancers and infections	- Has to be fitted by a doctor - Insertion can be painful - No STI protection
Contraceptive injection	Injection every few weeks/12 weeks.	99% effective if used correctly		- Can cause mood swings, headaches, weight gain and tender breasts - No STI protection
Contraceptive patch	Worn on the skin, introduces hormones into the body. Thickens mucus in cervix.	99% effective if used effectively		- Can cause headaches, raised blood pressure and blood clots - No STI protection
Contraceptive implant	A small tube inserted in the skin of woman's upper arm.	99% effective if used correctly		- Swelling or bruising after insertion - Periods may be heavier - No STI protection
Natural methods (Family planning / withdrawal method)	Woman understands when she is fertile and abstains from sex on these days. Man withdraws before ejaculating.	98% effective **if understood** **Withdrawal=**	- Does not cost anything - No side effects - Compatible with all cultures/ faiths	- Takes time for woman to learn - Can't have sex without condom on fertile days - Withdrawal method is unreliable as
Emergency contraceptive pill	Pill taken within 24 hours or up to 72 hours after unprotected sex	24 hrs = 98% 72 hrs = 52%	- Effective if taken within 24 hours - Widely available / sometimes free	- Vomiting and diarrhoea makes it ineffective - May cause headaches - No STI protection

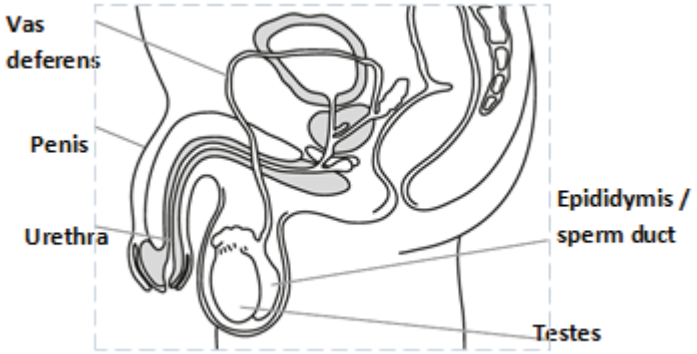




OCR Child Development(R057– Health and Well-being)

LO1 1.5 The structure and function of male and female reproductive systems

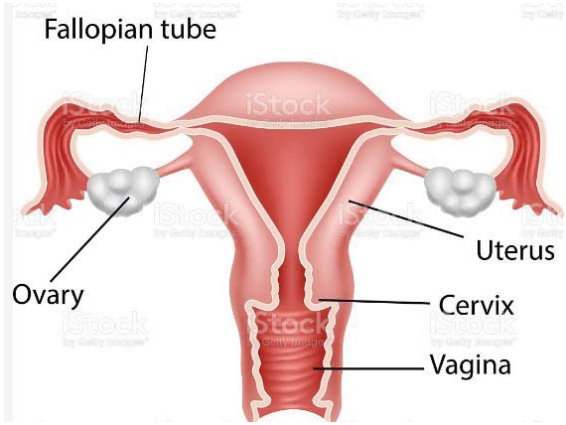
Male Reproductive System



Structure	Function
Testes	Male reproductive glands where sperm and testosterone are produced.
Epididymis / sperm duct	Sperm duct system consists of epididymis which stores the sperm.
Vas deferens	Muscular tube which extends upwards of testicles, transfers sperm to urethra.
Urethra	The tube insides the penis, carries both urine and semen.
Penis	Involved in sexual intercourse and elimination of urine.

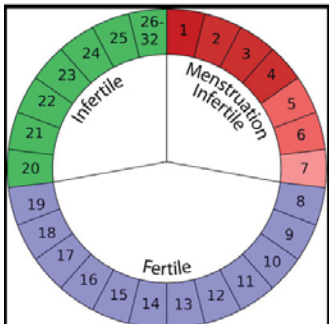
Signs and Symptoms of Pregnancy
Missed period or a very light period
Breast changes– Just before a period breasts feel larger or tender. Nipples may appear darker.
Passing urine frequently
Tiredness Nausea- 'morning sickness'

Female Reproductive System



Structure	Function
Ovaries	Controls the production of the hormones oestrogen and progesterone. Contains undeveloped eggs.
Fallopian tube	Connect the ovaries to the uterus. Ovaries release an egg once a month to the tube.
Uterus (womb)	Uterus (also called the womb), a pear shaped muscular bag where the baby (foetus) develops.
Cervix	Strong ring of muscles between uterus and vagina. Keeps the baby securely in place in the womb during pregnancy. Cervix dilates during labour.
Vagina	Muscular tube leading downwards, connects the cervix to outside of body. A males penis enters the vagina during sexual intercourse.

Menstrual Cycle and Fertlisation of Egg



Menstrual cycle lasts 28 days.

Phases–
Blood loss or menstruation– normally lasting from day one to day five

Ovulation (release of an egg)
This occurs when an egg is released from one of the ovaries and travels along the fallopian tube. Normally takes place between day 12 to 14.

Conception/Fertilsation
This happens when a sperm penetrates an egg following ejaculation of sperm from the penis into the vagina. The sperm meets the egg in fallopian tube. Egg and sperm fuse together as one cell. Fertilised egg continues along fallopian tubes.

Implantation
Fertlised egg arrives in the uterus. Once attached firmly, conception has been achieved and the egg Is called an embryo.

R093—Exam Content—Creative iMedia in the Media Industry

Studying this unit will enable you to learn about the different media sectors, products and the job roles within the media industry. You will learn that media products are designed for specific target audiences and that these audiences can be categorised.

Topic of Learning	I will need to know:	So that I can:
Media industry sectors	That there are two types of media –traditional media and new media. How has new media evolved? How has the Internet had an impact on how media products are created, viewed, used? Traditional media refers to media products such as film, television, radio and print publishing. New media refers to computer games, interactive media, the internet and digital publishing.	Explain in detail the different media sectors and how they have developed.
Media industry products	There are a vast range of media products that can be produced by and used in, different sectors. These media products can include– video, audio, music, animation, special effects (SFX, VFX) digital imaging and graphics, social media platforms and apps, digital games, comics and graphic novels, websites, multimedia, eBooks, augmented reality and virtual reality.	Explain using relevant examples the different media products and how they are used by different sectors.
Job roles in the media industry	The job roles within the media can fall into three categories—creative, technical and senior. How do these job roles work together to produce a media product? What are some of the responsibilities of each role? Some job roles are specific to pre-production, production and post-production. Depending on the size and scale of a product being produced, some job roles span multiple production phases. Creative: animator, graphic designer, illustrator, web designer. Technical: camera operator, web developer, sound editor, games developer. Senior: director, editor, creative director, production manager.	Identify the key job roles for a media design project and explain how their role contributes to the production of media products.
Purposes of media products	That media products are created for specific purposes. These include to advertise/promote, to educate, to entertain, to inform and to influence. The product style, content and layout are specifically planned to ensure that the final product meets the required purpose. That style, content and layout will include the use of colour, formal/informal language, positioning of elements, conventions of genre, tome of language, style of audio/visual representation.	Identify the different purposes of media products and explain how specific products meet their intended purpose.
Categories of audience segmentation	There are different categories of audience segmentation—these are age, gender, occupation, income, education, location, interests and lifestyle. How audience characteristics can influence the design and production of media products along with the reasons for and benefits of, audience segmentation.	Explain in detail the different audience categories and how a product would need to be designed to meet their requirements.

R093—Exam Content—Creative iMedia in the Media Industry

Studying this unit will enable you to learn about the different media sectors, products and the job roles within the media industry. You will learn that media products are designed for specific target audiences and that these audiences can be categorised.

Topic of Learning	I will need to know:	So that I can:
Client requirements and how they are defined	How to recognise keywords and information in client briefs. The requirements in client briefs that inform product planning eg type of product, purpose, target audience, content, genre, theme, timescales, client ethos, style. Why requirements in client briefs can constrain planning and production of digital products. How to interpret requirements in client briefs to generate ideas and plan. Know the different ways that client briefs are communicated such as; formal, commission, informal, meeting, written, negotiated.	Interpret a given client brief and understand all of the requirements in order to be able to effectively plan, design and create a digital product.
Planning documentation used to generate ideas	Concept sketches and visualisation diagrams can be used to develop ideas for a media product. Visualisation diagrams can be used to show design, layouts, colours, white space, placement of text and images and annotations can be included to further explain design ideas. Mind maps and mood boards. Both can be digital or hand drawn.	Sketch a detailed visualisation diagram which clearly shows the design of a media product that all members of a design team can follow.
Research methods, sources and types of data	The reasons for, and benefits of, conducting research. There are two types of research—primary and secondary research. Examples of primary research methods—focus groups, interviews, online surveys, questionnaires. Examples of secondary research methods—books, journals, internet sites, research, magazines, newspapers, television. Research data can be qualitative or quantitative information.	Identify the most appropriate method of research for a specific project and be able to explain the advantages/ disadvantages of each method of research.
Documents used to design and plan media products	The purpose of each planning document including, asset log, flow chart, script, storyboard and visualisation diagram, wire frames. The components and conventions of each document and the hardware and software used to create each one. What makes each document effective and selecting which document is appropriate for use. How to improve the effectiveness of documents for users in given contexts.	Identify the most appropriate document for the product being designed and to explain the key content required for each.
Components of work plans	The purpose of work planning and the components and role of a work plan. Components of a work plan include: tasks, activities, work flow, timescales, milestones, contingencies, resources such as hardware, software and people. The advantages of using work plans when planning a digital media product and how they can be used to manage time, tasks, activities and resources for individuals and large teams.	Create an effective work plan that includes all of the required content and can demonstrate how they can be used to

R093—Exam Content—Creative iMedia in the Media Industry

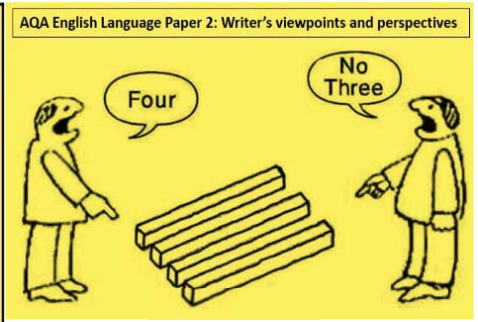
Studying this unit will enable you to learn about the different media sectors, products and the job roles within the media industry. You will learn that media products are designed for specific target audiences and that these audiences can be categorised.

Topic of Learning	I will need to know:	So that I can:
Legal issues that affect media	The legislation that relates to the creation of media products including, intellectual property rights to protect copyright, ideas, patents and trademarks. The purpose of, and reasons for, legislation to protect intellectual property. Data protection to protect the rights of data subjects in the collection, use and storage of personal data. Defamation: libel and slander. Privacy and permissions relating to the rights for recording images/taking photos in public places and the commercial use of images and invasion of privacy. Using copyrighted material: watermarks, symbols and creative commons licences.	Explain the key legislation relating to the creation of media products using relevant examples.
Media codes used to convey meaning, create impact, engage audiences	Media codes can be technical, symbolic or written. Ways that meaning and/or engagement are created using animation, audio eg dialogue, music genre, silence, sound effects, vocal intonation. Use of camera techniques eg angles, shots and movement. The use of colour, graphics, interactivity, lighting, mise-en-scene, movement, transitions and typography to help convey meaning, create impact and engage audiences.	Explain how the combination of content and codes work together to convey meaning, create impact and engagement.
Health and safety issues when creating digital media products	The health and safety risks/hazards in all phases of production, risk assessments and location recces. The purpose of risk assessments and location recces. The common risks and hazards in media production and what media producers can do to reduce these risks and hazards.	Identify and explain the commons risks/hazards in media production and how these can be reduced.
Media distribution platforms to reach audiences	The different platforms used to distribute media to audiences. Online: apps, multimedia, web. Physical platforms: computer, interactive tv, kiosks, mobile devices. Physical media: CD/DVD, memory stick, paper based.	Explain the characteristics of the different platforms and the advantages/disadvantages of each along with how their characteristics affect the selection of final product file format.
Properties and formats of media files	Image files: DPI/PPI resolution, pixel dimension, raster, bitmap, vector, compressed and uncompressed. Audio files: bit depth, sample rate, compressed, uncompressed. Moving image files: frame rate, resolution, SD, HD, 4K, 8K, animation, video, uncompressed, compressed. File compression: lossy/lossless compression.	Explain the properties of each media format to determine the most appropriate format and their limitations.

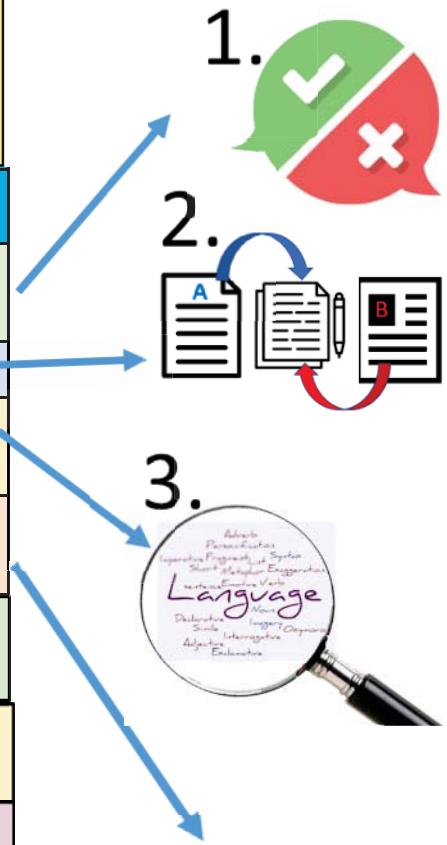
Week	I will need to know:	So that I can:
1 Design strategies	It is important that a designer will design products that will be successful, sell in the volume required, perform their function effectively, be friendly to the environment (sustainable) and appeal to customers. Therefore designers will follow a strategy that will help them to achieve this. These strategies include linear design, iterative design, inclusive design, user-centred design and sustainable design. Following one of these will help to ensure the designing stays on track.	Respond to a design brief effectively to produce an effective product.
2 Linear design Iterative design	Linear design is where a designer will follow a fairly rigid step by step process when designing. This starts with the design brief, research, design specification, designing, prototyping, testing/evaluating and manufacture. Iterative design is a more flexible approach to linear design. The designer has more flexibility to jump from one stage forwards or backwards, for example conducting further research at a later stage and usually spending a lot more time in the prototyping phase making many varying iterations (examples) of prototypes.	Follow a design process to create successful products as a result.
3 Inclusive design User-centred design	Inclusive design is where the aim is to design a product that anyone can use without excluding any type of user. For example a tin opener that can be used in the right or left hand, a TV remote that can be easily used by someone suffering from arthritis in their hands, a cash machine that can be used by users who are blind. User centred design involves carefully studying the needs and requirements of the user, often with lots of user observations and testing of prototypes with potential users.	Design products that can be used by anybody effectively.
4 Sustainable design	Products that are better for the environment are called sustainable products. So sustainable design means that environmental impact is the key consideration in the designing stage. 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 fuels. 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.
5 Product Analysis ACCESSFM part 1	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 Product Analysis ACCESSFM part 2	**Aesthetics** (The way the product looks and visually appeals), **Customer** (Who is the target market and how is the product catering for their needs and wants), **Cost** (What is the budget for the designing and development? What is to be the end price?), **Environment** (Where will the product be used and what does this mean the product needs to be like? Also what is the environmental impact of the product?), **Size** (How big is the product? Why is this? Have anthropometrics been considered or size of anything else), **Safety** (How safe is the product? Are there any safety symbols? Has it passed and safety/quality tests such as CE, BSI or WEE), **Function** (What is the function? Are there any other functions, how effectively and reliably does it perform?), **Materials** (What is the product made from? Why is this? Are these the most suited materials? How has it been manufactured?)	Know how to effectively analyse products and evaluate the success of prototypes.
7 The 6 Rs	Considered when designing any product and will help the designer create a ***more sustainable product***. Remember this means an environmentally friendly 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? Can we step back to the original problem and find a radically new way to solve it with less environmental impact?), **Refuse** (refuse to use harmful materials or processes), **Repair** (make spare parts available and make it easy to repair and maintain so its life will be longer and not need replacing so quickly.)	Be responsible and protect our planet through my design decisions.
8 Market pull and technology push	Many factors will lead to the development of a product or the creation of a completely new product. These include ***technology push*** and ***market pull***. ***Technology push*** is where an opportunity for product development occurs because of a new technology or material. This new technology makes the possibility of a new invention possible. ***Market pull*** is where the customer's opinion will lead to developments in a design, where the demand for a new feature is the driving force behind the development.	Understand the reasons that products are developed.

AQA English Language Paper 2 Section A - key Information and guidance:

- 1 hour 45 minute exam.
- Section A = Reading which has 4 questions based upon your understanding of the texts.
- There are two non-fiction texts labelled Source A and Source B.
- The sources can be things like speeches, articles, letters, biographies, autobiographies, leaflets and travel writing.
- One of them will be from the 19th Century (Victorian era). The other one will be more modern.
- They might be in full or edited extracts (parts of).
- They will have a bit of text at the top in italics which explains where the text is from – read this carefully.
- Spend 10m reading through the questions and both texts.
- Identify the sections the questions ask you to focus on (Question 1 and Question 3).
- Write something for each question. Spend 1 hour on Section A.



Question	Timing	Mark	Assessment Objective	What you do
1	5m	4	AO1	Identify 4 true statements from a section
2	10m	8	AO1	Summarise and infer from both sources.
3	15m	12	AO2	Analyse language in a section from one
4	20m	16	AO3	Compare writer's perspectives from both sources.



What is the writer telling us?

How has the writer shown this? (what methods have they used?)

Why has the writer done this??

TOP TIPS

1. Complete the paper backwards (complete the questions with the most marks first!)
2. Always upgrade your answer to Q4 if you have spare time!

Q5.[Form feature: such as headline & subheading for an article, 'Dear Mr Smith,' for a letter]

<u>Adjective, adjective, adjective: [topic] + statement such as (is a disease spreading through our society).</u>

Presently, we are like mindless addicts; preferring the heady rush of flippant fools and funny failures. Today's society is so immersed in the blizzard of triviality that [link to topic].

Personally, my own children, Edward and Alice, have been sucked into this [link to topic]. It is easy to dismiss this as unimportant but the noxious influence of [topic] is as pervasive as it is dangerous.

Publically, they (like so many their age) have become plagued with anxiety. According to figures from Plymouth University, over 75% of young people report extreme [link to topic]. Professor Hill, who co-authored the report, stated: 'society's fixation upon [topic] is a different kind of epidemic; causing untold damage to young people's minds. It is arguably worse because there is no vaccine.'

We must stop this!

Predictably, some people will… [consider opposing view] but this only perpetuates the problem. We have two options: continue to infect our minds or move forward to a future where we [positive link to topic]. Which would you rather choose?

[Form feature: such as 'Yours sincerely' for a letter or 'Thank you for listening' for a speech]

Q4. (x3)[SOURCE A WRITER]'s perspectives/feelings/intentions about [topic] are…
This is shown in the phrase '[QUOTATION]'
The word choice/imagery/method suggests…
However/Similarly, [SOURCE B WRITER]'s perspectives/feelings/intentions about [topic] were also/more…
This is shown in the phrase '[QUOTATION]'
The word choice/imagery/method suggests…
This links/contrasts because…

Q3. (x3)1. *The use of [method] suggests…*
2. Additionally, the word choice '…' implies…
3. Furthermore, the use of '…' creates a mood of…
4. The '…' is symbolic of…
5. The word choice '…' links to idea of…

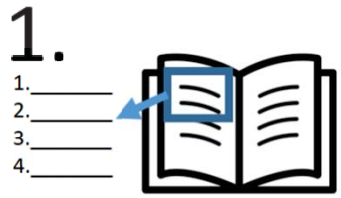
Q2. Source A shows [TOPIC] in the phrase '…'.
The writer does this to make the reader feel…
However/ Similarly Source B shows [TOPIC] in the phrase '…'.
The writer does this to make the reader feel…

AQA English Language Paper 1 Explorations in Creative Reading and Writing

Section A - key Information and guidance:

- 1 hour 45 minute exam.
- Section A = Reading which has 4 questions based upon your understanding of the text.
- There is one fiction text which is an extract from either a novel or a short story.
- There is a bit of text at the top in italics which explains where the text is from – read this carefully.
- Spend 5m reading through the questions and the extract.
- Identify the sections the questions ask you to focus on (Question 1 and Question 3).
- Write something for each question. Spend 1 hour on Section A.

Question	Timing	Mark	Assessment Objective	What you do
1	5m	4	AO1	List 4 things from the text.
2	10m	8	AO2	Analyse language in a section.
3	10m	8	AO2	Analyse structure across whole source.
4	30m	20	AO4	Evaluate – to what extent do you agree with a statement.



What is the writer telling us?

How has the writer shown this? (what methods have they used?)

Why has the writer done this??

TOP TIPS

1. Complete the paper backwards (complete the questions with the most marks first!)
2. Always upgrade your answer to Q4 if you have spare time!

Q5. Nobody dies anymore.

[link to task]

I am isolated in the waiting room of this squat grey clinic. There is a poster – to distract us or something. It is a strange choice… [describe picture].

How did we get here? Scientists plucked at the strands of DNA that played the chords of eternal life. Strung up the troublesome aging gene and (for the lucky few) silenced it. So now in this symphony there was just one minor note: children.

These places used to be crowded but now children are an indulgence. Not everyone has the marker that enables aging to be suspended so they brought in a test for all pregnancies. Makes sense; no-one wants to live knowing that they are the only one who is going to die. Makes sense until it is your child.

So here I am… No, here we are. Alone. Awaiting the results of the genome sequencing test for you.

Will you live forever or will you be discarded before you even have a chance? Why am I even talking to you? You barely exist yet.

[Link to task/picture]

They are calling me in.

Nobody dies anymore but will they let you live?

Q4. (x3)I agree that [STATEMENT]. It is clearly shown by [QUOTATION 1]. The imagery/word choice/method suggests… Additionally, the phrase [QUOTATION 2] reinforces…
Throughout, the idea that [STATEMENT] is shown by phrases such as [QUOTATION 3]. The imagery/word choice/method suggests… Also, the phrase [QUOTATION 4] adds to this because…
Towards the end, the argument that [STATEMENT] is illustrated by the phrase [QUOTATION 5]. The imagery/word choice/method suggests… Linking with this, the phrase [QUOTATION 6] contributes to this as…

Q3. At the beginning the writer focuses on… The phrase '…' is used at this point to interest the reader in…

Throughout the middle, the writer develops the focus to… The phrase '…' is used at this point to interest the reader in…

Towards the end, the writer focuses on… The phrase '…' is used at this point to interest the reader in…

The 1st person perspective makes the text seem more personal. /OR/ The 3rd person perspective makes the text seem more detached.

Q2. (x3)1. *The use of [method] suggests…*
2. Additionally, the word choice '…' implies…
3. Furthermore, the use of '…' creates a mood of…
4. The '…' is symbolic of…
5. The word choice '…' links to idea of…

A Christmas Carol

Prepared Introduction:

Dickens presents [focus] to criticise misanthropy in Victorian London. As a philanthropist, Dickens uses his didactic allegorical novella to show the need for social reform. Dickens crafts this through Scrooge's redemption arc as he progresses from a 'covetous old sinner' to being 'quite a baby' symbolising his rebirth.

Key Quotations:

1	'**solitary** as an **oyster**'	'his own **heart** laughed'
2	'I wear the **chain** I **forged** in life'	'light as a **feather**'
3	'decrease the **surplus** population'	'If these **shadows** remain unaltered by the Future, the child will **die**.'
4	'Another **idol** has displaced me … a **golden** one'	'as good as **gold**'
5	'biting weather' 'freezing fog'	'**Golden** sunlight; **Heavenly** sky'
6	'**gruff** old bell was always peeping **slily** down at Scrooge'	'**merry** bells'
7	'are there no **prisons**?'	**'Ignorance'** & **'Want'** 'Beware … on his brow … **Doom'**
8	'**Father** is so much kinder than he used to be, that home's like **Heaven**!'	'to Tiny Tim, who did not die, he was a second **father**'
9	**'edge** his way along the **crowded** paths of life'	'open their shut-up **hearts** freely … as if they really were fellow-passengers to the **grave'**

'a strange figure—like a **child**: yet not so like a child as like an **old man**'	'a **jolly Giant**, glorious to see; who bore a glowing torch…Girded round its middle was an antique scabbard; but no sword was in it'	'a solemn **Phantom**, draped and hooded, coming, like a mist along the ground, towards him.'

A Christmas Carol

Philanthropy: the desire to help others.
Malthusian: reflecting Thomas Malthus' theories.
Exploit: make use of someone in an unfair way.
Avarice: extreme greed for wealth/material gain.
Ignorance: lacking knowledge, often deliberately.
Misanthropic: showing a dislike of other people.
Didactic: a story with a moral instruction or message.
Redemption: being saved from sin or wrongdoing.
Miser: someone who hoards wealth and spends little.
Foil – a character create to be another's opposite, with the purpose of exaggerating viewpoints through contrast.
Idol: something that is admired in a godlike fashion.
Solitary: existing alone.
Melancholy: sadness without having a particular cause.

Context: Victorian England
The Victorian Era of Britain saw a lot of changes in society. Industry took over and with it came a **wider class divide than before**. There was a **huge divide between rich and poor.**

Context: The role of the church
Religion was important during the Victorian era. Most people believed in **heaven as a reward for good behaviour and hell (or purgatory) as a punishment.**

Context: Ghost Stories
Ghost stories were hugely popular during the Victorian era. **Dickens wrote a ghost story, aimed at upper class readers, as he knew it would sell well.**

Context: Thomas Malthus and Malthusian economics
Malthus was an economist who believed that **if the population grew too large, there would be a crisis around food supply**. Malthus believed that to **help society and the population, some had to die.** Malthus' theory implied that this should be those least important to society (the working class!)

Context: Poor Law
In Victorian times, those is poverty were not viewed kindly. If someone was poor or in debt, they were sent to debtors jail or a workhouse. **This meant that poverty was seen as a crime and the working class, criminals.**

Key Themes:

Redemption	Supernatural
Social justice	Kindness
Exploitation	Greed

An Inspector Calls

Prepared Introduction

Priestley presents **[THEME]** to **criticise capitalist culture** within Edwardian England. As a socialist, Priestley wanted his audience to 'learn [the] lesson' that 'we are all responsible for each other'. Priestley crafts the cyclical structure to subvert the murder mystery genre so that we gradually realise that everyone must 'share our guilt'.

	Key Quotations	
1.	**'Burnt** her inside out'	**'Fire** and blood and anguish'
2.	**'unsinkable**, absolutely **unsinkable'**	'we're all in it – up to the **neck'**
3.	'obscene fat **carcass'**	'We are members of one **body'**
4.	'A **chain** of events'	'He's giving us the **rope** - so that we'll hang ourselves'
5.	'I'd give **thousands** - yes, **thousands'**	**'Millions** and **millions** and **millions** of Eva Smiths'
6.	**'Mummy'**	**'Mother** - stop - stop!'
7.	'(with sharp **sarcasm**)...You were the **wonderful Fairy Prince**.'	'young and **fresh** and charming''
8.	'Girls of that **class**-'	'You mustn't try to build up a kind of **wall** between us and that girl'
9.	'she was **pretty** and a good **sport'**	'Just **used** her...as if she was an **animal**, a **thing**, not a person'
10.	'Lower **costs** and higher prices'	'A man has to mind his own business and **look after his own.'**

Stage Directions:

'The lighting should be pink and intimate until the Inspector arrives and then it should be brighter and harder.'

' Arthur Birling…. Rather provincial in his speech. His wife is…. Her husband's social superior.'

'The general effect is substantial and heavily comfortable but not cosy and homelike.'

An Inspector Calls

Hindsight – to understand a situation only after it has happened.
Mouthpiece – a dramatic device where a character speaks for the author, communicating their point of view within the play.
Dramatic irony – when the audience has knowledge of the significance of some information that the characters lack.
Naïve – lacking in wisdom or judgement.
Remorseless – without regret or guilt.
Nomenclature – the selection process of naming things.
Microcosm/microsociety – literally 'small world'. A system that represents the larger word, usually through the use of symbolism and allegory.
Callous – cold-hearted and uncaring
Materialistic – excessively concerned by what one owns or money.
Omniscient - all knowing.
Allegory - a story with a hidden meaning
Cyclical structure - a story that begins and ends in the same way (In AIC, the doorbell being rung)
Objectification - referring to something as an object, rather than a human being.

Context: Priestley and Socialism
Priestley was born in **Bradford, Yorkshire.** He believed in the political idea of **Socialism.** A **Socialist society** would be one that shared wealth and created less of a divide between the rich and poor.

Context: Capitalism
A political idea whereby people keep as much as they earn. This creates a **divide in society** between those who are rich and those who are poor. **Priestley disagreed with Capitalism.**

Context: Hindsight
The play was written in 1947 but set in 1912. This means, as a writer, Priestley had experienced two world wars and the suffragette movement but this had yet to happen in the play.

Context: Suffragette Movement
The **suffragette movement began in the 1920's and gave women a voice** to create change in society. Sheila, as a character, is presented as a future suffragette. Before this, **women were seen as housewives and their value was mostly based on their appearance. This is seen thr9ugh the repeated use of the word 'pretty' to describe Eva Smith throughout the play.**

Context: Play Form
An Inspector Calls is a play which is designed to be performed on stage. A director of a play considers**: props, setting, costumes, lighting and staging.**

Key Themes:

Responsibility	Role of women
Social Justice	Greed
Equality	Reform

Macbeth

Prepared Introduction:

Shakespeare presents [focus] to criticise Machiavellian immorality in the Jacobean era. As a humanist, Shakespeare wanted to explore the extent to which Macbeth's hamartia or supernatural forces dictate his downfall. Shakespeare crafts this through the tragic arc of Macbeth from the almost deified start as 'Bellona's bridegroom' to the ignominious and hellish end of this 'dead butcher and his fiend-like queen'.

Key Quotations:

1	**'Fair** is **foul**, and **foul** is **fair'**	'the **equivocation** of the fiend That **lies** like **truth'**
2	**'Stars**, hide your **fires**, Let not **light** see my **black** and deep **desires**.'	**'Vaulting ambition'**
3	'look like the innocent **flower**, But be the **serpent** under't.'	'We have scotch'd the **snake**, not kill'd it: She'll close and be herself'
4	**'unsex** me here'	**'dash'd** the brains out'
5	'A **dagger** of the mind, a false creation'	'O, full of **scorpions** is my mind, dear wife!'
6	'Macbeth does murder **sleep''**	'To **bed**, to **bed**, to **bed**!'
7	'mine eternal **jewel** Given to the common enemy of man,'	**'Seyton**!--I am sick at heart'
8	'I shame to wear a heart so **white'**	'Out, damned **spot**!'
9	'**Neptune's ocean**'	'gash'd stabs look'd like a **breach in nature**'
10	'What **beast** was't then … When you durst do it, then you were a **man'**	'Too full o'the milk of human kindness''

Prophecies:

beware **Macduff**	none of **woman born** Shall harm Macbeth.	Macbeth shall never vanquish'd be until Great **Birnam wood** to high Dunsinane hill Shall come against him.

Macbeth

Hamartia – tragic flaw
Ambition – desire to achieve success
Tragic hero – from Greek tragic theatre
Treachery – betraying trust
Regicide - the crime of killing the king
Divinely appointed – chosen by God
Paranoia – suspicion without true cause
Masculinity - typical behaviours associated with men and boys (such as violent, powerful etc)
Supernatural – things that cannot be explained (such as visions, hallucinations of ghosts)
Tyrant - to rule through fear and violence
Fate - decisions and futures predetermined
Free will - making our own choices to determine our future
Insanity -- to no longer think clearly/ the brain loses its ability

Context: Jacobean Era
Shakespeare wrote Macbeth during the Jacobean era. The king was King James I. King James was obsessed and terrified of witches. He wrote a book called Daemonologie to help identify witches. During his reign, witchcraft became illegal causing thousands to die.

Context: Shakespeare and money
In order to be successful and make money, Shakespeare needed King James to like his plays. As such, Shakespeare wrote Macbeth to impress King James by vilifying witches and traitors.

Context: Chain of Being
The Chain of Being was a belief of the Jacobean people there was a natural hierarchy (decided by God) in society. God and the king were at the top and most powerful, with dirt at the bottom. **If the Chain was broken this was considered a sin and an act against God, disrupting nature.**

Context: Divine Right of Kings
The belief that God chooses the king. If anything were to happen to the king, this would be an act against God and a sin.

Context: Gunpowder Plot
James was an unpopular king having brought his Protestant views from Scotland into England. A group of Catholic men, including Guy Fawkes, attempted to blow up the House of Parliament and murder him. They failed – but the country, and James, was shaken by this political turmoil.

Context: Women
Women were expected to be housewives and mothers.

Key Themes:

Violence	Insanity
Masculinity	Leadership
Supernatural	Relationships

Social Issues Knowledge Organiser

(Theme 2: Unit 6)

Use 'je veux', 'je peux', 'je dois', 'je voudrais' & 'je vais' + full verb

Verbs	
combattre	to combat
créer	to create
donner	to give
être fondé(e)	to be founded
faire du bénévolat	to do voluntary work
fonder	to found
lutter	to fight
protéger	to protect
accueillir	to welcome
apporter	to bring
comprendre	to understand
essayer de	to try
propager	to spread
soigner	to treat/care for
travailler	to work
voyager	to travel
boire	to drink
consolider	to consolidate
contenir	to contain
devoir	to have to (must)
éviter	to avoid
garder la forme	to keep in shape
manger	to eat
mener à	to lead to
rester en bonne santé	to stay healthy
se détendre	to relax
devenir	to become
dormir	to sleep
se droguer	to take drugs
s'entraîner	to train
être à l'aise	to be comfortable
faire attention à	to be careful of
fumer	to smoke
perdre du poids	to lose weight
plaire	to please
se relaxer	to relax
faire un régime	to be on a diet

Charities	
l'association caritative	charity
à l'abri	in a safe place
le don	donation
l'égalité	equality
l'inégalité	inequality
l'exclusion	exclusion
la faim	hunger
les gens	people
tout le monde	everyone
l'injustice	injustice
la misère	misery/poverty
la nourriture	food
la pauvreté	poverty
le test de dépistage	screening test
l'eau potable	drinking water
les sans-abris	homeless people

Drink, drugs & smoking	
les drogues	drugs
l'alcool	alcohol
le tabac	tobacco
les cigarettes	cigarettes
l'odeur	smell
une habitude	a habit

Expressions using avoir	
avoir les moyens	to be able to afford
avoir de la chance	to be lucky
avoir confiance en soi	to be confident
avoir peur de	to be scared of

Adjectives	
équilibré(e)	balanced
fatigué(e)	tired
gras(se)	fatty
malade	ill
malsain(e)	unhealthy
sain(e)	healthy
sucré(e)	sugary
varié(e)	varied
alimentaire	dietary
démuni(e)	in need
dur(e)	hard
pauvre	poor
en bonne forme	fit
accro/dependant(e)	addicted
stressé(e)	stressed

Meals	
le repas	meal
le petit déjeuner	breakfast
le déjeuner	lunch
le dîner	dinner
l'entrée	starter
le dessert	dessert
le plat	dish
le plat principal	main course
la boisson	drink

Health	
la maladie	illness
le médecin	doctor
les medicaments	medicine
le sang	blood
le SIDA	AIDS
le test de dépistage	screening test
le coeur	heart
la dent	teeth
l'obésité	obesity
la santé	health
le poumon	lung
la respiration	breething
l'os	bone

The partitive article
Used to talk about indefinite quantities (some/any)

de+le= du (some/any)	du lait (some milk)
de+la= de la (some/any)	de la farine (some flour)
de+l'= de l' (some/any)	de l'eau (some water)
de+les = des (some/any)	des pommes (some apples)

Manger (to eat)

Past		Present		Future	
J'ai mangé	I ate	Je mange	I eat	Je vais manger	I'm going to eat
Il/elle a mangé	He/she ate	Il/elle mange	He/she eats	Il/elle va manger	He/she is going to eat
Nous avons mangé	We ate	Nous mangeons	We eat	Nous allons manger	We are going to eat

Boire (to drink)

Past		Present		Future	
J'ai bu	I drank	Je bois	I drink	Je vais boire	I'm going to drink
Il/elle a bu	he/she drank	Il/elle boit	He/she drinks	Il/elle va boire	He/she is going to drink
Nous avons bu	We drank	Nous buvons	We drink	Nous allons boire	We are going to drink

French

TOPIC 6: Social issues

Pour aider les SDF/les démunis	To help the homeless/those in need
je travaille comme **bénévole** pendant l'été	I work as a **volunteer** during the summer
Je pense que **les associations caritatives**	I think that **charities**
jouent un rôle important dans **la société**	play an important role in **society**
en aidant ceux qui *ont besoin* d'eux	**by helping** those who *need* them
Bien que ne j'aie pas *trop* le temps	**Although** I don't have *too much* time
je voudrais **créer** une association caritative	I would like **to create** a charity
pour aider les mères *célibataires*	**to help** *single* mums
et **leurs enfants** car **ça m'inquiète** le plus	and their children because that worries me the most
Je vais collecter des choses nécessaires	**I'm going to collect** essential things
comme des produits d'hygiène	**such as** hygiene products
Je vais essayer de faire *mon mieux*	**I'm going to try** to do *my best*
pour que ces femmes *ne manquent de rien*	**so that** these women *don't lack anything*
Si j'avais plus de temps et d'argent	**If I had** more time and money
j'aiderais **le monde** entier	I would help **the** entire **world**
J'ai le cœur sur la main	**I am all heart**
Les jeunes **font face à** la pression des paires	Young people **face** peer pressure
En étant connectés *en ligne* tout le temps	**By being** connected *online* all the time
les jeunes **peuvent** *être* intimidés	young people **can** *be* intimidated
ce qui peut avoir un impact	**which** can have an impact
sur leur **santé mentale** et *travail scolaire*	on their **mental health** and *schoolwork*
Ils peuvent avoir **d'autres** problèmes	They can have **other** problems
comme **l'anorexie**, *les drogues* ou l'alcool	such as **anorexia**, *drugs* or alcohol
Il est important de parler de *ses* problèmes	**It's important** to talk about *one's* problems
pour *les* résoudre	**in order to** resolve *them*

Commodity: Meat, Poultry, Fish and Eggs

Farming methods

There are symbols on food packaging (RSPCA assured /red tractor symbol to show that meat and poultry have met welfare standards. Animal welfare refers to the well-being of animals and covers areas such as the animals access to fresh water , diet to maintain health, assurance that the animals are reared free of any discomfort, pain, injury disease and provided with adequate shelter.

Growth & Process

Beef: Organic beef and rare breed beef is the most expensive to buy. The time the beef has been hung will determine how flavoursome and tender it is.
Pork: the meat that comes from pigs. Ham, bacon and gammon are cured pork.
Goat: also called Cabrito, Chevon or Kid.
Venison: meat from deer, it is classified as game but can be farmed or park reared.

Nutrient Value

Meat and Poultry contain: Protein (**H**igh **B**iological **V**alue), Fat (red meat has a higher fat content than poultry, Vitamins A and D (fat soluble), B12 (water soluble), Minerals; Iron (for haemoglobin), Magnesium (strong bones and muscle health), Potassium, (electrolyte balance) Selenium (antioxidant) and Zinc (immune and reproductive systems).

Classification

Meat is sourced from animals, Poultry from domesticated fowl (eg chicken and turkey), Offal is edible internal organs, Game is sourced from wild animals (eg Rabbit, Pheasant, Pigeon). British meat and poultry must be born, reared and slaughtered within the UK. Under EU law all meat and poultry for human consumption must show traceability through all stages.

Storage

All meat and poultry should be stored at between 0-5°C. Raw and cooked meat/poultry should be stored separately. Raw meats at the bottom of a fridge and cooked meats at the top. Poultry should be stored away from other meats to minimise Salmonella cross-contamination.
Red chopping boards for raw meat, Yellow for cooked meats and Blue for raw fish.

Diet

A portion of meat = 80g (roughly the size of a pack of cards). It is recommended not to eat more than 500g per week (approx. 6 portions).
Protein is a important macronutrient, it is essential for growth and repair of the body. 1g of protein can provide 17KJ/4 cal of energy. Animal proteins are HBV (high biological value proteins as they contain all essential amino acids).

Emulsions

Oil and Water do not mix. Some dishes we make need to have the oil and water permanently mixed together, to do this we make an emulsion. Placing olive oil, and vinegar and shaking them together forms a salad dressing, but they will settle out into layers. This is called a unstable emulsion. If you gradually add beaten egg into the solution, you will for mayonnaise which is a stable emulsion as it does not separate.

Classification

Meat proteins coagulate (harden) on heating. At around 60°C the proteins begin to change in composition and structure. This process is called denaturation. As a result of denaturation the muscle fibres become firmer. Beyond 60°C the muscle fibres shrink and the meat juices are squeezed out.
Marinades tenderise meats by changing collagen into gelatine, allowing the meat to hold more water.

Commodity: Soya and alternatives

Growth and Process

Many nuts and seeds are processed into oils. They are cleaned, ground and pressed. The oil released is collected, refined (to remove colour, odour and bitterness) before being bottled. Alternative proteins AKA Novel Protein foods (NPF) are based on vegetable proteins and microorganisms. Examples include; Tofu, Soya, Quorn and Textured Vegetable Protein.

Classification

Legumes AKA pulses are an edible seed which grows in a pod. Beans, Lentils and Peas are examples. Nuts are fruit encased in a hard shell, this gives them a long shelf live. Seeds are the embryo of the plant. Peanuts are legumes not nuts. Alternative proteins are foods used as a replacement for meat, they can be based on vegetable protein or mycoprotein.

Nutrient Value

Pulses are a cheap, low fat source of protein, fibre, vitamins and minerals which count towards your 5 a day. The fibre in pulses can help lower your cholesterol levels and are a good source of iron. Most plant sources of protein are missing one of the essential amino acids and so are called LBV proteins (low biological value).

Food Preparation and Nutrition

Food Science

Conduction: the transfer of heat by direct contact from a hot surface. Eg; dry frying, griddling, searing and sauteing.
Convection: the transfer of heat by the mass movement of heated particles into a cooler mass or area. Eg; (dry heat methods) Baking, roasting and deep frying. (Wet heat methods) Boiling, braising, simmering, poaching, steaming and pressure cooking.

Food Science

Radiation (Infra-red): the heat is transferred using electromagnetic radiation, waves of heat or light strike the food. E.g; Toasting, grilling, and barbequing.
Radiation (Microwave): The magnetron in the microwave oven converts electricity to radio waves which penetrate the food. E.g; heating up leftovers, defrosting food, warming up ready meals.

Commodity: Milk, Cheese and Dairy

Food wastage

Food sustainability looks at the impact of food production on the worlds economy. Sustainable food should be produced, processed, bought, sold and eaten with consideration to; being waste free, buying locally and seasonally, eating healthily, choosing fair-trade, fishing sustainably, balancing diet and growing own produce. It is estimated that food production will need to increase by 60% by 2050 to feed the global population.

Growth & Process

The source of all dairy foods is milk which comes from female mammals for feeding their young. Milk is a 'complete food' as it contains all the indispensable amino acids and many of the essential nutrients needed for bone health. Dairy cows need to of given birth before they produce milk. They are milked twice a day. Cows tend to be productive for 3 years. Milk is collected and held in storage tanks before processing. This is primary processing.

Classification

All milk in the UK must be heat treated @75°C for 25 secs to destroy pathogenic bacteria (pasteurisation). Milk can then be; **Homogenised** (using a fine mesh under pressure to evenly distribute fat), **Sterilised** (heat treated at 50°C, homogenised, bottled and then steamed @110°C for 10-30 mins**), Ultra heat treated** (UHT- heated to 135°C for 1 sec) **Evaporated** (50% of water removed), **Condensed** (heated @110°C and sweetened) or **Dried**.

Nutrient Value

Cows are the primary source of milk in the UK. Its flavour and fat content are determined by; the breed of cow, season its produced, type of feed, the age and health of the cow. Milk is 85% water, the rest is made up of HBV protein (3.5%) , Fat (3.5-5%), Carbohydrate (4.8%), Vits B, A, D,C. Minerals; Phosphorous, Sodium, Iron, Calcium.

Diet

Lactose intolerance is when a person cannot digest lactose (natural sugar) in cows milk. Bacteria in the gut then feed on this sugar and produce abdominal symptoms. There are alternative milks such as sheep, goat or nut milks. A small number of people can be allergic to milk proteins, and will need to avoid dairy products. This is called CMPA- Cows milk protein allergy. Foods containing milk must have milk listed as an allergen on the packaging.

Food science

Milk is a emulsion meaning it has tiny globules of fat floating in water. Emulsions are colloides. The fat content of milk determines the type of milk (whole- 3.9%, Semi skimmed-1.7%, Skimmed-0.5%). The fat component of cheese melts at 65°C making it spreadable/stringy or dissolved in hot foods. Too high a heat causes the protein (caseinogen) and fat to burn.

Food science

Yoghurts is made from different types of milk. A bacterial starter culture is added to ferment the lactose into lactic acid this allows the proteins to coagulate and produce a sharp, tangy natural yoghurt. Sugar/sweetener can be added as well as fruit. Yoghurt can be 'live' (harmless bacteria present), Probiotic (beneficial gut bacteria present) or Bio.

making cheese

A starter culture is added to pasteurised milk. The culture ripens the milk by fermenting the lactose into lactic acid. Once enough Lactic acid is produced rennet is added to coagulate into curds and whey. The Whey is drained from the curds. Curds are then 'scalded' to encourage 'syneresis'. It is then pressed to remove more whey and shaped.

Storage

Fresh milk should be stored at 5°C with a tight fitting lid away from strong smelling foods. Sterilised and UHT milk can be stored unopened at room temperature. Evaporated and condensed milk have long shelf lives and an be kept in a cupboard. Evaporated should be stored in the fridge once opened.

Year10 - Geography- Cycle 3

Key Vocabulary

Transportation –

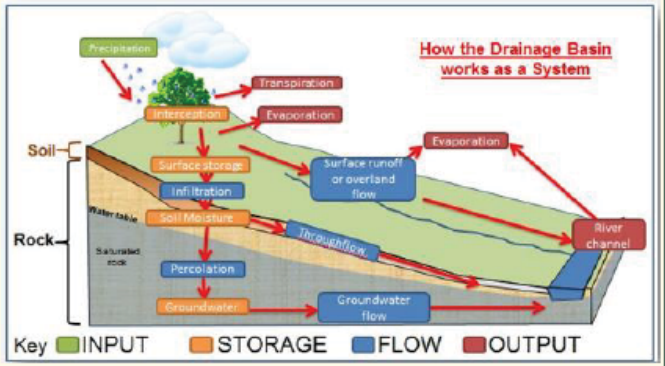
Suspension - lighter material floats within the water.

Traction - larger rocks roll along the sea bed.

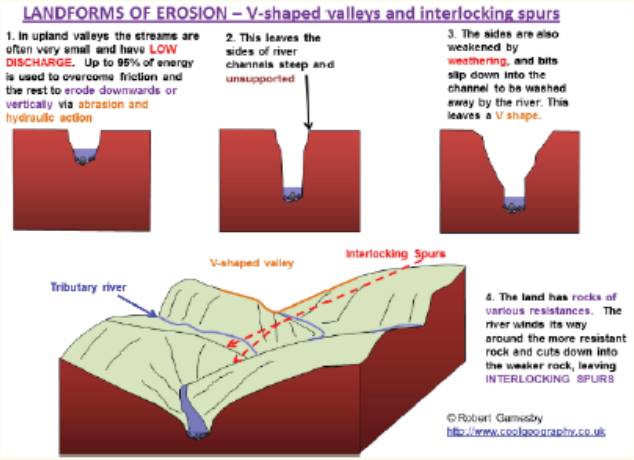
Solution - some material, such as chalk, gets dissolved into the water.

Saltation - smaller rocks, if they are too heavy to be suspended, hop along the sea bed.

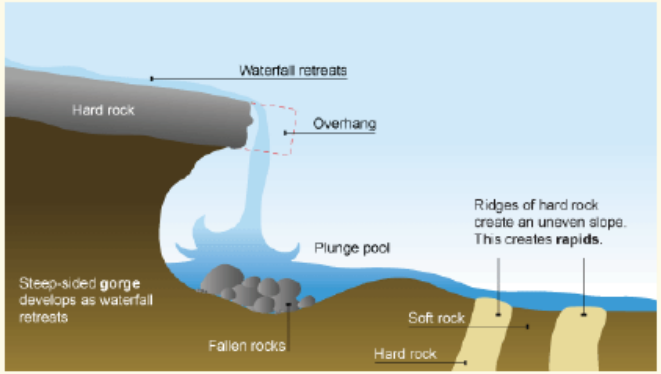
Week 1 – Hydrograph



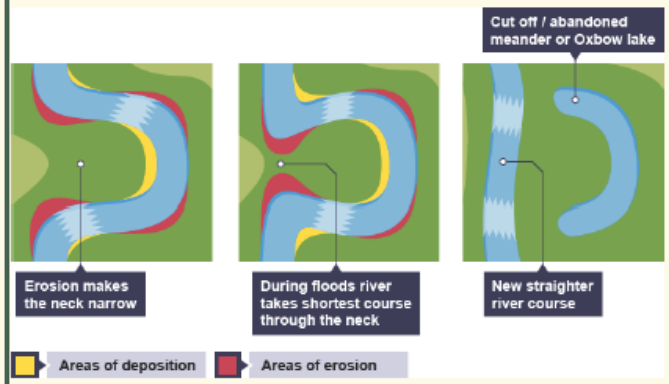
Week 2 - V Shaped Valleys



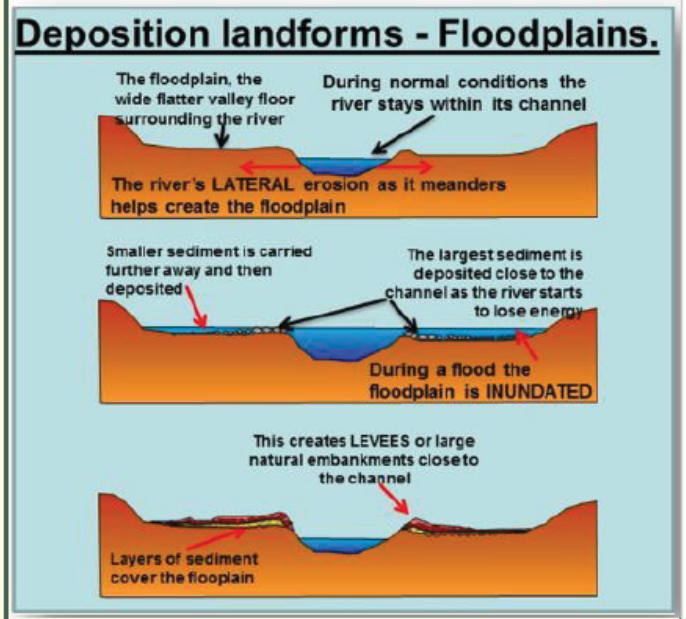
Week 3 – Waterfalls & Gorges



Week 4 – Meander & Oxbow Lakes



Week 5 – Levees



Key Vocabulary

Erosion -

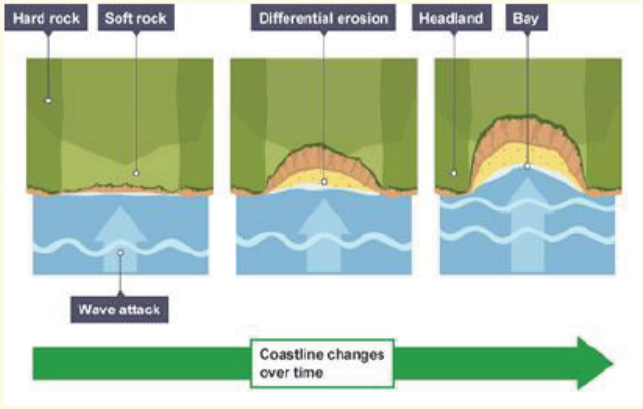
Hydraulic Action: When waves crash against a cliff, they force air into cracks in the rock. The force of this trapped air causes the rock to weaken and eventually break.

Abrasion: This is where sediment being carried by the water wears away the surface, almost like sandpaper.

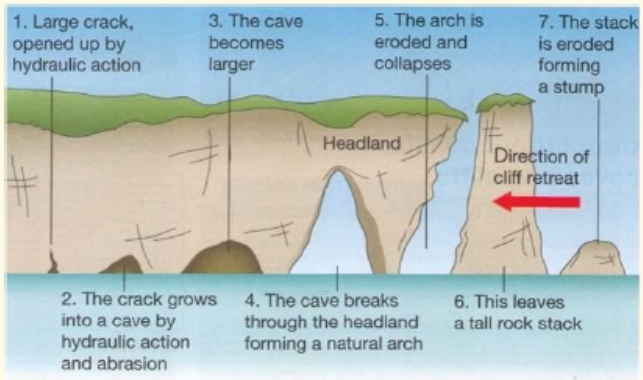
Solution: Chemicals in the water dissolve certain types of rock such as limestone. However, there is some debate about how much coastal erosion this causes.

Attrition: Rocks crashing into each other result in them becoming smoother and more rounded.

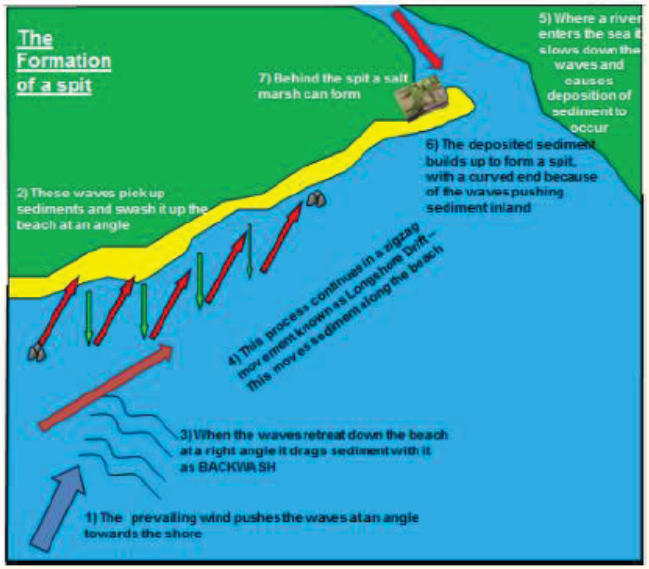
Week 6 – Headland & Bay



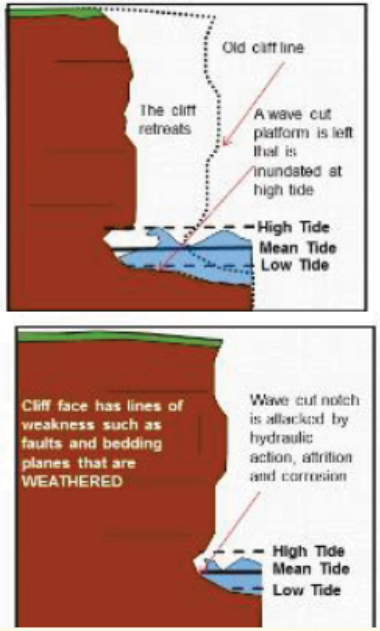
Week 7 – Cave, Arch, Stack, Stump



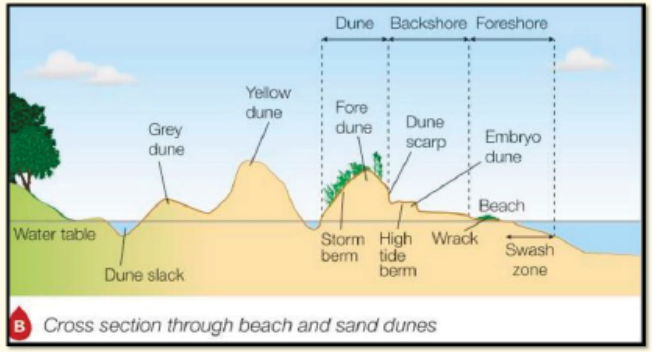
Week 8 – Spit



Week 9 – Wave-cut platform



Week 10 – Sand dunes



B Cross section through beach and sand dunes

Entrepreneurship & associated benefits

Enterprise is a business or company A project, a willingness to take on a new project, an undertaking or business venture.

An **entrepreneur** is someone who organises, manages, and assumes the risks of a business or enterprise.

Characteristics of an Entrepreneur is someone who is charismatic, driven, hardworking, motivated, dedicated, risk taker, enthusiastic, organised, innovative, good communicator, has an analytical ability and is a good decision maker.

Entrepreneurs boost economic growth by introducing innovative technologies, products and services.
By creating new products and services they stimulate new employment, which then results in the acceleration of economic development.

Economic growth – measured as an increase of people's real income this
means that the ratio between people's income and the prices of what they can buy is increasing.

Goods and services become more affordable, people become less poor.

Objectives of an entrepreneur

An objective of an entrepreneur is either a short- or long-
term goal that an entrepreneur will set themselves to measure and achieve a successful business or personal outcome.

List examples of objectives of an entrepreneur

- **being their own boss**
- **overseeing their own destiny**
- **flexible working**
- **Pursuing an interest**
- **earning more money for personal profit**
- **identifying a gap in the market that could help expand a personal vision, job and personal satisfaction**

Identifying a business opportunity

How can a business opportunity be identified

• Observing trends • Solving a problem • Finding gaps in the marketplace

What is an opportunity- An opportunity is a favourable set of circumstances that creates the need for a new product, service, or business Idea. Identifying gaps in the market, consumer needs, initiating ideas and following an interest or hobby are all ways to identify a business opportunity. As well as fulfilling a social or ethical goal, identifying supply and demand from competition in the area/industry & improving current products and services.

Business planning

There are many reasons why businesses create business plans. There are benefits and drawbacks with business planning. The purpose of and methods of setting objectives must be considered including how finances are raised. Developing and writing business plans must start with a business idea, aims and objectives, target market, resources, sources of finance, simple cash budget (estimated revenue and costs). The four Ps for marketing must be considered- product, price, place & promotion.

Identifying a business opportunity-Market research

Market research is an organised effort to gather information about target markets and customers.

It is an important component of business strategy and a major factor in maintaining competitiveness

Primary Research -Research that you collect yourself but going directly to the target market through a range of methods.

Secondary research -The use of data that has previously been collected, analysed and published (and therefore you do not own this data).

Qualitative market research is the collection of primary or secondary data that is non-numerical

Quantitative research is the collection of primary or secondary data that is numerical in nature

Marketing mix -The Marketing Mix refers to the **4P's of Marketing**- Product, Price, Promotion and Place- which are used together to market a product or service.

Principles of marketing

Marketing is the business of promoting and selling products or services, including market research and advertising.

What is Marketing Segmentation?

Splitting the market for a Product or Service into different parts/ segments.

How to use Marketing Segmentation

The market for a product or service can be divided into segments. People (customer) within the different segments want different kinds of products or services.

Gender- Example: Different perfume/aftershave scents directed towards women and men

Location- Example: Business suits for people living in the city and tweeds for those living in the countryside

Lifestyle- Example: Lycra for the cycle enthusiast and large flat screen TVs for viewing enthusiast

Income- Example: Rolex Watches for wealthy customers, Tissot watches for middle income customers and Casio watches for lower income customers

Age- Example: Magazines aimed for teenage Girls and Magazines for women in the 20-40 age range

The function of common cosmetic ingredients used within the hair and beauty industry

Common cosmetic ingredients – examples include: phthalates, parabens, titanium dioxide, formaldehyde, UV filters, glycerine, hydrogen peroxide, pigments, lanolin, squalene, urea, collagen, oils (for example mineral, castor, vegetable), dimethicone, vitamin E, sodium laureth sulfate, alpha and beta hydroxy acid, fragrances, dihydroxyacetone, aloe vera, plant extracts

The effects of dangerous and toxic cosmetic ingredients on human health – examples include: irritated skin, rashes, redness on the skin, difficulty breathing, acne, bitterness on the tongue, allergies, UV sensitivity, internal organ damage, autoimmune disease, hormonal imbalances, reproductive problems, carcinogenic

The anatomy and physiology of the skin

Structure and function of the skin - **Epidermis** – is the top layer of the skin, it is made up of 5 layers (basal cell layer, prickle cell layer, granular layer, clear layer, horny layer) - **Dermis** – is the middle layer of the skin, it is made up of 2 layers and contains many appendages including sweat glands, sebaceous glands, hair follicles, arrector pili muscles, nerve endings, dermal papilla, a rich blood supply - **Subcutaneous layer/Hypodermis** – is the lower layer of the skin, it is made up of adipose tissue, (fat cells which act as energy reserves and provide protection to the underlying structures) - **Functions of the skin** – secretion, heat regulation, absorption, protection, excretion, sensation and vitamin D production - **The purpose of the acid mantle** – creates a natural defence to attacks from bacteria, viruses and other potential contaminants that might penetrate the skin. The acid mantle is made of sebum and sweat (the acid mantle is a very fine, slightly acidic film with a pH between 4.5 and 6.2; slightly acidic) **The common diseases and disorders of the skin** - **Infectious skin conditions** – examples include: ringworm, cold sores, impetigo, scabies (infestation) - **Non-infectious skin conditions** – examples include: eczema, dermatitis, psoriasis, acne

Characteristics of skin types - **Balanced** – fine texture, no visible pores, even colour, no blemishes - **Oily** – shiny, enlarged pores, congestion, blackheads (comedones), sallow appearance - **Dry** – lack of oil in the skin, dry to touch, thin, flaky patches, fine texture, broken capillaries and whiteheads (milia) - **Combination** – usually oily T-zone is present with dilated pores and blackheads, normal to dry skin on the cheeks

The anatomy and physiology of the hair

Structure of the hair- the cuticle – outermost layer of the hair, protects the hair shaft). **The cortex** – middle layer of the hair, forms the bulk and contains the pigment of the hair . **The medulla** – central core of the hair, contains soft thin transparent cells . **Hair bulb** – forms the base of the hair follicle, contains living cells that divide and grow. **Inner/outer root sheath** – surrounds and protects the growing hair. **Dermal papilla** – surrounded by the hair bulb, provides the blood supply necessary for hair growth . **Functions of the hair** – to provide protection to the eyes, nose, ears and skull, heat regulation (preserves body heat), sensation (detects changes to the environment) . **The common diseases and disorders of the hair and scalp** - **Infectious hair and scalp conditions** – ringworm, folliculitis, head lice (infestations) - **Non-infectious hair and scalp conditions** – alopecia, seborrhoea, sebaceous cyst, barber's itch .

Hair conditions - **Chemically damaged** – coarse texture, dull, split ends, tangles easily, hair breakage/loss, weak no elasticity - **Environmentally damaged** – dull, coarse texture, split ends, hair loss, no elasticity - **Non-chemically treated hair** – completely unprocessed, unpermed/uncoloured/ untreated, smooth texture, shiny, holds curl well, relatively easy to comb while wet, good elasticity, no breakage, minimal split ends - **Dry hair** – dull, breaks and splits easily, coarse texture . **Hair defects -** Split ends (split, dry ends of hair), damaged cuticle (rough, dull hair shaft) .**Hair characteristics** - **Texture** – fine/medium/coarse hair - **density –** fine/medium/thick - **porosity** – damage to cuticle layer, ability to absorb water - **elasticity** – strength of hair

The anatomy and physiology of the nail

Structure of the nail -nail plate – found on top of the nail bed, protects the nail bed **. Cuticle –** found at the base of the nail, protects the matrix from infection**. lunula –** a light half-moon shape, defines the base of the nail plate. **Nail wall –** found at the sides of the nail plate, cushions and protects the nail plate and grooves. **Nail bed –** found under the nail plate, provides the rich blood supply. **Free edge –** extends beyond the fingertip protects the fingers and toes. **Matrix –** living part of the nail, produces new nail cells **. Function of the nail** – to provide protection to the end of the toes and fingers, increases dexterity (help to pick up small things), used for adornment. **Common diseases and disorders of the nail - Infectious nail conditions –** ringworm, paronychia, warts, ingrown toenails. **Non-infectious nail conditions –** overgrown cuticles, nail biting, pitting, hang nails, white spots (leuconychia)

The benefits to service users' health and wellbeing when their rights are maintained	
Empowerment	Makes service users feel in control of their lives
High self-esteem	Makes service users feel confident and respected
Service users' needs are met	This results in good physical and mental health

The rights of service users	Definition	Example
Choice	Gives service users control over decisions	Offering a range of different treatments
Confidentiality	Limits access to private/personal information	Medical records must be kept secure
Consultation	Service users should be asked their opinions and views	Spoken to about the treatment options
Equal and fair treatment	Gives everyone the same rights	A day trip is accessible for all
Protection from harm and abuse	Organisations should have policies in place to protect all individuals	Risk assessments to identify potential risks

Types of settings	
Health care	GP surgery, hospital, dentist, health centre, opticians, pharmacy
Social care	Residential home, day centre, homeless shelter, retirement home, support group

Person-centred values	
Individuality	Each person has their own identity, needs and wishes
Choice	All services users are entitled to make their own decisions
Rights	Everyone is entitled to rights set out by legislation
Independence	Enable service users to not rely on others
Privacy	Being mindful of situations
Dignity	Having regard for the feelings and opinions of others
Respect	Treating an individual in a way which shows they have importance
Partnership	Different professionals and agencies working together
Encouraging decision making of service user	Ensuring service users are supported to make decisions

Benefits of applying the person-centred values	
Benefits for service providers	**Benefits for service users**
Provides clear guidance	Improves the quality of care being given
Improves job satisfaction	Improves quality of life
Maintains or improves quality of life	Supports service users to develop their strengths

6 C's– Qualities of a service practitioner	
Care	They will do what they can to provide the best treatment and support
Compassion	Providing care and support with kindness, consideration and empathy
Competence	The ability of the provider to deliver high quality care
Communication	It's important to speak and listen in a way which is respectful
Courage	The ability to speak up when someone has concerns
Commitment	The provider being dedicated to deliver the best care

Effects on service users' health and wellbeing if person-centred values are not applied

Physical Effects
- Pain if no medication is given
- Illness may get worse
- Injury
- Malnutrition/dehydration

Intellectual Effects
- Loss of concentration
- Lack of mental stimulation
- Failure to achieve potential

Emotional effects
- Depression
- Anger/frustration
- Stress
- Feeling upset

Social Effects
- Feeling excluded
- Feeling lonely
- Become withdrawn
- Lack of social skills

The American West, c1835-c1895

TIMELINE OF EVENTS

1830 = Indian Removal Act
1836 = Oregon Trail opens
1846-47 = Donner Party & Mormon Migration
1849 = Californian Gold Rush
Feb 1851= Indian Appropriations Act
Sept 1851 = Fort Laramie Treaty
1861-1865 = American Civil War
May 1862 = Homestead Act
July 1862 = Pacific Railway Act
1862 = Little Crow's War
1864 = Sand Creek massacre
1866 = Goodnight-Loving Trail opens
1867 = First "cowtown" (Abilene)
1868 = Red Cloud's War
1869 = Transcontinental railroad completed
June 1876 = Battle of the Little Bighorn
1879 = Exoduster Movement
1881 = Billy the Kid is shot dead
1883 = Buffalo herds exterminated
1886-1887 = "The Great Die-Up"
1887 = The Dawes Act
From 1889 = Land Rushes
1890 = Indian Frontier is closed
Dec 1890 = Wounded Knee massacre
1892 = Johnson County War

The early settlement of the West, c1835–c1862

The Indigenous peoples of the Plains

The people who lived in America before Europeans travelled to the continent had been pushed back from the coast to live on the Great Plains, beyond what the US government called "The Permanent Indian Frontier".

On the Great Plains the Indigenous people adapted to survive: they lived in tribes, hunted the buffalo and used it for nearly all of their essentials, their homes were mobile and wind proof, they relied on horses to cover vast distances and they learned to relocate during the winter.

This meant that they had a deep respect for the land and nature. The tribes competed with each other for resources, had an informal leadership system based on ability and had little concept of land ownership (as they were nomadic).

To the white settlers they appeared "uncivilised" and best left alone.

Early Pioneers

Adventurers went west to explore America. Mountain Men made money by hunting animals and selling their furs. These men learned the best routes across America. The South Pass in the Rocky Mountains was found by Jedidiah Smith in 1825. They also spread rumours about the incredible climate and fertile land in California and Oregon.

Farmers

People living in the East of the USA had heard about the land in the West and wanted to start a new life. Their lives in the East were often tough due to overcrowding and economic collapse in the late 1830s. The first settlers to use the Oregon Trail in a covered wagon went in 1836. Many more followed them (400,000 by 1869). Most farmers travelled to Oregon or California, but a few settled on the Great Plains themselves where they faced great challenges (and conflict with the Indians).

Mormons

The religious group known as the Mormons had been attacked and persecuted wherever they tried to set up a home in the east. In 1846 they set out for the West and established Salt Lake City and later, the state of Utah as their home. They worked with the Plains Indians and converted many. The Mormons paid for and helped many settlers to travel to Utah to join them.

Gold Miners

In 1849 gold was discovered in California; in 1858 it was also discovered in the Rocky Mountains. Over 300,000 people travelled west in under 10 years to seek their fortune. The places they settled in were basic, full of greedy people and they had lots of crime problems due to a lack of law and order.

In order to try and limit the conflict between settlers and the Plains Indians, the US government passed two new laws in 1851:

Indian Appropriation Act - request for money to spend on moving Indians to different areas.
Fort Laramie Treaty - a deal with Indian tribes to allow settlers to move across their land in peace.
The "Permanent Indian Frontier" was no more.

Development of the Plains, c1862–c1876

The Homestead Act 1862 – Offered plots of 160 acres (one square mile) to a family for only $10. If the family farmed the land for 5 years, they could buy the land for $30 and own it forever. Homesteaders settled 6 million acres of land in the West by 1876.

Pacific Railroad Act 1862 – Two railroad companies were set up to build a railroad across the USA: The Union Pacific and the Central Pacific. The US government provided $61 million of loans to build the railroad and gave the companies 45 million acres of free land to build on. The Transcontinental Railroad was completed in 1869, making the journey across the USA much faster and easier. Migration sped up. By 1880, the railroad companies had helped settle 200 million acres of land it was more successful than the Homestead Act! Later the US Government realised they had to help to improve communications and living standards in the West so they extended the railroad network to more towns and passed the

Timber Culture Act in 1873 – This law said that if settlers planted trees on half their land they would be given another 160 acres of land for free.

EXAM STYLE QUESTIONS

- **Explain two consequences of the Gold Rush of 1849.**
- **Write a narrative account analysing the early settlers 1825-49.**
- **Write a narrative account analysing the settlement of the West 1860-73.**
- **Explain the importance of the buffalo for the Indigenous peoples of the Plains.**
- **Explain the importance of the tipi for the Indigenous peoples of the Plains.**

Early Elizabethan England, 1558 - 88

TIMELINE OF EVENTS

1558 = Elizabeth becomes queen
1559 = the Religious Settlement
1566 = Dutch Revolt begins
1568 = MQS arrives in England
1569 = Revolt of the Northern Earls
1570 = Papal Bull
1571 = Ridolfi Plot
1576 = "Spanish Fury" in the Netherlands
1576 = First playhouse opens in London
1580 = Drake circumnavigates the globe
1583 = Throckmorton Plot
1584 = Treaty of Joinville
1585 = Treaty of Nonsuch
1585 = First American colony set up
1586 = Babington Plot
1587 = MQS executed
1587 = Drake's raid in Cadiz
1588 = Spanish Armada

PLOTS AGAINST THE QUEEN

There was a rebellion and three plots against Queen Elizabeth I:
The Revolt of the Northern Earls , 1569 - Catholic nobles rebel & plan to put MQS on the throne.
The Ridolfi Plot, 1571 - Spanish to invade, MQS to marry Earl of Norfolk, plot discovered by Cecil.
The Throckmorton Plot, 1583 - French to invade, put MQS on the throne, Walsingham foiled the plot.
The Babington Plot, 1586 - kill the Queen, MQS to take the throne, French to invade, Pope supports, the plot was stopped by Walsingham who was incepting MQS' letters, MQS executed the next year.

How were the plots similar to each other?

EDUCATION AND PASTIMES

72 grammar schools were built, and literacy rates went up from 20% to 30% - affected middle-class boys
No change for the rich, for women, or for the poor - home schooling, marrying, or working respectively.
Theatre boomed - new secular plays, cheap pit, expensive seats, new theatres built e.g. The Red Lion
Blood sports - betting on bear baiting, cock fights, and wrestling.
Working-class pastimes included football, public music performances, and fayres.
Upper-class pastimes included tennis, private music performances, and private wrestling matches.

How were education and pastimes different for different classes in society?

EXPLORATION AND VIRGINIA

Drake circumnavigated the globe in 1577-80, 2nd person ever to do so, got loot, knighted on his return
Exploration increased due to Drake's example, cash to be made, ship design, new technology, and maps.
Raleigh organised two failed attempts to set up an English colony in America called "Virginia".
1584 = fact finding mission to America brings back Manteo and Wanchese (two Native Americans)
1585-6 = first Virginia colony, all men, late arrival, no crops, ran out of food, attacks begin.
1587-90 = second colony, Native Americans hostile from the outset, some colonists return to England for help, support delayed due to the Spanish Armada, colony had disappeared when support arrived in 1590, lessons learnt about how to survive, and who to take.

Why was there more exploration and travel during Elizabeth's reign?

WAR WITH SPAIN

Phillip II ruled Spain and the Netherlands, he was Catholic, married Mary I, proposed to Elizabeth -said no
Spain had supported all Catholic rebellions and plots against Elizabeth (money or troops).
Protestant Dutch rebel against the Spanish, Elizabeth sends money, mercenaries, and a French Lord.
Elizabeth sent English privateers out to attack Spanish ships and colonies e.g. Drake in America.
1585 Treaty of Nonsuch a turning point - England sends an army to officially support the Dutch vs Spain.
Spain prepares to invade England, builds the Armada, Drake attacks it at Cadiz harbour in 1587 and delays it by a year, English army prevents Spanish ships a port in Netherlands, English navy breaks the Spanish formation using fireships, Battle of Gravelines damages the Armada and sends it north, a storm destroys 2/3 of the ships and troops, English sailors left at sea to defend in case the Spanish returned—many died of disease and starvation.
Elizabeth victorious, Protestant victory for a religious population, Phillip II made to look incompetent

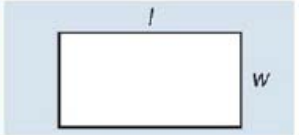
How did Protestant, Elizabethan England survive against Phillip II's Spain?

EXAM STYLE QUESTIONS

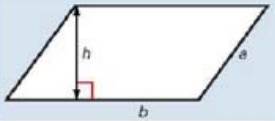
- **Describe two features of Elizabethan education.**
- **Describe two features of the Ridolfi Plot.**
- **Explain why England and Spain went to war in 1585.**
- **Explain why the Virginia colony failed during Elizabeth's reign.**
- **'Elizabethan England was a "golden age" of British history.' How far do you agree? Explain your answer.**

Areas

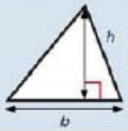
Rectangle = $l \times w$



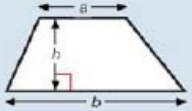
Parallelogram = $b \times h$



Triangle = $\frac{1}{2} \times b \times h$



Trapezium = $\frac{1}{2}(a+b)h$

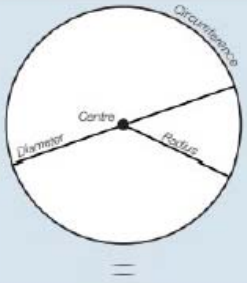


Circles

Circumference =

$\pi \times diameter = \pi d$

$2 \times \pi \times radius = 2\pi r$



Area of a circle =

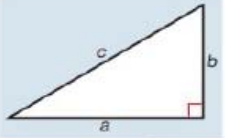
$\pi \times radius\ squared = \pi r^2$

Right-angled triangles

Pythagoras' Theorem

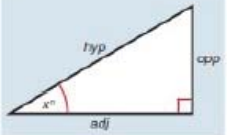
For a right-angled triangle,

$a^2 + b^2 = c^2$



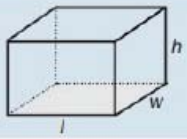
Trigonometric ratios (*new to F*)

$\sin x° = \frac{opp}{hyp}$, $\cos x° = \frac{adj}{hyp}$, $\tan x° = \frac{opp}{adj}$



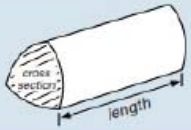
Volumes

Cuboid = $l \times w \times h$



Prism =

$area\ of\ cross\ section \times length$

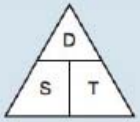


Cylinder = $\pi r^2 h$

Compound measures

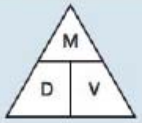
Speed

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



Density

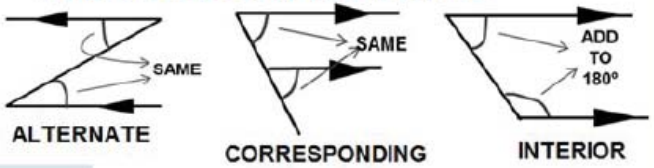
density = $\frac{mass}{volume}$



Pressure

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

Angles formed by parallel lines



Constructing Pie Charts

The angle to draw for each sector is

$$Angle = \frac{frequency}{total} \times 360°$$

Angles in Polygons

Sum of Interior Angles $= (n-2) \times 180°$

Where n is the number of sides of the shape

Exterior Angles add up to 360°

One exterior angle in a REGULAR polygon $= \frac{360°}{n}$

$Interior + Exterior = 180°$

Other useful formulae

$$gradient = \frac{change\ in\ y}{change\ in\ x}$$

$$\%\ change = \frac{difference}{original} \times 100$$

Types of numbers

SQUARE NUMBERS

→ 1, 4, 9, 16, 25, 36, 49, 64, 81, 100 etc

(1x1) (2x2) (3x3) (4x4) (5x5) (6x6) (7x7) (8x8) (9x9) (10x10)

CUBE NUMBERS

→ 1, 8, 27, 64, 125 etc

(1x1x1) (2x2x2) (3x3x3) (4x4x4) (5x5x5)

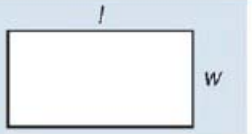
PRIME NUMBERS

→ 2, 3, 5, 7, 11, 13, 17, 19, 23, 29 etc

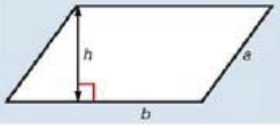
Foundation Formula Quiz

Areas

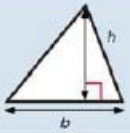
Rectangle =



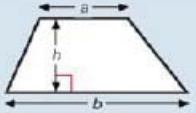
Parallelogram =



Triangle =



Trapezium =



Circles

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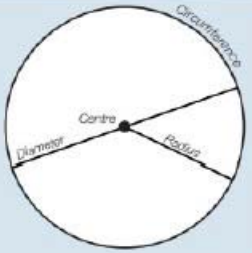
Area of a circle =



Volumes

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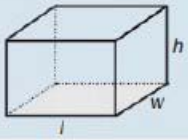
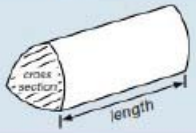


Prism =



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Exterior Angles add up to

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$Interior + Exterior =$

Other useful formu-

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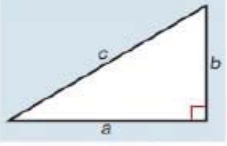
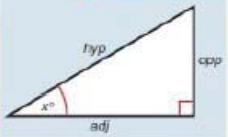


Trigonometric ratios (*new to F*)

sin $x°$ = cos $x°$ = tan $x°$ =



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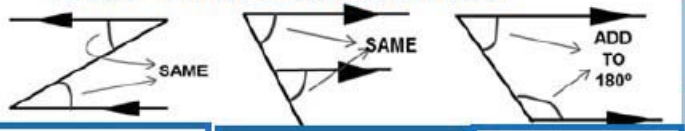


Foundation Formula Quiz

1: The Oneness of God (part 1)

⇒ One of the most important beliefs for Muslims is Tawhid (the belief that there is only one God).
⇒ This belief is repeated daily in the Shahadah (one of the five pillars).
⇒ A Muslim's most important duty is to declare faith in one God.
⇒ God is unique. No one can picture God which is why there isn't any pictures or statues of Him in Islam.
⇒ God is the only creator and controller of everything.
⇒ Muslims believe they should accept whatever happens as the will of God (supremacy of God's will)

'Say, He is God the One, God the eternal'. Quran 112:1-4
' Misfortunes can only happen with God's permission'. Quran 64:11

Enquiry task: Explain Muslim beliefs about the oneness of God. Refer to sacred scripture in your response [5]

2: The Nature of Allah (part 2)

Enquiry Task:

Muslims believe God is:

⇒ Immanent (present in earth and involved with humanity)
⇒ Transcendent (outside life and beyond understanding)
⇒ Omnipotent (all-powerful)
⇒ Beneficent (all-loving and all-good)
⇒ Merciful (compassionate and forgiving)
⇒ Just (fair and judges humans actions)

'There is no God but Him, the Creator of all things'. Qur'an 6:102
'He is with you wherever you are'. Qur'an 57:4

Enquiry task: Explain how God can be both transcendent and immanent?

3: Prophethood

God has chosen people to bring the message of Islam to the people. These chosen people are called prophets.
They are important because they provide communication between God and humans.
In order for humans to live how God wants it is necessary for instructions to be delivered through prophets

Around 124,000 prophets of which 25 are named in the Qur'an. They are important role models as they were good people who lived according to God's will.

Muhammad:

⇒ Muhammad received the final revelation of Islam from God.
⇒ Known as the last and greatest prophet.
⇒ In 610CE on Mount Hira received his first revelation from God through the angel Jibril.
⇒ For more than 20 years received further revelations, which were combined together to make the Qur'an.

4: Angels

Muslims believe angels bring the words of God to the prophets. They have no free will and are made from elements of light. Their roles are: Messengers, Guardians of people, Recording actions of humans,

Jibril:

⇒ Archangel
⇒ Relayed the Qur'an to Muhammad
⇒ Guided Muhammad through his entire life

Mika'il:

⇒ Archangel
⇒ Angel of Mercy
⇒ Responsible for sending rain, thunder and lightning

Enquiry Task: Explain the importance of Jibril to Muslims [4]

5. Holy books

The Quran:

⇒ The Qur'an is the direct word of God, revealed to Muhammad over a period of around 22 years.
⇒ Contains the foundation of every believer's faith.
⇒ Is most sacred of all the holy books.
⇒ Is infallible (without error and non-changing)
⇒ There are 114 surahs (chapters) in total.
⇒ Those who can recite the Qur'an from memory are given the title 'Hafiz'.

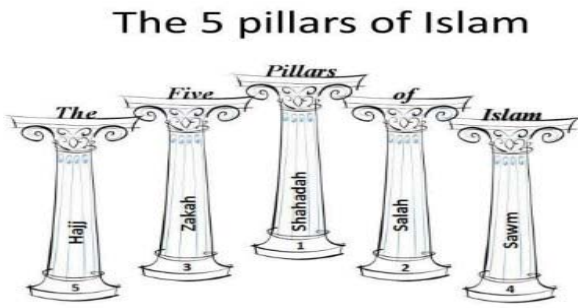
Other books considered holy in Islam include; The Torah (Tawrat);The Psalms (Zabur); The Gospel (Injil); Scrolls of Ibrahim.

6: The Five Pillars (Part 1)

Support the main principles and beliefs of Islam, just as pillars are used to support a building. They help give Muslims an identity as one community and enable them to show their obedience and dedication to God.

Five pillars are:

⇒ Shahadah – declaration of faith in God.
⇒ Salah – prayer.
⇒ Zakah – charitable giving.
⇒ Sawm – fasting.
⇒ Hajj – pilgrimage.



Enquiry Task: Which of the 5 Pillars do you think a Muslim would find the easiest to follow. Why?

6: The Five Pillars (Part 2)

Salah

Times of prayer:

⇒ Some Muslims are required to pray at 5 set times during the day.
⇒ They pray: just before sunrise, just after midday, afternoon, just after sunset and night.
⇒ Shi'a Muslims combine the midday and afternoon prayers, and the sunset and night prayers, so they pray 3 times a day.

Preparation for prayer:

⇒ It is important to be spiritually clean before prayer.
⇒ Muslims complete ritual washing or ablution which is called **wudu**.
⇒ It is important Muslims face the holy city of Makkah while praying.

Enquiry Task: Explain two ways in which the belief in the importance of prayer influences Muslims today [4]

6: The Five Pillars (Part 2)

Sawm

⇒ Ramadan is the ninth month of the Islamic calendar and the time when they focus on fasting.
⇒ Muslims fast during daylight hours, so will wake up before sunrise to eat and drink enough to keep them going until sunset.

Zakah

⇒ Zakah is giving alms (giving money to the poor).
⇒ For Muslims who have enough savings it is compulsory to give 2.5 percent every year
⇒ By giving Zakah, Muslims acknowledge that everything they own comes from God, and that they should use their wealth to remember God and give to those in need.
⇒ Only Muslims who have savings greater than a certain amount are required to give Zakah.
⇒ Zakah can be donated directly to a charity such as Islamic relief or can be put into a collection box in the mosque to be distributed.

Hajj

Hajj is a pilgrimage. It should be made at least once in a Muslim's lifetime, provided they ar healthy and wealthy enough to do so. Hajj starts and ends in the holy city of Makkah.

'Pilgrimage to the House is a duty owed to God by people who are able to undertake it'. Qur'an 3:97

7: Festivals

Festival of Id-ul-Fitr

It marks the end of the month of Ramadan. During this time Muslims do not only celebrate the end of a month of fasting, but are thanking God for the strength he has given them to fast for a month.
Muslims gather together in mosques or outdoor areas to say prayers. Everyone wears their best clothes and homes are decorated.
Special foods are eaten, and there are processions through the street.

Festival of Id-ul-Adha

It is the festival of sacrifice. It remembers and honours the Prophet Ibrahim, who was willing to sacrifice his son on God's command.
Begins with prayers in the mosque and a sermon from the imam about sacrifice. Animals are slaughtered to remember Ibrahim's sacrifice.

The Early Atmosphere

Approx. 4.6 billion years ago the Earth was formed. Scientists have lots of theories about how the atmosphere was produced and the gases within it, but due to lack of evidence, they can not be sure as it was so long ago.

One theory suggested that intense volcanic activity released gases that made Earth's early atmosphere very similar to that of Mars and Venus.. These planet's atmospheres mainly consist of carbon dioxide with very little oxygen.

Nitrogen gas would have also been released from volcanoes and would have built up in the atmosphere.

Water vapour in Earth's early atmosphere would have condensed to create the seas and oceans. Carbon dioxide would have dissolved in the water, decreasing the levels in the atmosphere.

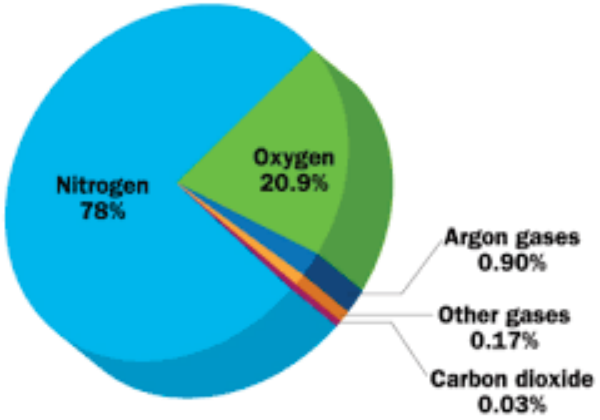
Combustion

Combustion releases carbon into the atmosphere. Complete combustion produces carbon dioxide (CO_2), incomplete combustion produces carbon monoxide (CO) - Carbon monoxide is poisonous!

Complete Combustion: Fuel + O_2 → CO_2 + H_2O

Incomplete Combustion: Fuel + O_2 → CO + H_2O + C

Percentage (%) of Gases in Atmosphere



There is limited evidence about the Earth's early atmosphere because of the age of the Earth.

(a) The Earth is 4.6 billion years old. Which is the correct age of the Earth? Tick **one** box.

4.6×10^3 years	☐	4.6×10^9 years	☐
4.6×10^6 years	☐	4.6×10^{12} years	☐

(1)

Scientists think that the Earth's early atmosphere may have been similar to the atmosphere on Mars today. Look at the table below.

Gas	Concentration of gas in the atmosphere today in parts per million	
	Mars	Earth
Nitrogen	27 000	780 000
Oxygen	1 300	210 000
Argon	16 000	9 300
Carbon dioxide	950 000	400
Carbon monoxide	800	trace

(b) Calculate the percentage increase in nitrogen from the Earth's early atmosphere to the atmosphere today. Assume the Earth's early atmosphere was the same as the atmosphere today on Mars. Give your answer to 2 significant figures.

_____

_____

_____Percentage increase in nitrogen = _____ %

(3)

(c) Which process releases carbon monoxide into the Earth's atmosphere? Tick **one** box.

Aerobic respiration	☐	Incomplete combustion	☐
Bacterial decomposition	☐	Photosynthesis	☐

(1)

(d) Explain how the oceans were formed in the first billion years of the Earth's existence.

_____

_____

_____ **(2)**

How Did the Levels of Carbon Dioxide Decrease?

Carbon dioxide dissolves in water. As water vapour condensed and the oceans and seas formed, the carbon dioxide gas dissolved producing carbonate compounds. This process reduced the amount of carbon dioxide in the atmosphere. Carbonated compounds were precipitated. Limestone is an example of sedimentary rock; it has a chemical name of calcium carbonate.

Plants in the oceans absorbed carbon dioxide gas for photosynthesis. The organisms from the food chains that the plants supported were turned into fossil fuels. Fossil fuels are non-renewable and consist of coal, crude oil and gas, all of which contain carbon.

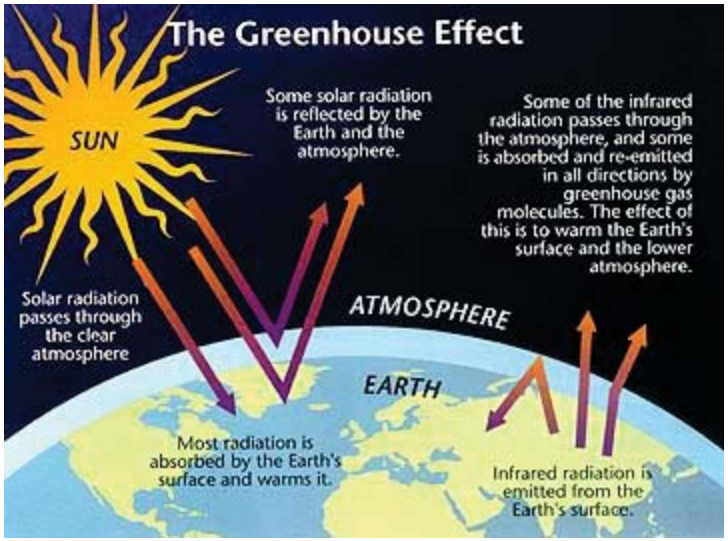
The Formation of Fossil Fuels

Crude oil was formed millions of years ago. When aquatic plants and animals died, they fell to the bottom of the sea and got trapped under layers of sand and mud. Over time the organisms got buried deeper below the surface. The heat and pressure rose, turning the remains of the organisms into crude oil or natural gas, all of witch contain carbon.

Coal is a fossil fuel formed from giant plants that lived hundreds of millions of years ago in swamp-like forests. When these plants died, they sank to the bottom of the swamp where dirt and water began to pile on top of them. Over time, pressure and heat increased and the plant remains underwent chemical and physical changes. The oxygen was pushed out and all that remained was coal.

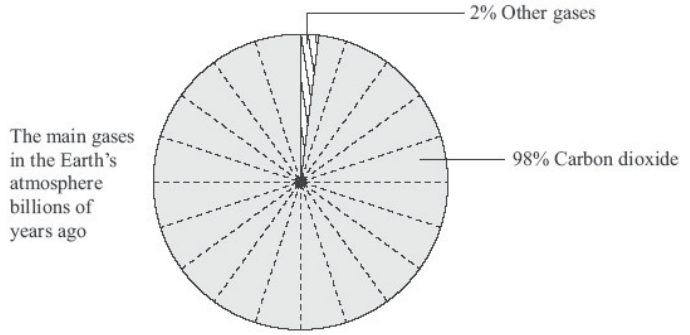
The Greenhouse Effect

The Earth and its atmosphere are very similar to that of a greenhouse. The greenhouse gases in the atmosphere trap the heat and keep the Earth warm. The main greenhouse gases are; carbon dioxide, water vapour and methane. During the daylight, the sun warms up the Earth's surface. During the night, as the Earth begins to cool and release the heat back into the atmosphere, some of the heat is trapped by the greenhouse gases I the atmosphere. If the greenhouse effect becomes too strong, the Earth will get too warm and melt the arctic ice. As we burn more fossil fuels, the levels of carbon dioxide and the other greenhouse gases increase in our atmosphere.

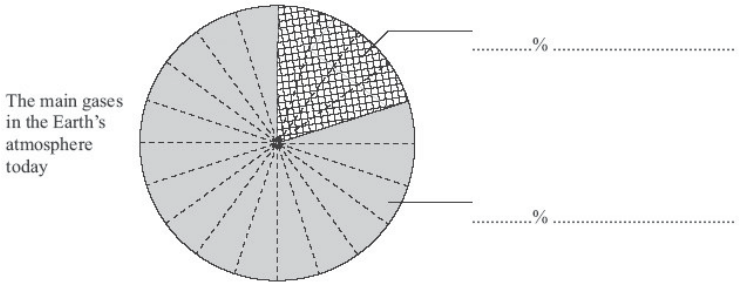


Enquiry Task

Life on Earth would not exist without the atmosphere. Billions of years ago the composition of the Earth's atmosphere was very different from the composition today.



(a) Label the pie chart below to show the percentages and names of the two main gases in the Earth's atmosphere today.



(2)

(b) There is evidence that the composition of the Earth's atmosphere is still changing. One possible reason is that many power stations generate electricity by burning fossil fuels such as coal, oil or natural gas. Sulfur dioxide, SO_2, is produced when coal burns in air.

(i) What environmental problem does sulfur dioxide cause?

_____(1)

(ii) How could this environmental problem be reduced in coal-fired power stations?

_____(1)

(iii) Gas-fired power stations burn methane, CH_4, in air. Complete the word equation for this reaction.

methane + _____ → carbon dioxide + _____(2)

(c) Excess carbon dioxide should be prevented from entering the atmosphere. Explain why.

_____

Scalar and Vector Quantities

A **scalar** quantity has magnitude only.

1

Examples include speed, time, temperature

A **vector** quantity has magnitude and direction.

Examples include velocity, momentum and force.

Contact and Non-Contact Forces

2

Forces either push or pull on an object.

Contact forces—the objects are touching. E.g. Friction, Air Resistance, Tension, and Contact Force

Non-Contact forces—the objects are not touching e.g. gravitational, electrostatic and magnetic.

Forces are calculated by equations such as:

Force (N) = mass (kg) x acceleration (m/s^2)

Forces can be represented with arrows as they are vector quantities

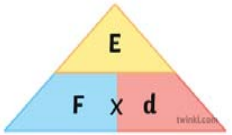
Weight (N) = mass (kg) x gravitational field strength (N/kg).

Forces, Work Done and Energy

3

Transfer

When a force acts on an object through a distance, work is done.

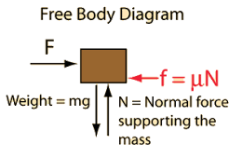


E = Fxd

Resultant Forces

4

A resultant force is a single force which replaces the effects of two or more other forces.



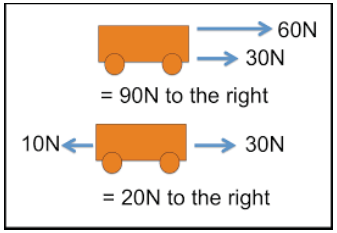
Forces acting are represented on free body diagrams.

Balanced Forces

When the resultant force is zero the forces are said to be balanced. This means an object will remain stationary or travel at a constant speed.

Unbalanced Forces

When there is a resultant force the forces are unbalanced and this tends to increase or decrease the speed of a object (it accelerates).

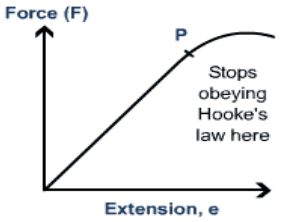


It can also lead to a change in direction of the objects motion.

Spring Constant and Hooke's law

5

Hooke's law describes that the extension of a spring or an elastic object is directly proportional to the extension and should produce a straight line graph. If you don't get a straight line graph you have reached the limit of proportionality.



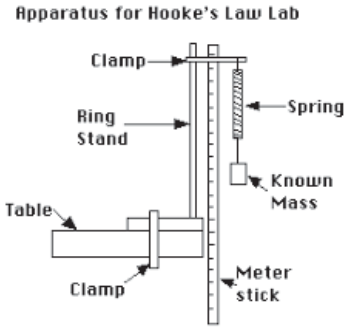
Required Practical Investigation Activity 6: Investigate the relationship between force and extension for a spring.

5

F = k x e

Force Applied (N) = spring constant (N/m) x extension (m)

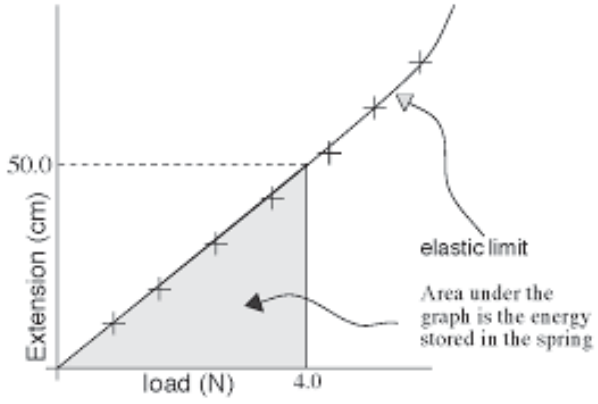
1. Set up the equipment as shown
2. Measure the original length of the elastic object.
3. Attach a mass hanger and record new length of spring.
4. Continue to add masses to the hanger in regular intervals and record length each time.



Extension = spring length—original length

Plot a graph of Force (y axis) vs Extension (x axis) and find the gradient to determine the spring constant.

Remember Weight = Mass x Weight.



Terminal Velocity and Skydivers

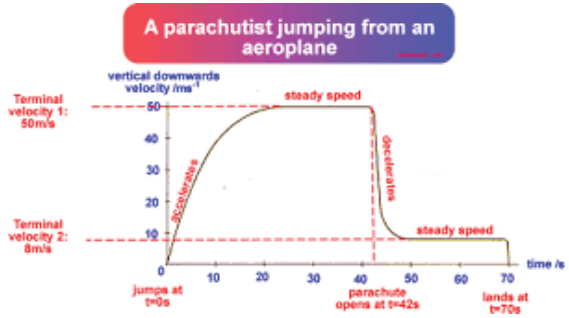
6

When an object is falling it experiences a constant downward force called weight.

As it speeds up the air resistance it experiences increases until eventually the air resistance and the weight are balanced.

This is the objects terminal velocity.

A graph to show how a skydiver's velocity changes as she falls:



To increase the terminal velocity a skydiver needs to be streamlined. As the skydiver comes into land she opens her parachute to drastically reduce her terminal velocity.

More on Scalar vs Vector quantities

7

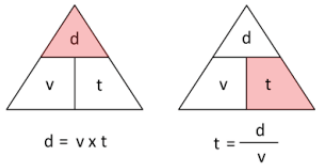
Distance vs Displacement

Distance is a scalar quantity measuring how far you have travelled regardless of direction. Whereas Displacement is how far you have travelled in a given direction

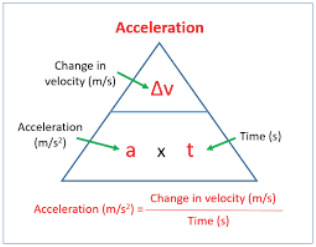
Velocity vs Speed

Speed is a scalar quantity measuring how fast something moves without direction. Velocity includes direction.

Velocity = Displacement / Time Equation



Acceleration = Change In Velocity / Time Equation



Newton's Laws

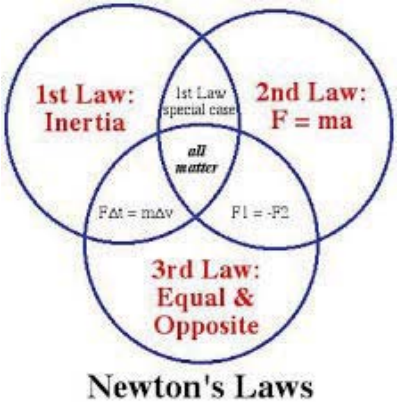
8

Newton's First Law: If the resultant force on an object is zero then a stationary object will remain stationary and a moving object will continue to travel at a constant speed.

Newton's Second Law: The acceleration of an object is proportional to the resultant force divided by the mass

Resultant Force (N) = Mass (kg) x Acceleration (m/s^2)

Newton's Third Law: When two objects interact, the forces acting on one another are always equal and opposite.



Circular Motion (Higher Tier Only)

An object doing circular motion has a force acting towards the centre of the circle.

The object has a constant speed but an ever changing velocity because it is accelerating towards the centre of a circle.

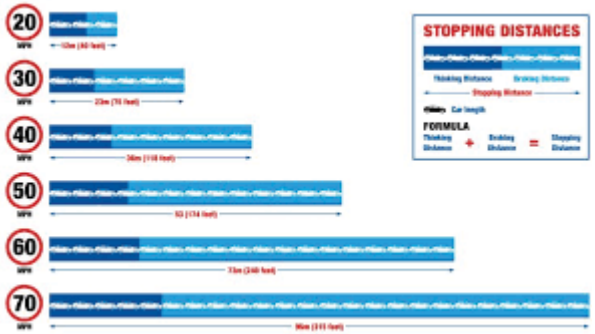
Breaking Distances and Stopping Distances

9

Stopping Distance = Thinking Distance + Breaking Distance

Thinking distance is the distance travelling whilst the driver reacts and is affected by tiredness, drugs, alcohol and distractions.

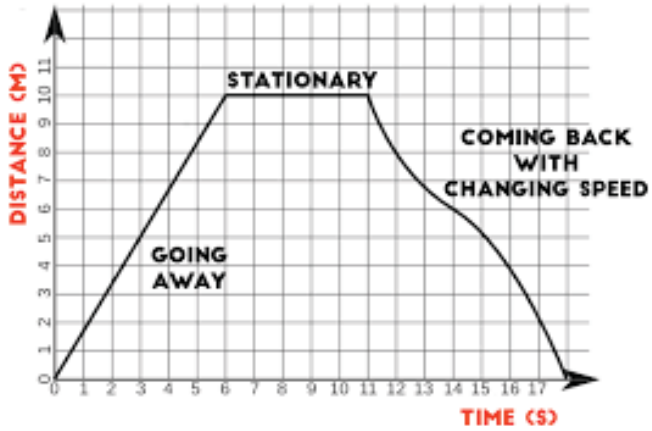
Breaking distance is the distance travelled whilst the car is braking and is affected by road conditions and tyre conditions.



Distance and Velocity Time Graphs

10

When an object travels in a straight line, we can show the distance which has been covered at any given time.



Graph Feature	Distance-Time Graph	Velocity-Time Graph
X-axis	Time	Time
Y-axis	Distance	Velocity
Gradient	Speed (velocity)	Acceleration (or deceleration)
Plateau	Stationary (stopped)	Constant speed
Uphill straight line	Steady speed moving away from start position	Acceleration
Downhill straight	Steady speed returning to start	Deceleration
Uphill curve	Acceleration	Increasing acceleration
Downhill curve	Deceleration	Increasing deceleration
Area below graph		Distance travelled

Work Done and Elastic Objects

9

To calculate the work done for elastic objects we have to use this equation:

Work Done (J) = 0.5 x Spring Constant (N/m) x Extension^2

Worked Example:

A Bungee jumper jumps from a bridge with a weight of 800N. The elastic cord is stretched by 25m. Calculate the work done.

Step 1. Find the spring constant: F = k x e

k = F / e

800 / 25 = 32 N/m

Step 2: Use the value of k in the formula:

Momentum

11

The law of conservation of momentum states that the total momentum before an event (in a closed system) is always the same after the event.

Momentum (kgm/s) = Mass (kg) x velocity (m/s)

Worked example:

Calculate the momentum of a 80 kg cyclist travelling at 5 m/s

p = m x v 80 x 5 = 400 kg m/s

Required Practical Investigation 7

10

Aim: Investigate the effect of varying the force on the acceleration of an object of constant mass, and the affect of varying the mass of an object on acceleration produced by a constant force.

Independent variable : Force or Mass

Dependent variable : Acceleration

Control variables : Same surface, gradient if using ramp.

Explain the difference between a vector and a scalar quantity. **1**

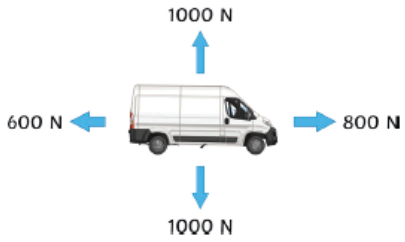
_____

_____

Put a tick in the correct column to show whether the following are vector and scalar quantities.

Quantity	Vector	Scalar
Force		
Speed		
Distance		
Velocity		
Displacement		

Calculate the resultant forces on the van below: **5**



Horizontal force: _____

Vertical force: _____

On a force diagram, what two things do the arrows show?

_____

_____

Define work done:

_____

_____

State the equation that links work done, force and distance.

_____

Write the units for: **8**

Work done: _____

Force: _____

Distance: _____

A lorry travels 200m when the brakes are applied with a force of 600N. Calculate the work done to stop the lorry.

_____

_____

_____

Stopping distance is calculated by adding thinking distance and breaking distance. **11**

Thinking distance is affected by:

S_____;

R_____ T _____.

Braking distance is affected by:

T_____;

R_____ Conditions.

Explain the term deceleration:

_____

_____

Forces can be contact and non-contact. Provide two examples for each one. **3**

Contact:

_____

_____

Non-contact:

_____

_____

Explain the difference between mass and weight.

Mass: _____

Weight: _____

Unit of mass: _____

Unit of weight: _____

Name the apparatus used to determine an objects weight.

Complete the sentences: **7**

Elastic deformation occurs when a force has been applied to a spring and it _____ to its original shape. _____

_____occurs when a spring does not return to its original shape.

Students placed masses, one at a time, on a spring and measured its extension. They collected the following results:

Force (N)	0	1	2	3	4	5
Length of Spring (cm)	3	5	7	9	11	17
Extension (cm)	0	2	4	6	8	14

Use graph paper to plot a force / extension graph of

Explain the term conservation of momentum: **11**

_____

_____

State the equation that links force, mass and acceleration.

_____

Rearrange the equation you have given above to allow you to calculate acceleration: _____

Calculate the force acting on an object with a mass of 15kg an acceleration of 4m/s^2.

_____

_____

Calculate the mass of an object, if it has a force of 2000N and its acceleration is 50m/s^2.

_____

_____

Earth's Resources

Finite resources are those which have a limited supply, for example coal, oil and gas. These resources can be used to provide energy, but one day , their supply will run out.

Renewable resources will not run out in the near future because the reserves of these are high. Examples of renewable resources include solar energy, wind power, hydropower and geothermal energy.

Water Treatment

Before waste water from industry, agriculture and peoples' home can be released back into the environment it needs to be treated.

Pollutants such as human waste contain high levels of harmful bacteria and nitrogen compounds which can be a danger to aquatic organisms.

Industrial and agricultural waste may contain high levels of toxic metal compounds and fertilisers and pesticides which may also damage the ecosystem.

Cleaning sewage requires several steps:
Step One: The water must be screened, this is where materials such as branches, twigs and grit is removed.
Step Two: The water undergoes sedimentation; waste water is placed in a settlement tank. The heavier solids sink to the bottom and form a sludge whilst the lighter effluent floats on the surface above the sludge.
Step Three: The effluent is then transferred to another tank where the organic matter undergoes aerobic digestion (in the presence of oxygen). Although not pure, this water can be safely released back into the environment. The sludge is placed in another tank where the organic matter undergoes anaerobic digestion (without oxygen). It is broken down to produce fertiliser and methane gas which can be used as an energy resource (fuel)

Sustaining Human Life on Earth

The human population is growing rapidly and our use of Earth's finite resources has increased. If humans continue to use these resources at the rate at which we are, then we will reach a point where the human population cannot be sustained on Earth.

Humans use the Earth's natural resources for warmth, shelter, food, clothing and transport. Lots of waste is produced and if this is not dealt with properly it can cause sever environmental issues. Some waste can be recycled, the rest ends up being incinerated or buried in landfill.

Enquiry Task

1. Used disposable nappies are sent to landfill.

(a) 1 600 000 babies in the UK use disposable nappies. Each baby uses 5 nappies in 1 day.
Calculate the total number of disposable nappies used in 1 day. Give your answer in standard form.

_____

_____

Disposable nappies contain a hydrogel. A hydrogel is a substance that absorbs water. A nappy manufacturer investigated the mass of water absorbed by different masses of a hydrogel. Table 1 shows the results:

Table 1

Mass of hydrogel in g	Mass of water absorbed in g			Mean mass of water absorbed in g
	Experiment 1	Experiment 2	Experiment 3	
0.5	148	151	151	**X**
1.0	292	295	304	297
1.5	452	456	500	454
2.0	599	610	606	605
2.5	742	753	755	750

b) One of the results for 1.5 g of hydrogel is anomalous. Which experiment has an anomalous result?

_____

(c) Calculate value **X** in **Table 1**.

_____ **X** = _____ g

(d) To reduce the amount of waste going to landfill, suggest an alternative to disposable nappies, what would be the advantages and disadvantages of your chosen product? _____

_____

_____

Water

Potable water is water that is safe to drink. Potable water is not pure; dissolved impurities still remain in the water. Pure water is odourless, tasteless and colourless compared to rainfall or water from streams as these can contain chemicals/impurities.

Pure—the definition of a pure substance is one that contains only a single type of material that has not been contaminated by another substance.

Potable water must contain low levels of microbes and salts for it to be deemed safe to consume, this is because high levels of microbes can be harmful to human health.

The methods of making water safe vary depending on where you live. Starting with sea water is harder than starting with fresh water, this is because of the energy cost of removing sodium chloride (salt) from sea water is greater.

In the UK, insoluble particles are removed from fresh water by passing it through filter beds, microbes are killed by sterilising the water. Several different sterilising agents are used for potable water. These are chlorine, ozone or ultra violet light. The right amount of chlorine and ozone gas (O_3) must be used as both are harmful to human health.

Desalination of Sea Water

Sea water can undergo a process called desalination. This process requires large amounts of energy, but can be done by distillation of the use of membranes such as reverse osmosis.

Distillation involves heating sea water until it reaches boiling point. Once the water is boiling, it will begin to evaporate. The steam then rises up where it cools and condenses in a condensing tube., the salt is left behind. The downside to this process is the energy cost of boiling the water and cooling down the steam sufficiently in the condensing tube. Not all of the water evaporates which leaves behind a salty wastewater that can be difficult to sustainably dispose of without harming aquatic organisms.

Osmosis is the movement of particles from an area of high concentration to an area of low concentration through a semi-permeable membrane. Reverse osmosis involves forcing water through a membrane at high pressure. Each membrane has tiny holes within it that only allow water molecules to pass through. Ions and other molecules are prevented from passing through the membrane as they are too large to fit through the holes.

The disadvantage to this method is that it produces large amounts of waste water and requires the use of expensive membranes. Due to the large amounts of wastewater produced, the efficiency of this method is very small.

Enquiry Task

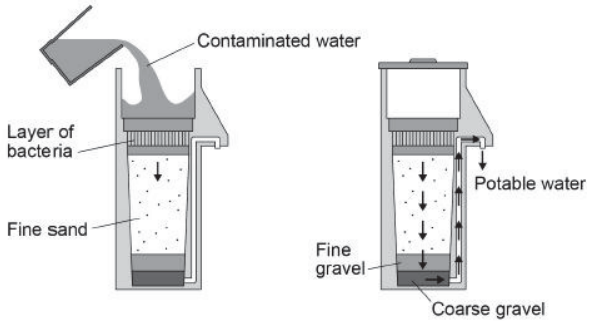
Water is important to all living organisms. In some parts of Africa getting potable water may be difficult.

What is potable water?

_____

_____

Biosand units are one method of purifying water used in some parts of Africa. The diagram below shows a Biosand unit.



Describe the role of the fine sand.

_____

_____

Explain why the desalination of seawater is an expensive process:

_____

_____

_____

Explain how distillation works to make water safe to drink, use the words, evaporate, condense and potable:

_____

_____

_____

_____

Identify ways to sterilise water:

_____

_____

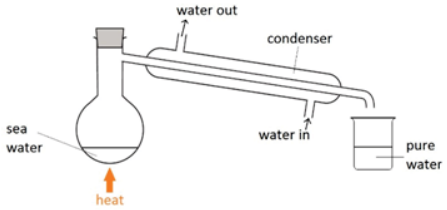
_____

Required Practical—Analysis & Purification of Water Samples from Different Sources

Analysing the pH of Water Samples: Test the pH of each water sample using a pH meter or universal indicator. If using universal indicator, use a pH colour chart so that you are able to identify the pH of the sample against the colour produced by the indicator.

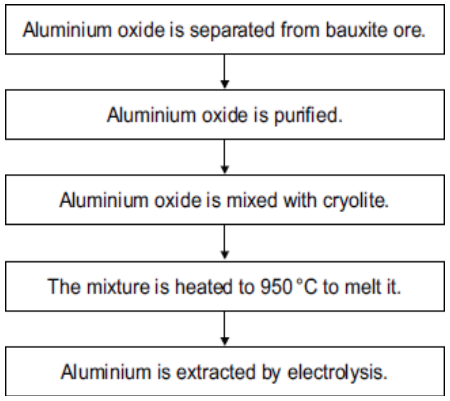
Analysing the Mass of Dissolved Salts: To measure the mass of dissolved salts in a water sample, measure 50cm3 of the sample using a measuring cylinder. Take the mass of an evaporating basin before heating and record the mass in a table. Place the measured amount of water into an evaporating basin and gently heat over a Bunsen burner until all the liquid has evaporated. Once the evaporating basin has cooled, place it on a top pan balance and record its mass. Calculate the mass of the solid left behind.

Distillation of the Water Sample: To distil a water sample, setup your equipment as the per diagram. Heat the water sample gently using a Bunsen burner. After a short period of time, distilled water should be produced.



Enquiry Task

Aluminium is used to make many items. Aluminium is extracted from aluminium ore. Aluminium ore is called bauxite, which is impure aluminium oxide. The flow chart shows the main steps in the extraction of aluminium from aluminium ore. Most aluminium is recycled. Aluminium is recycled by melting scrap aluminium at 700°C.



Use your own knowledge and the information given to answer the question. Suggest why most aluminium is recycled.

_____
_____
_____
_____
_____
_____
_____
_____

Life Cycle Assessment

Life cycle assessment follow the 4 main stages of the life cycle of a product.:

Step One: *Extracting the raw materials needed to make the products and then processing them.*

At this stage, the energy and environmental costs need to be considered. For example, if the raw material being used is a finite or renewable resource, the energy to extract and transport the raw material should be considered. Environmental factors also play a large part in stage 1as the extraction of the raw material can leave scars on the landscape and waste products that may be produced that could damage local ecosystems.

Step Two: *Manufacturing and Packaging of the Product.*

The main consideration is how much energy and resources are needed to manufacture the product. Energy may be used in the form of fuel, electricity or chemicals used in the production of the product. In the manufacturing process , there may be pollution and waste products that need to be considered. Transportation of goods from the factory to the user will have an impact on the environment.

Step Three: *Use of the Product During its Lifetime.*

The environmental impact of a product during its life depends on the type of product. For example, a car will have a significant impact, i.e. it needs to be filled with petrol or diesel, a finite resource, to get you where you are going. A car's engine releases harmful emissions into the atmosphere. On the other hand, a wooden chair may only need a minor repairs and is made from a renewable resource.

Step Four: *Disposal at the end of a Product's Life.*

There are different methods of disposal:

1. Landfill—the product is put in a hole in the ground—high environmental impact.
2. Incineration (organic matter) - burning the product—low environmental impact
3. Recycling—for example, batteries contain metal compounds that are not good for the environment, by recycling, less new compounds have to be taken out of the ground.

Topic Area 3– Organising and Planning a Sports Activity Session **Phases of a Sports Activity Session–** Ensure that you can identify the different phases and explain their purpose.	
Warm Up	Should include a **pulse raiser** to gradually increase blood and oxygen supply to the working muscles. **Stretches and joint mobilisation** to increase the elasticity of muscles and ensure that joints are prepared for full movement. Skills practice to ensure that players have practiced key skills or movements linked to their game..
Unopposed practice	A practice aimed at developing skill or technique with **no pressure from defenders.** Example– Passing the ball around a square. Shooting in basketball without a defender.
Opposed practice	A practice where there is **pressure from defenders**. More decisions have to be made and this is more realistic. Example– 3 vs 1 keep ball, 4 vs 2 keep ball.
Small Sided Game	A game which is conditioned to **focus on certain skills or tactics**. Changes can be made to the Space (playing area), Task or amount of players to help this. Example– Line ball– players can only score by dribbling over a line to focus on dribbling past a defender.
Cool Down	**Gradually reducing pulse and breathing rate**, also stretching key muscle groups. Aim to remove waste products and reduce chance of muscle soreness.

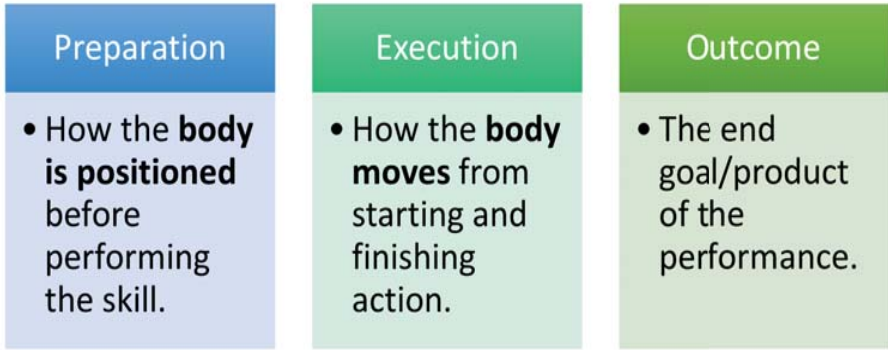
Risk Assessment– Can you create a Risk Assessment with AT LEAST FIVE possible hazards. This is for an activity (i.e. Football, Basketball) and the activity that it will take place in (e.g. AstroTurf/Sports Hall).

TASK- Draw and use the template below. See example row for support.

Identify significant hazards	State the **severity** of the hazard (high, medium, low)	State the **probability** of the hazard happening (high, medium or low)	List the people at risk from the hazard	List what could be done to reduce the risk of hazard and any actions needed.
Litter	Medium– possible risk of cuts or slipping/tripping	Medium– litter might be seen by the student so they avoid it.	Students and coaches	Pick the litter up before the session. No food or drinks to be brought into session.

Teaching Points– Can you describe teaching points for a skill of your choice. Break down the points into preparation, execution and outcome (see support below).

Examples: Set Shot (Basketball), Short Pass (Football), Chest Pass (Netball), Backhand Push (Table Tennis)



Topic Area 4– Organisation of a sports activity session	
Organisation	The action of planning a group of people into a particular task
Safe practice	Organising the group and the activities appropriately depending on the space, number of participants and equipment being used
Timing	Being punctual and prepared for the session, considering the length of activities
Adaptability	Making changes to the session if people find it too easy or too hard
Reliability	Turning up when you say you will and running to time
Topic Area 4– Leading a sports activity session	
Activity specific details	Showing the skills, techniques and tactics appropriate to the needs of the participants
Positioning	Considering where you will be stood in relation to the group when giving demonstrations and explanations
Motivation	Strategies used to increase the desire or willingness of participants to engage in an activity
Communication	Imparting or exchanging of information by speaking or through actions (verbal and non-verbal).
Enthusiasm	Intense and eager enjoyment, interest, or approval towards something
Knowledge	Understanding of an activities rules, techniques and safe-

Topic Area 4– Leadership Styles

TASK– THINK of a leadership style you would use in the following situations.

- Teaching a javelin lesson to beginners
- A half time team talk with children
- A teacher supervising a lunch time football club

Leadership Style and Description	**Advantages**	**Disadvantages**
Autocratic– Authoritarian leadership style. The leader has control over all decisions and there is little input from the group.	Quick decisions are made. Leadership is clear as everyone knows who is in charge.	Can cause people to dislike the leader. People feel that their opinion doesn't matter.
Democratic– Shared leadership style. The members of the team have a more participative role in decision making.	Makes people feel in-volved with decisions. People think that their opinion is valued. Helps to create more ideas.	Can be very slow to make a decision. Confusion as to who is the leader. Can undermine authority of the leader.
Laissez-Faire – Delegated leadership style. Hands off approach and allow the group to make all decisions. The leaders just organise the task or game.	Creates a no pressure atmosphere. Gives opportunities for all to lead. Allows people to get on with it.	Can be very slow to make a decision or none are made at all. No one really knows direction or who is in charge.

Need to Know Dictionary: English

Word	Definition
Personification	Giving something human qualities.
Oxymoron	A contradictory phrase of contrasting ideas.
Enjambment	Sentences in poetry that run on to the next line.
Tone	The style, manner or feeling produced in a text.
Imagery	Something you can see or hear in your imagination.
Contrast	Two opposing ideas or images.
Perspective	The attitude towards or way of regarding something; a point of view.
Onomatopoeia	Words that sound like the thing they describe.
Extended metaphor	A metaphor that runs through a text.
Simile	A comparison with like or as.

Need to Know Dictionary: Maths

Word	Definition
quadratic equations	contain terms with powers no higher than two
sector	section of a circle, bounded by two radii and an arc
prism	a prism is a solid three-dimensional shape with two identical, parallel polygon bases
cuboid	a prism is a solid three-dimensional shape with two identical, parallel polygon bases
frustum	the part of a solid between two parallel planes cutting through it
composite shapes	A composite or compound shape is any shape that is made up of two or more geometric shapes
polygon	a plane shape having three or more straight sides
histogram	• a graph using bars to represent frequency distribution where, • bar heights represent the score frequencies and • there are no spaces between the bars
data	data is a collection of information gathered by observation, questioning or measurement
surd	• another name for an irrational number. • a surd is a real number that can be written as a nonrepeating or nonterminating decimal but not as a fraction because the decimal goes on forever without repeating

Need to Know Dictionary: Science

Word	Definition
Pathogen	microorganisms that cause disease
Antibody	Antibodies are proteins produced by a type of white blood called lymphocytes
Antigen	Antigens are substances found on the surface of cells, including bacteria and other pathogens .
Vaccine	dead or inactive pathogenic material used in vaccination to develop immunity to a disease in a healthy person
Anode	the positive electrode in electrolysis
Cathode	The negative electrode in electrolysis
Electrolysis	Electrolysis is the process by which ionic substances are decomposed (broken down) into simpler substances when an electric current is passed through them.
Ionisation	any process in which atoms become charged
Contamination	the unwanted presence of materials containing radioactive atoms on other materials
Irradiation	an object that has been exposed to ionising radiation

Need to Know Dictionary: French

1 Infinitive (noun) - The verb in its unchanged state. In French, infinitives end in either -er, -ir or -re. The Latin root word 'fin' means 'end'.

2 Conjugate (verb) - To change the verb depending on who is performing the action or when the action is taking place. We are now able to conjugate verbs in the present and the perfect tense. The prefix 'con' means to 'join'.

3 Imperative (noun) - Used to describe the form of a verb that is usually used for giving orders To form the imperative, take the tu or vous form of the verb in the present tense and drop the pronoun. From the Latin for 'command'.

4 Pronoun (noun) A word that substitutes a noun The pronoun y (pronounced ee) means 'there', and replaces à (pronounced ah) plus a noun. From 'pro', here meaning 'in place of' + nomen meaning 'name'.

5 Synonym (noun) - A word or phrase that means exactly or nearly the same as another word or phrase. The words 'small' and 'little' are synonyms The Greek root word 'syn' means 'same'.

6 Authentic (noun) - Based on facts, accurate, reliable. Make your speaking sound more authentic by using expressions like Tant pis! (pronounced tont pee) From the Greek meaning 'genuine'.

7 Tense (noun) - A set of forms taken by a verb to indicate time. You should use a variety of tenses in your speaking and writing, in order to achieve a higher grade. From the Latin word 'tens' meaning 'time'.

8 Superlative (noun) - Of the highest quality or degree A superlative is an example of a complex opinion. The prefix 'super' means 'beyond'.

9 Regular (noun) - Follows a pattern It is essential you are able to conjugate regular verbs from memory for the exam. From the Latin for 'rule'.

10 Specialist (noun) - Involving detailed knowledge of a topic In the Higher GCSE, it's essential that you use specialist vocabulary to the topic in your writing and speaking. From the Latin for 'individual'.

Need to Know Dictionary: Geography

Word	Definition
Development	The progress of a country in terms of economic growth, the use of technology and human welfare.
Fairtrade	When producers in LICs are given a better price for the goods they produce. Often this is from farm products like cocoa, coffee or
Globalisation	The process which has created a more connected world, with increases in the movements of goods (trade) and people (migration
Microfinance	As a banking service provided to unemployed or low-income individuals or groups who otherwise would have no other access to financial services.
TransNational Corporation (TNCs)	A company that has operations (factories, offices, research and development, shops) in more than one country. Many TNCs are
Urban	An area with a dense population. Example, a town or a city
Quality of Life	The standard of health, comfort, and happiness experienced by an individual or group.
International Aid	Assistance given from one country to another.
Rural	An area that is usually relatively sparsely populated (Countryside).
Infrastructure	The basic physical and organisational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society.

Need to Know Dictionary: History

Word	Definition
Anaesthetic	Chemical that stops pain or knocks a patient out
Antiseptic	Chemical that kills microbes (prevents infection)
Corps	Pronounced “core” and means a group of soldiers or people
Gangrene	A serious infection that makes body tissue die.
Shell shock	Post traumatic stress disorder - a mental illness.
Shrapnel	Pieces of metal thrown out of an explosion or bullet
Stretcher	A piece of equipment used to transport injured people
Treatment	A way of making a sick person better
Triage	Sorting patients based on their injuries.
Vaccination	A chemical that prevents someone getting a disease or limits the disease’s impact.

Need to Know Dictionary: Engineering Design

Word	Definition
Life Cycle Analysis (LCA)	Analysing a product’s environmental impact from the very start to the very end of its existence.
Prototype	A prototype is a model of a product used to explore design alternatives, test theories, confirm performance and ensure the product is safe and user-friendly. Engineers use prototypes to figure out specific unknowns still present in the design.
Ergonomic	Ergonomics is a consideration that leads to a product being designed in a way to make it easy to use.
Anthropometric	Anthropometrics is the practice of taking measurements of the human body and provides categorised data that can be used by designers.
Sustainable	Sustainable engineering is the process of designing or operating systems so that they use energy and resources sustainably, i.e. at a rate that does not damage the natural environment, or the ability of future generations to meet their own needs.
Prototype	A prototype is a model of a product used to explore design alternatives, test theories, confirm performance and ensure the product is safe and user-friendly. Engineers use prototypes to figure out specific unknowns still present in the design.
Functionality	The quality of being suited to serve a purpose well; practicality.
Injection Moulding	The shaping of rubber or plastic articles by injecting heated material into a mould.
Identify	This phase is about articulating customer needs. The customer's main communication point and desire is identified. Teams and team charters are developed. Roles are designated for team members. milestones and benchmarks are planned.
Design	This phase defines the functional requirements of the process or product, as well as alternate processes that may be required. Concept designs are created, simulations are run and risks assessed. The plans for procurement and manufacturing are made.
Optimise	In this phase, tolerances are assessed, performance is predicted and alternate designs and design elements are tested.
Validate	In this phase, performance is compared to predictions based on previous simulations. Prototypes are tested, assessed and validated. Changes to business processes can be made here.
Ergonomic	Ergonomics is a consideration that leads to a product being designed in a way to make it easy to use.
Anthropometric	Anthropometrics is the practice of taking measurements of the human body and provides categorised data that can be used by designers.
Sustainable	Sustainable engineering is the process of designing or operating systems so that they use energy and resources sustainably, i.e. at a rate that does not damage the natural environment, or the ability of future generations to meet their own needs.

Need to Know Dictionary: Art

Word	Definition
Identity	Who a person is, or the qualities of a person or group that makes them different from others.
Mixed Media	mixed media describes artwork in which more than one medium or material has been employed. Assemblages, collages, and sculpture are three common examples of art using different media.
Expressive	effectively conveying thought or feeling.
Personality	The characteristic sets of behaviours, mental behaviours, and emotional patterns that evolve from biological and environmental factors.
Narrative	A narrative, story or tale is any account of a series of related events or experiences, whether non fictional or fictional.
Composition	The position and layout of shapes on the paper
Culture	the ideas, customs, and social behaviour of a particular people or society.
Symbolic	a mark, sign, or word that indicates, signifies, or is understood as representing an idea, object, or relationship.
Discrimination	the act of making unjustified distinctions between people based on the groups, classes, or other categories to which they belong or are perceived to belong.
Adversity	a difficult or unpleasant situation.

Need to Know Dictionary: Drama

Word	Definition
Stage presence	how you own the stage area and make the audience want to watch you.
Given Circumstances	is a principle that refers to the environmental, historical, and situational conditions a character finds themselves in.
Magic if	this technique means that the actor puts themselves into the character's situation.
Monologue	an extended speech by one person.
Appropriate Style	performance is in keeping with the genre and using appropriate drama skills creatively.
Genre	refers to the type of story being told. I.E comedy, tragedy, tragicomedy, melodrama.
Direct Address	actors breaking the fourth wall to speak directly to the audience.
Physical Skills	movement memory, spatial awareness, focus and control, pace, dynamics, gesture, facial expression, gait and body language.
Vocal Skills	Vocal skills - Pitch, Pace, Pause, Emphasis, Volume, Accent.
Off Book	learning/memorising lines so you do not need a script.

Need to Know Dictionary: Hospitality and Catering

Word	Definition
Climate change	Changes in the earth's temperature that can lead to unusual and extreme weather
Carbon footprint	A measure of how much food production contributes towards the production of greenhouse gases
Food provenance	Where food and the ingredients in them originally come from before they reach the Hospitality and Catering industry
Appetising	Where food is prepared, cooked and served so well that people what to eat it
Organoleptic	The quality of food that people experience with their senses
Senses	The ability of the body to react to things through sight, taste, sound, smell and touch
Mise-en-place	A catering term meaning preparation time before you start to cook. May include preparing self and area, collecting equipment, chopping vegetables etc
Contingencies	What to do if things go wrong. This will be included when creating a production plan for a dish. For example- Do not over rub fat in with the flour. If I do, start again as
Special Points	Things to consider when doing each step of your production plan. For example reference should be made to adjustments in oven temperatures or to check length of
Dovetailing	To cook several things at the same time in the most logical order. For example if you are cooking a main and dessert you may need to start part of the dessert off first

Need to Know Dictionary: Sports Studies

Word	Definition
Citizenship	Giving back or contributing in a meaningful way to their community. This could be someone who volunteers, coaches or officiates in sport.
Etiquette	Following the unwritten rules of sport – to uphold respect and fairness.
Gamesmanship	Bending the rules and using questionable methods to gain an advantage.
Infrastructure	Physical structures and facilities required to host an event, such as stadiums, sports halls and transport links.
Initiative	An initiative aims to create opportunities that bring people together and change lives for the better.
Inclusion	Making sure that everyone can take part.
Investment	The action or process of investing money for profit.
Legacy	This refers to the planned and unplanned, positive and negative, intangible and tangible effects that are created through an event.
Reputation	The beliefs or opinions that are generally held about someone or something.
Sportsmanship	Playing by the rules, playing fairly and showing graciousness in victory and defeat

Need to Know Dictionary: Child Development

Word	Definition
APGAR Score	Five vital signs used to assess the health of a new-born baby. Appearance, Pulse, Grimace, Activity, Respiration
Lanugo	Found on the skin of babies who arrive early. It is a fine layer of hair that usually disappears before the birth.
Fontanelle	This is the soft spot found on top of the baby's head.
Reflexes	These are automatic actions that occur naturally without thinking.
Signs of illness	Changes that occur when a child is becoming ill, for example loss of appetite, becoming 'clingy', crying, lethargic.
Symptoms of illness	Conditions such as: vomiting, diarrhoea, high temperature, breathing difficulties, fitting, developing a rash, unresponsive.
Safety strategies	Ways of reducing the risk or likelihood of danger. For example, having plug socket covers so children cannot poke things into the socket; fitting a stair gate;
Hazard	This is something that could cause harm. For example, toys left on stairs are a trip hazard.
BSI safety mark	The item has been tested by the British Standards Institution and has been found to be safe. Also known as Kitemark.
CE symbol	A European symbol showing conformity with safety standards. Found on toys.

Need to Know Dictionary: Business Studies

Word	Definition
Entrepreneur	A person who takes a risk by starting and running a business enterprise.
Capital	Money used to start or develop a business.
Growth	When a business becomes larger, for example by making more products or operating more places where goods and services are sold.
Competitor pricing	When a price is set based on the prices charged by competitor businesses for similar products.
Focus groups	Selected small groups of customers who give their opinion on products.
Innovation	The improvement of an original idea, which will often involve using new processes.
Customer service	The name given to an area of the business that deals with customer enquiries.
Cash flow forecast	A statement showing the expected flow of money in and out of the business over a period of time.
Fixed costs	Costs that stay the same as output changes.
Expenditure	Money that the business pays out.

Need to Know Dictionary: Creative iMedia

Word	Definition
Client brief	A document that explains exactly what the client wants a media production company to create
Target audience	The group of people that will use or view a pre-production document of a final media product.
Target audience requirements	A list of what the media product must be like or include in order to be suitable for the target audience and purpose.
Purpose of a media product	What the final product must achieve eg to educate, inform, entertain, advertise, promote.
Pre-production documents	Documents created during the planning stage of a project eg mood boards, mind maps, storyboards, visualisation diagrams, scripts.
Version control	A process to keep track of what changes were made to files eg v2, v3
Legal requirements	Rules that the pre-production document has to consider based on the law eg copyright, intellectual property, trademarks, GDPR
Copyright	The law which acknowledges the creator or owner of a digital media product, which prevents others from using it without permission.
Creative Commons	Type of copyright licence where you are free to use an asset as long as you acknowledge who the author is.
Media product	A video, animation, website, image, sound, game or graphic.

Need to Know Dictionary: Health and Social Care

Word	Definition
Casualty	A person or thing badly affected by an event or situation.
Consent	Permission for something to happen or agreement to do something
Severity	The fact or condition being severe
Conscious	Aware of and responding to one's surroundings.
Unconscious	The state of not being awake and not aware of things around you
First aid	Help given to a sick or injured person until full medical treatment is available
Accident	An unfortunate incident that happens unexpectedly and typically resulting in damage or injury.
Injuries	The hurt, damage or loss suffered.
Anaphylactic shock	A rare but severe allergic reaction that can be deadly if you don't treat it right away.
Competency	The ability to do something successfully or efficiently.