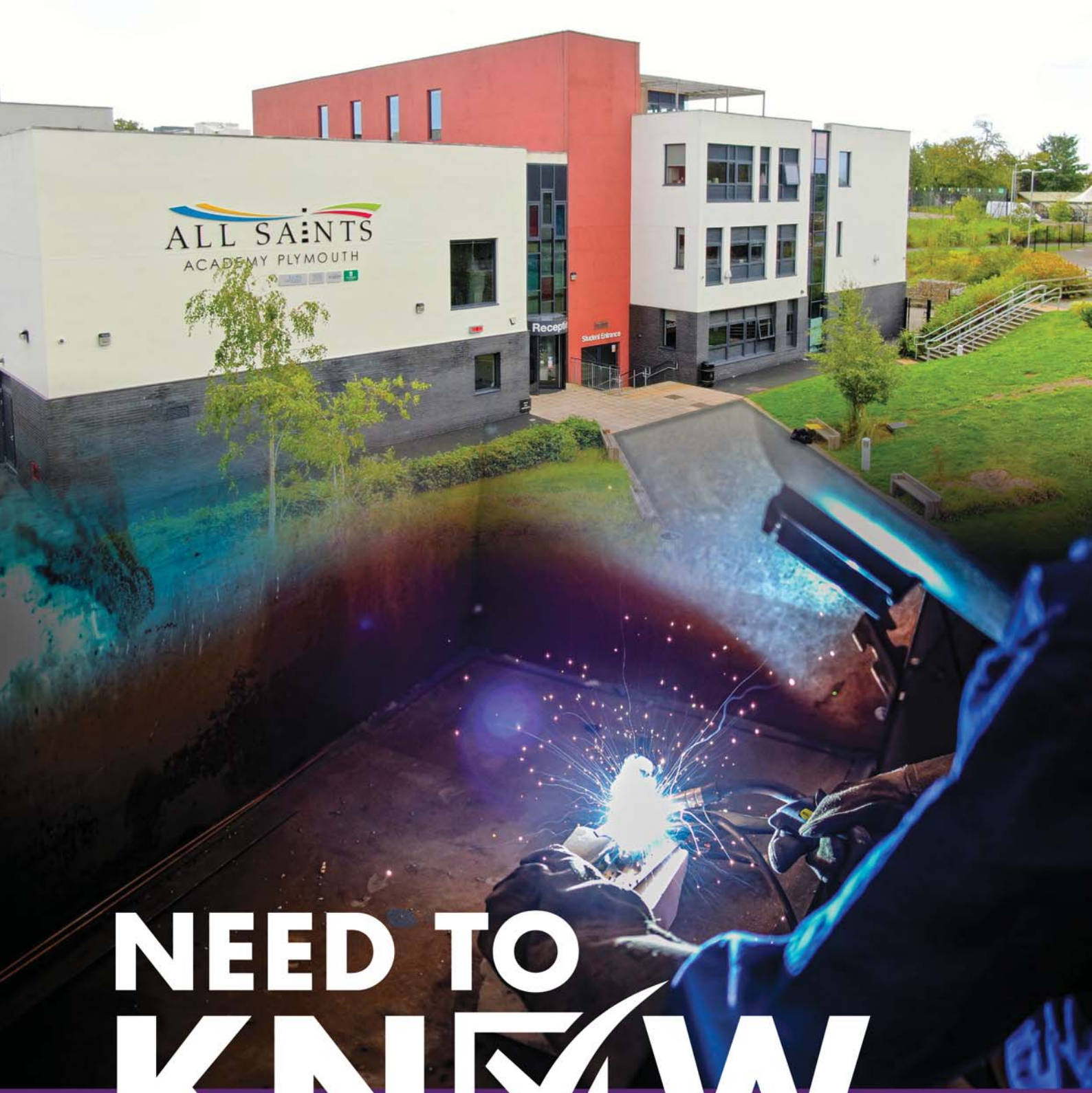


NEED TO KNOW BOOK

Year 10
Summer Term 2025

ALL SAINTS
ACADEMY PLYMOUTH

Table of Contents

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.

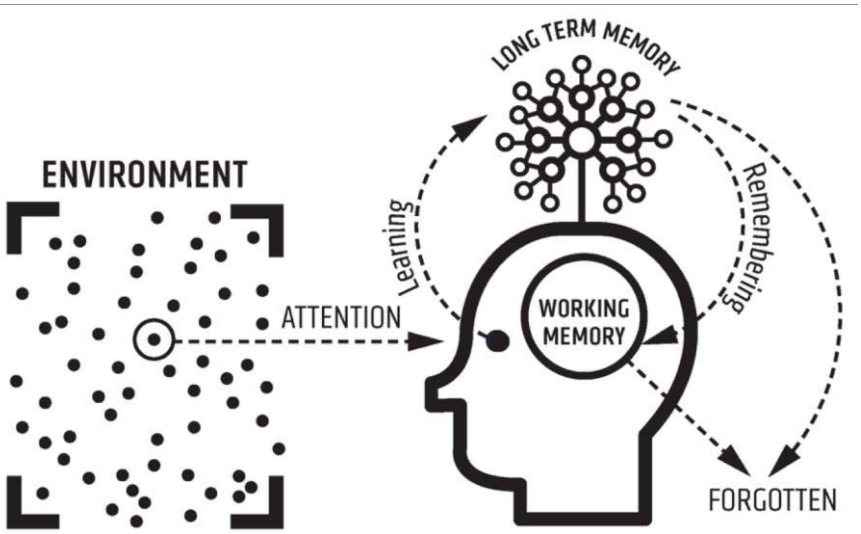
Other Subjects:

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.



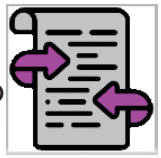
You can support your working memory by storing key facts and processes in long-term memory. These facts and processes can then be **retrieved** to stop your working memory becoming overloaded.

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.

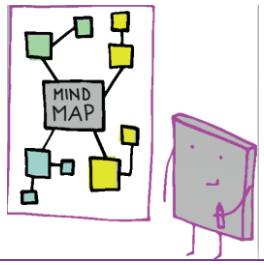
There is strong scientific evidence from cognitive psychology that shows the benefits of **self-quizzing** in promoting **retrieval strength**. This is your ability to quickly recall key facts related to your subject or topic

How should I self-quiz and how often?

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

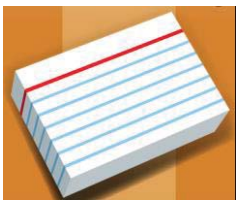


You could:



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:

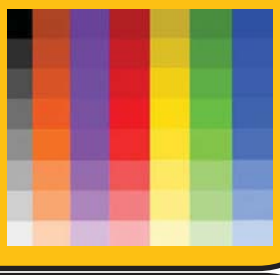
The Formal Elements of Art are the parts used to make a piece of art work. It is impossible to create a piece of art, even if it is only a doodle, without using some or all of them. The art elements are Line, shape, form, tone, texture, pattern, colour and composition. They are often used together and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

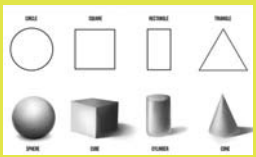
Tone means the lightness and darkness of something. This could be a shape and/or how dark or light a colour appears.



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

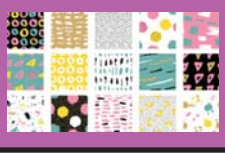
By mixing any two primary colours together, you get secondary colours.

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.

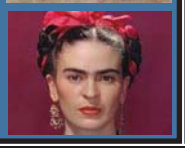


Art & Design

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:

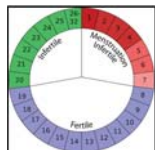
Composition	The position and layout of shapes on the paper
Line	Defines shape, the outer edges of something.
Tone	How dark or light a shape is.
Shape	The outline of objects.
Form	Appearing three-dimensional.
Pattern	A repeated shape or line.
Identity	Who a person is, or the qualities of a person or group 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

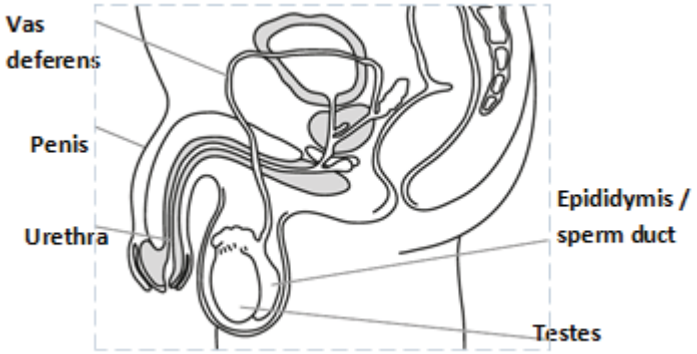
LO1 1.3– Roles and responsibilities of parenthood– What must a parent provide?			
Food	Food must provide the right nutrients to have energy for growth and development.	Shelter and Warmth	Housing must be safe and provide warmth. Damp conditions can lead to asthma and chest conditions.
Clothing	Clothing 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	
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= Unreliable**	- 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 semen can be released before ejaculation	
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	

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

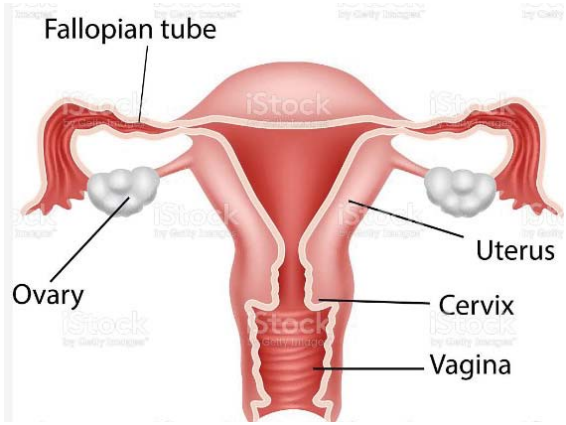
Male Reproductive System



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

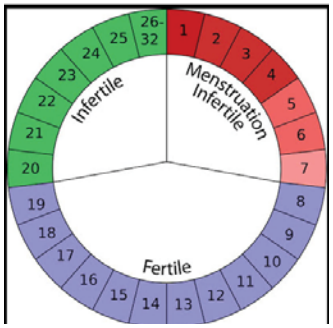
Signs and Symptoms of Pregnancy
Missed period or a very light period
Breast changes– Just before a period breasts feel larger or tender. Nipples may appear darker.
Passing urine frequently
Tiredness Nausea- 'morning sickness'

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. Egg is implanted here.
Cervix	Strong ring of muscles between uterus and vagina. Keeps the baby securely in place in the womb during pregnancy. Cervix dilates during
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 manage a project.

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.

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 redemption.

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!)

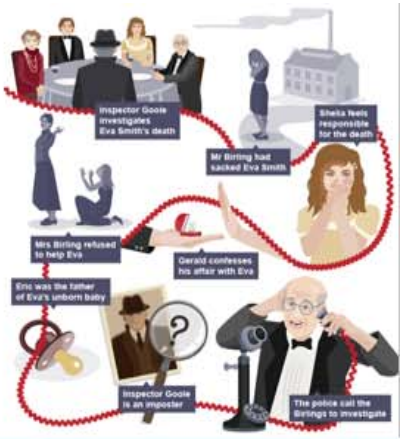
Context: Poor Law
In Victorian times, those is poverty were not viewed kindly. If someone was poor or in debt, they were sent to debtors jail or a workhouse. **This meant that poverty was seen as a crime and the working class, criminals.**

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

Week 1		Week 2		Week 3		Week 4		Week 5	
indépendant	independent	normal	normal	quelques	some	froid	cold	l'autobus	bus
organisé	organised	scolaire	school	le festival	festival	le député	MP, deputy	l'email	email
le pauvre	the poor	le/la/les meilleur(e)(s)	the best	l'influenceur	influencer	le touriste	tourist	le pantalon	trousers
l'environnement	environment			le quartier	neighbourhood	le site	site	le SMS	text message
l'information	information	le/la/les pire(s)	the worse	le roman	novel	la députée	MP, deputy	le billet	ticket
la communication	communication			le thème	theme	la brochure	brochure	le concours	contest
l'organisation	organisation	le chewing-gum	chewing-gum	l'auteur	author	la discussion	discussion	le jour férié	bank holiday
la situation	situation	le gymnase	gymmasium	le musicien	musician	la grève	strike	les grands-parents	grandparents
la participation	participation	la cantine	canteen	le métier	profession	la réunion	meeting	la mode	fashion
la passion	passion	la salle informatique	IT room	la carrière	career	l'assemblée	assembly	la partie	game/part
progresser	to progress	la cyber-intimidation	cyber bullying	l'expérience	experience	la possibilité	possibility	la mosquée	mosque
proposer	to offer/suggest	interdire (à)	to (someone) forbid, ban	l'influenceuse	influencer	expliquer	to explain	la place	spot/place/square
situer	to locate	retourner	to return	la soirée	evening	construire	to build	les Alpes	Alps
partager	to share	accepter	to accept	l'autrice	author	voter	to vote	recevoir	to get/receive
raconter	to tell (a story)	tellement	so much	la musicienne	musician	le ministre	minister	commencer	to start
intéresser	to interest	plein de	full/plenty of	poster	to post	le parlement	parliament	télécharger	to download
s'intéresser à	to be interested in	et demie	half past	vivre	to live/experience	la feuille	leaf/sheet	tout le monde	everybody
l'émotion	emotion	le règlement	rule/regulation	le héros	hero	l'enquête	survey	ensuite	next
l'organisation caritative	charity	à mon avis	in my opinion	l'héroïne	hero	être en train de	to be in the middle of doing	le jeu de société	board game
Bien sûr	Of course!	plus tard	later	l'Europe	Europ	avoir besoin de	to need	cela	that

Theme 1, Unit 3:	Education and Work
Theme 2, Unit 1:	Free-time activities

Verbs are in **GREEN**
Feminine nouns are in **PINK**
Masculine nouns are in **BLUE**
Adjectives are in **AMBER**
FOUNDATION

Revise vocab learned so far

Week 6	Week 7		Week 8		Week 9		Week 10	
	le feu d'artifice	fireworks	populaire	popular	fou/folle	crazy	le million	million
	le défilé	parade	tard	late	énorme	enormous	l'avis	opinion
	la pièce de théâtre	play	le Maroc	Morocco	courant	current	l'écrivain	writer
	l'écran	screen	le Sénégal	Senegal	le moyen	mean/way	le cycliste	cyslist
	le centre commercial	shopping centre	le nord	north	le plastique	plastic	l'ambiance	ambience
	le rap	Rap music	le bord (de la mer)	edge (seaside)	le club	club	l'atmosphère	atmosphere
	le concert	concert	le kilomètre	kilometre	le courage	courage	quelqu'un	someone
	le stade	stadium	le défi	challenge	la photo	photo	aujourd'hui	today
	la lecture	reading	la Réunion	Reunion Island	la course	race/grocery shopping	y	there
	la star	celebrity	la capitale	capital city	la centaine	hundred	catholique	Catholic
	la comédie	comedy	la route	road/way	participer à	to take part	le plein air	open air
	l'action	action	les Pyrénées	Pyrenees	découvrir	to discover	le champ	field
	mourir	to die	Pâques	Easter	chercher	to look for	le plaisir	pleasure/delight
	cependant	however	rentrer	to come back	enfin	finally	la passion	passion
	déjà	already	descendre	to go down	vraiment	really/truly	s'entrainer	to train
	le genre	type/gender	là-bas	over there	étonnant	astonishing	prier	to pray
	la série	series	africain	African	la distance	distance	allumer	to swicth on/light up
	les actualités	news current affairs	les États-Unis	USA	l'étape	stage/step	se blesser	to hurt oneself
	se demander	to wonder	L'Afrique	Africa	sauver	to save	toucher	to touch
	apprécier	to appreciate	vers	towards	profiter de	to make the most of/to enjoy	avoir l'air	to look/to seem

Week 1		Week 2		Week 3		Week 4		Week 5	
gratuit	free of charge	adulte	adult	Hanouka	Hanouka	public/publique	public	musical	musical
parfait	perfect	agréable	pleasant	le Cameroun	Cameroon	talentueux	talented	célèbre	famous
délicieux	delicious	festif	festive	camerounais	Cameroonian	le lieu	place	accessible à	accessible to
commercial	commercial	simple	simple	extraordinaire	extraordinary	le millier	thousand	le style	style
spécial	special	relaxant	relaxing	bouddhiste	buddhist	le bruit	noise	l'entretien	interview
l'Aïd	Eid	long	long	chaud	hot, warm	le gagnant	winner	le progrès	progress
la Saint Valentin	Valentine's day	le bruit	noise	le gâteau	cake	le personnage	character, individual	le cours	lesson
le salon	lounge	le voisin	neighbour	le vin	wine	la rencontre	encounter	la célébrité	celebrity
l'artiste	artist	l'Europe	Europ	le bonheur	happiness	l'escalade	climbing	la télé-réalité	TV reality
le demi-frère	half-brother	la société	society	le spectacle	show, performance	la réalité	reality	les paroles	lyrics
la neige	snow	presque	almost, nearly	le temple	temple	la pièce	piece, room, play	avoir peur	to be scared
la demi-sœur	half-sister	jusque	to, up to, until	la surprise	surprise	la taille	size	développer	to develop
la journée	day	situer, se situer	to locate, to be located	la lumière	light	francophone	French speaking	oublier (de)	to forget to
la célébration	celebration	appeler	to call	la nature	nature	unique	unique	réussir + noun	to pass
l'occasion	occasion	s'amuser	to have fun	la Terre	Earth, soil	le public	audience	réussir à	to succeed in
par exemple	for example	l'enfance	childhood	la synagogue	synagogue	le chapeau	hat	sourire	to smile
que	that	offrir à	to give someone	félicitations	congratulations	la tournée	tour, round	influencer	to influence
payer	to pay	se souvenir de	to remember	quitter	to leave	dessiner	to draw	immédiatement	immediately
ouvrir	to open	depuis	since, for	surprendre	to surprise	féliciter	to congratulate	énormément	enormously
suivre	to follow	même si	even if	cru	believed	assister	to attend	annoncer	to announce

Year 10, Theme 2, Unit 5:	Customs, Festivals & Celebrations
Year 10, Theme 2, Unit 6:	Celebrity Culture

Verbs are in **GREEN**
Feminine nouns are in **PINK**
Masculine nouns are in **BLUE**
Adjectives are in **AMBER**
FOUNDATION

Week 6	Week 7		Week 8		Week 9		Week 10	
REVISE	**patient**	patient	**actuel**	current	**ancien**	ancient, old	**culturel**	cultural
	passionné (de)	passionate (about)	**propre**	clean, proper, own	**capable**	able, capable	**présent**	present
	passionnant	captivating	**quotidien**	daily	**politique**	political	**régional**	regional
	le modèle	role model	**riche**	rich	**le début**	beginning	**excellent**	excellent
	le bénévole	volunteer	**super**	great	**l'article**	article, item	**le but**	goal
	l'intérêt	interest	**complet**	full, complete	**le président**	President	**la culture**	culture
	le nombre	number	**l'avantage**	advantage	**le citoyen**	citizen	**la côte**	coast
	le refuge/l'abri	shelter	**le changement**	change	**les médias**	media	**l'éducation**	education
	le créateur	creator/designer	**l'influence**	influence	**la coopération**	cooperation	**traduire**	to translate
	la spécialité	speciality	**protéger**	to protect	**la marque**	brand, make	**rechercher**	to look for, research
	la créatrice	creator/designer	**amuser**	to entertain	**la mort**	death	**décrire**	to describe
	exister	to exist	**exprimer**	to express	**se mettre à**	to start/begin	**vendre**	to sell
	rapidement	quickly	**rêver à/de**	to dream about	**décider**	to decide	**en plus**	in addition
	une fois	once	**malgré**	despite	**se décider**	to make up one's mind	**environ**	about, thereabouts
	plutôt	rather	**non seulement**	not only	**à cause de**	because of	**défavorisé**	disdvantaged
	bénévole	voluntary	**la richesse**	wealth	**régulièrement**	regularly	**le conflit**	conflict
	remercier	to thank	**l'image**	image, picture	**diriger/se diriger**	to guide, to make one's way	**adapter/s'adapter**	to adapt
	faire de son mieux	to do your best	**la presse**	press	**reposer/ se reposer**	to put down, to rest	**unir**	to unite
	inspirer	to inspire	**la voix**	voice	**lancer**	to launch	**soutenir**	to support
	s'inspirer de	to be inspired by	**l'ouverture**	opening	**obtenir**	to get, obtain	**avoir lieu**	to take place

Commodities: Fruits and vegetables

Organic foods

Organic: production of food without fertilisers, herbicides or pesticides. The foods are free from trans-fats, GM food and most additives. Advantages: less ethical concerns, lower environmental impact, more sustainable & many people feel the food tastes better and is higher quality.
Disadvantages: that it has a lower yield and higher labour and so is more expensive to buy.

Growth & Process

Processed fruit and vegetables are useful alternatives to fresh. They can be; pre-prepared, canned, frozen, dried or juiced. This could be for convenience, to increase shelf life or allow availability all year round. All fruits and Vegetables need to be washed to remove insecticides, dirt, soil or insects before cooking or eating. This needs to be done in cold water. Any peeling needed should be done as thinly as possible.

Nutrient Value

Fruits and Vegetables contain a wide variety of nutrients including; carbohydrate (energy), Vitamins A (for vision) C (antioxidant, healing tissues, and iron absorption), B, E & K, Calcium, Folate (healthy blood cells & nervous system), Potassium (blood pressure and nervous function), Magnesium (teeth and bone health) Iron as well as fibre (gut health).

Classification

Fruit and Vegetables are classified according to the part of the plant they come from. Fruits are the part of the plant that carries the seeds, they can be; stoned, citrus, hard, soft berry or currants. Vegetables in the soil are; roots, tubers & bulbs. Vegetables above ground are; leaves, flowerheads, stems, fungi, seeds and pods. Vegetables in water are sea vegetables.

Storage

Ideally they should be consumed within a few days of purchase as this is when they will be at their most flavoursome and nutritious. All vegetables should be stored in a cool dry and dark place. Leaves such as spinach, cabbage, spring greens and broccoli should be kept in the salad drawer in a fridge. Root vegetables, bulbs and tubers will keep for several months in a dark dry place.

Commodities: Cereals

GM crops

Genetically modified foods (GMF) are developed to produce a product at a lower price and have greater benefit (durability and/or nutritional value). GM foods currently available have passed safety assessments and are not likely to pose a threat to human health. Future developments may alter nutrient content, reduce allergic potential or improve efficiency of production.

Growth & Process

Wheat is one of the main cereal crops grown in the UK. It will grow in a variety of soils. Tractors and ploughs are used to turn the soil in a field before seeds are planted in the Autumn or Spring. Crops are harvested in the Autumn. Wheat undergoes a primary processing of milling to grind wheat into flour. Flour can then be bleached (made white) and fortified with Vitamins and minerals.

Classification

Cereals are edible grasses which are grown and harvested for their grain. The endosperm, the germ and the bran are of particular importance. The most popular cereals are; wheat, rice, oats, maize and barley. Cereals are described as a staple food are starchy foods which can be consumed all year.

Nutrient Value

When cereal is in its natural form (whole grain) it is a rich source of nutrients, mainly starchy carbohydrates and protein. Fat is also found in the whole grain, as are Vitamins B and E. Fibre is also in the bran. Nutritional content of cereals may change as the grain is processed.

Diet

Carbohydrates should make up 1/3 of your daily diet, to supply energy, essential vitamins and minerals and dietary fibre.
Grains are an essential element of a healthy diet and eating high fibre whole grains may help reduce the risk of heart disease and type 2 diabetes and control blood cholesterol.
Secondary processing of wheat turns it into items such as pizza, cake, bread and pies.

Food science

Coagulation; heat causes the protein present to set.
Gelatinisation; mixing starch and water forms a suspension, adding heat causes the starch granules to absorb the moisture and swell. This thickens the liquid making a gel.
Dextrinisation; exposing starch to dry heat colours it brown.
Retrogradation; chilling and freezing can cause wheat thickened sauces to 'weep'.

Storage

Cereal crops should be stored in a cool dry environment to reduce the likelihood of yeasts, moulds and fungi contaminating the crop. They should also be kept clean and free from rodents, birds and insects or pests. Fungi can produce mycotoxins, birds and rodents can transfer disease, mites can carry fungal spores and bacteria.

Scenario prep

As the body ages, metabolism slows down and their may be a tendency to loose muscle mass and gain weight. Older people tend to eat less food, but still need to eat a balanced diet with all the essential vitamins and minerals. Especially Vitamin D and Calcium to maintain bone health.
Coeliac disease is triggered by gluten and causes the body's own immune system to attack its tissues. Gluten free products carry a symbol.

Commodities: 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.

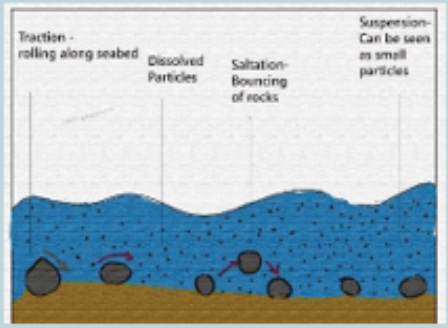
Storage

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.

Week 1

There are four types of erosion

1. **Hydraulic action:** When water hits the river bank, air is compressed into cracks leading to small explosions.
2. **Abrasion**: Bits of rock are thrown at the river bed and banks, wearing it away like sandpaper.
3. **Attrition**: Water smash rocks and pebbles into each other so they become smaller and more rounded.
4. **Solution**: Acids contained in river water will dissolve some types of rock such as chalk or limestone.



There are four types of transportation (shown in the diagram).

Week 2

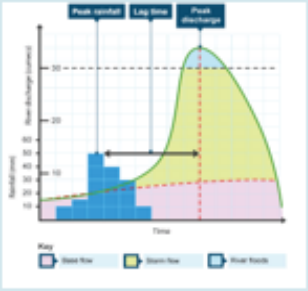
Key drainage basin terms

1. **Interception:** Rainfall that does not reach the ground that is prevented by vegetation e.g. trees
2. **Transpiration:** Plants releasing water vapour into the air
3. **Infiltration:** The movement of water into the soil
4. **Surface run-off:** The flow of water over the ground
5. **Throughflow:** The downhill flow of water through the soil

Week 3

Flooding

A **hydrograph** tells us how a river's discharge (how much water there is) rises and then falls after a rainfall event. The lag time is the time between the peak rainfall and peak discharge of a river.



Factors which create a longer lag time:
Vegetation – help to reduce flood risk by increasing the time it takes for water to reach a river by encouraging infiltration, intercepting and absorption
Gradient – Drainage basin with a **less steep** gradient allows more time for infiltration to occur

Factors which create a shorter lag time:
Impermeable man-made surfaces such as concrete, speed up surface run off.
Vegetation - Areas cleared by deforestation will respond quickly to rainfall due to the reduced interception.

Week 4

Landforms in the upper course

V-shaped valleys

Rivers start in upland areas and flow quickly. They erode downwards. As they erode downwards the sides of the valleys are exposed to freeze-thaw weathering which loosens the rocks and steepens the sides. Loose material enters the river and further erodes by abrasion.

Waterfalls and gorges

1. The river flows over bands of less resistant (softer) and resistant (harder) rocks.
2. The less resistant rock is more quickly worn away due to differential erosion.
3. The river undercuts the harder rock leaving an overhang which becomes unsupported and collapses into the plunge pool below.
4. The waterfall is moved upstream, the process continues and a steep-sided gorge is cut back into the hillside.

Week 5

Landforms in the middle and lower course

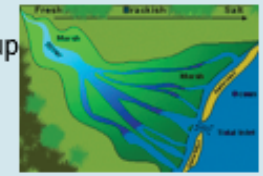
Meanders

1.The river starts eroding sideways into its BANK rather than downwards into its bed

2.When rivers flow over flatter land they develop large bends called MEANDERS.

3.As a river goes around a bend most of the water is pushed towards the OUTSIDE causing increased EROSION (through hydraulic action and abrasion). And deposition occurs on the inside.

Floodplains



1. When a river bursts its banks, the land will be covered up – this is known as the floodplain.
2. The water spreads out and this results in an increase in friction, a decrease in velocity (speed) and suspended material is deposited.
3. The river's load is composed of different sized particles. When a river floods it deposits the heaviest of these particles first.

Estuaries: are formed by deposition when the sea level rose at a rapid rate which flooded river valleys. They then became traps for sediments such as mud, sand and gravel leading to more deposition.

Week 6

Consequences of flooding

In 2015 Carlisle in Cumbria suffered from significant flooding.

Social (+ and -)

Properties flooded
Loss of life
Since the flood defence system has been improved.

Economic (+ and -)

Businesses destroyed, e.g. the McVities factory closed for 3 months
Visitor centre destroyed
Cost £50 million in damages
Increase in tourism following the event

Different groups of people who are affected:

Tourism
Local residents
Water companies
Environmental companies

Week 7

Flood management

Hard engineering

Dams – expensive and floods land but effective and last a long time
Channel straightening – Reduces flood risk in the immediate area, but increases the risk downstream. It's expensive and makes it difficult for plants and animals to live there

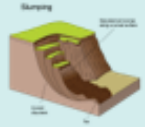
Soft engineering

Afforestation – cheap, but can use land that was previously used for crops
Managed flooding – the land cannot be used for buildings, but allows the river to be more natural with deposition and erosion occurring naturally
Land use zoning – Allows a mix of human activities to occur with the environment

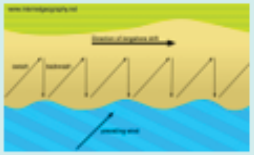
Week 8

Coasts - key terms

Weathering: The breaking down of rock by the weather, e.g. freeze-thaw weathering which breaks off parts of a cliff.



Mass movement (e.g. slumping): Slumping occurs on a coastline where the soil becomes saturated and heavy, e.g. clay. This leads to large sections collapsing down.



Longshore drift: The zig-zag movement of sediment along a coastline
Constructive waves: Waves with a stronger swash which lead to more deposition
Destructive waves: Waves with a stronger backwash which lead to more erosion

Week 9

Factors that affect UK coastlines

Winter storms in the UK: During the winter of 2013-14 low pressure systems brought high winds and waves which led to more rapid rates of erosion.

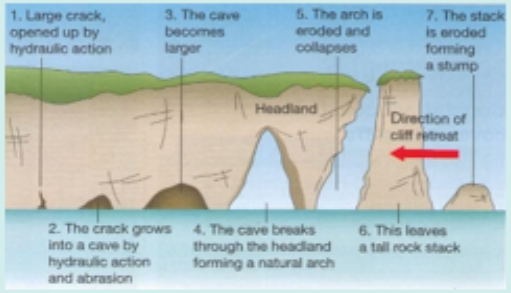
Geology: Unconsolidated rock types such as clay and sand are not as resistant to erosion because they have not been compacted as much as older sedimentary rock types. E.g. North Norfolk. However, older limestone cliffs are more consolidated and less likely to be eroded.

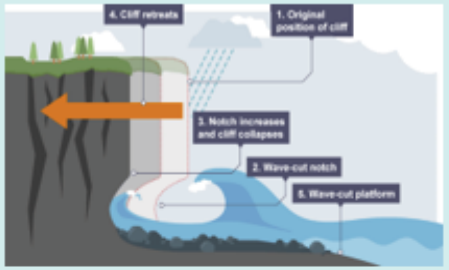
Human activity slowing down erosion: Humans can slow down erosion by using hard engineering such as sea walls to protect the cliffs behind.

Human activity accelerating erosion: However, putting groynes on a beach can cause erosion to happen at a faster rate further down the coast. This is because they reduce longshore drift which then makes a narrower beach. This means the cliffs have less protection from the waves eroding them.

Week 10

Erosional landforms (wave-cut platforms)





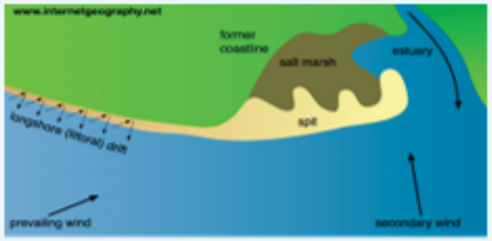
Headlands and bays: created when there are parallel layers of harder/more resistant and softer/less resistant rock. This leads to differential rates of erosion.

Week 11

Depositional landforms

Beaches: are formed by constructive waves when they deposit more material. Often found in a sheltered area (e.g. a bay) which means the waves will be smaller and less likely to erode the beach away.

Spits: are formed by longshore drift.
Step 1: longshore drift moves material along a beach in a zig-zag movement
Step 2: the material is deposited due to a change in the coastline which means it is more sheltered.



Step 3: the material builds up to create a spit and behind a salt marsh forms.
Step 4: It cannot grow any further due to the estuary which would erode it away.

Week 12

Exam questions

- Explain the formation of wave-cut platforms [4 marks]
- Explain how processes interact to form a spit [6 marks]
- Explain why coastlines erode at differing rates [6 marks]
- Suggest how hard engineering can reduce rates of coastal erosion [4 marks]
- Describe the impacts of flooding in one location in the UK [4 marks]
- Give one reason for a shorter lag time [2 marks]
- Explain the formation of a gorge [4 marks]
- Outline the process of hydraulic action in a river [3 marks]
- Outline the process of traction at a coast [2 marks]
- Describe the process of longshore drift [3 marks]

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

Weimar Germany, 1918–33

The Effects of The First World War on Germany:
11 million Germans fought in the war
2 million German soldiers were killed
4 million German soldiers were injured
750,000 German civilians died from hunger and disease
By November 1918, German soldiers weren't following orders and German cities were facing riots and strikes.

Treaty of Versailles:
The new German government had to sign the treaty that ended the First World War – this made them very unpopular because the terms were very harsh.
Germany was left weak (small army, navy, and no air force).
Germany lost lots of land.
German had to pay damages to the winning countries (reparations).

Germany after the First World War
Due to the German Army falling apart with lots of mutinies and the German civilians starving in the cities, there is a revolution which removes the Kaiser and creates the Weimar Republic. The new government is a democracy with a President, Chancellor, two houses of parliament and votes for everyone over the age of 21.
The new government has to agree to the ceasefire (armistice) and sign the Treaty of Versailles which takes away German land and limits the army to a tiny 100,000 men. Not a great start for a new government!

Weimar Republic in trouble 1919-23
After the First World War and the German Revolution, lots of political parties have private armies to protect them. Plus, there are lots of ex-soldiers called "Freikorps" who haven't given back their rifles and whose allegiance is unclear.
The Weimar Republic is new and is hated for signing the Versailles Treaty – it faces two challenges on its power.
Spartacist Uprising in 1919 is a Communist attempt on power and is stopped by the Freikorps
Kapp Putsch in 1920 is a Nationalist attempt to bring back the Kaiser and is stopped by the workers going on strike.
The Weimar Republic is only just hanging on!

Weimar Republic Recovers under Stresemann
Gustav Stresemann works as the Chancellor for a few months but then as the Foreign Minister for 5 years.
In these roles, Stresemann not only fixes the problems in Germany, but makes the Weimar Republic more popular because the German people are happier.
He introduces a new currency (Rentenmark) to stop hyperinflation; he gets the French out of the Ruhr with the Dawes Plan (1924) that secures massive American loans to boost the German economy.
Life in Germany gets better. The government uses the money to pay reparations and to invest in industry. The economy grows, unemployment falls, people have more money to spend, and Germany experiences some good years in the 1920s.
Stresemann also makes Germany look good in the world too – the Locarno Pact in 1925 (sets borders), joining the League of Nations in 1926 (international meetings), and the Kellogg-Briand Treaty in 1928 (promise not to go to war) all show Germany to be a "good" and honourable nation rather than the enemy from the First World War.

Rise of the Nazi Party
Hitler joins the DAP (German Workers' Party) in 1919
Hitler and Drexler (the leader of the DAP) draw up a 25 Point Programme, introduce the salute, the swastika, and change the name of the party to the National Socialist German Workers' Party (NSDAP or Nazi for short).
Membership increases to around 3000 by 1921 and Hitler is made the leader of the Nazis.
In 1923, Hitler and Nazis try to take power by force in Munich. It is a turning point for the party in many ways – Hitler goes to jail and writes Mein Kampf, he decides that votes are the way to win power, not revolution; and finally, he decides to reorganise the party.
Between 1924 and 1929 Hitler gets support from businesses that are afraid of the Communists and uses this money to pay for more SA troops. The SS are set up and propaganda begins with the help of Goebbels.
Despite these changes, the Nazi Party remains a small, radical party with only 3% of the vote (because the Weimar Republic is doing well and Germans are happier).
All the Nazis need is for some sort of problem or disaster to make Germans hate the government.

Wall Street Crash (1929) and its effects
The USA's economy is in ruins, so they call in all their loans around the world. Germany has to pay back the loans and continue reparation payments to Britain and France.
Unemployment reaches 6 million, production falls by 40% and the only solution offered by the Weimar Republic is more taxes to pay for unemployment benefits.
Votes for the Nazis and Communists increase because they offer solutions (Nazi votes in 1928 = 1m, 1930 = 6m, 1932 = 13m)

Political problems
The Socialist Chancellor Von Bruning tries to ban the SA and SS but instead makes the right-wing parties (Nationalists) all team up against him in a coalition.
Von Bruning is sacked and von Schleicher works behind the scenes whilst von Papen takes over as Chancellor.
Hitler and the Nazis are finally invited into government and once there, they disrupt parliament until it cannot get any work done. With fighting in the streets between the SA and Communists, arguments in the Reichstag, and Nazi propaganda telling everyone they will bring order; Hitler is made Chancellor in January 1933 (after Von Schleicher attempts to take control with the military).

Timeline: Weimar and Nazi Germany, 1918–39

Weimar Germany
1919–1933

Nazi Germany
1933–1939

Weimar Germany: 1919–33

1918 Kaiser Wilhelm abdicates

1919 Spartacist uprising

1919 Weimar Constitution established, with Ebert as Chancellor

1923 French occupation of the Ruhr

1923 Hyperinflation begins

1924 Dawes Plan

1926 Bamberg Conference

1926 Membership of the League of Nations

1929 Young Plan

1932 National Socialist German Workers' Party (NSDAP) becomes the largest political party in the Reichstag

1918 | 1920 | 1922 | 1924 | 1926 | 1928 | 1930 | 19

1918 Armistice signed

1919 Treaty of Versailles signed

1920 Kapp Putsch

1923 Stresemann becomes Chancellor and Foreign Minister

1923 Munich Putsch

1925 *Mein Kampf* published

1925 Locarno Pact

1928 Kellogg-Briand Pact

1929 Wall Street Crash and start of the Depression

Nazi Germany: 1933–1945

1933 Hitler appointed as Chancellor

1933 Reichstag Fire

1933 Enabling Law passed

1934 Night of the Long Knives

1935 Nuremberg Laws passed

1938 *Kristallnacht* (Night of Broken Glass)

1933 | 1934 | 1935 | 1936 | 1937 | 1938

1933 People asked to boycott Jewish shops

1933 Gestapo (secret police) established

1933 Concordat with Catholic Church

1934 Death of Hindenburg and Hitler becomes Führer

1936 Berlin Olympics

Life in Nazi Germany

Democracy and Freedom

Hitler became Chancellor in 1933 and soon afterwards the Reichstag burnt down (a young Dutch Communist confessed to the crime). Hitler used the event to persuade President Hindenburg to grant him Emergency powers to pass laws without parliament. Hitler banned the Communist Party from parliament, called a new election and once the Nazis had more seats in government, Hitler called a vote for an Enabling Act to give Hitler the power to make laws for six years – the vote was won and democracy ended in Germany. The Nazis then set up their police state system: the secret police (Gestapo) were given powers to arrest and imprison Germans, the judges had to swear loyalty to Hitler and the Nazis, and the first concentration camp opened for political opponents in 1933. The German people were encouraged to inform on each other.

Young People

Hitler and the Nazis understood that if they gained the loyalty of German children, they would grow up to be loyal citizens. Also, young people liked the Nazi government as it was radical, violent, made rapid change, and often gave power to the young over their own parents and teachers. Other youth groups were banned after 1933 and Nazi organisations were promoted (and made compulsory after 1936). The main groups were the Hitler Youth for boys and Young Maidens for girls. Both groups promoted physical fitness and outdoor activities although the Hitler Youth specifically had war games for the young boys to become soldiers. Education also promoted war in maths and race studies in science. Girls' lessons included domestic sciences and needlework. There were small pockets of resistance.

Workers

It was important for the Nazis to increase production to make the economy stronger, therefore workers were strictly controlled. All unemployed men of working age were enrolled in the RAD to build roads and clear forests to get them used to working and making Germany better. Trade Unions were banned and replaced with the DAF although this group helped employers by lowering wages and increasing work hours. Hitler started the Four Year Plan in 1936 to get the nation ready for war. Military hardware was produced at a high rate and workers were an important part of this drive to make Germany stronger. Once the war had begun, slave labour provided by prisoners began to replace some of the German workers who had to serve in the military instead. Women were also asked to work to support the war effort.

Women

The falling birth rate was a worry for the Nazis and Hitler who wanted Germany to be powerful. The Nazis also saw women in a traditional way as wives and mothers. Therefore, the 1933 Law for the Encouragement of Marriage promoted large families in return for a 1000 mark loan as well as The Mothers' Cross medal awarded for especially high numbers of babies. These policies did increase the birth-rate, although during the war, the Nazis approach had to change. They needed women to work in the factories after 1942 and so Nazi propaganda persuaded them to do so. The racial purification of Germany was sped up with the Lebensborn program forcing blonde German women to have children with SS Aryan men. Women were supposed to dress in a traditional style and avoid makeup.

Jewish People

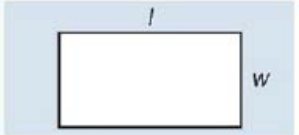
Nazi speeches and propaganda had always blamed Germany's problems on the Jews and their solutions involved removing them from society. Therefore, after 1933 this policy began to affect the 3% of Germans who were Jewish. Simple bans from public areas, certain shops and swimming pools became official in 1935 when the Nuremburg Laws banned marriages between Jews and non-Jews and prevented Jews from being citizens. At this point Jewish businesses and homes could be confiscated and given to non-Jews, education was denied, and Jews forced to carry identity papers at all time. This racist policy became more radical when the Nazis invaded more territory and had more Jewish people to "process". After 1942, the Nazis built labour and death camps to use the people as slaves and destroy all those who couldn't work.

Church

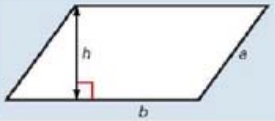
When Hitler first took power he said the Nazis and the Christian Church in Germany wanted the same things: to get rid of godless Communists and Jewish people. This was reflected in the Papal Concordat in which Hitler agreed not to interfere in Catholic Church, schools or youth groups as long as the Pope wouldn't speak out against the Nazis. However, Hitler began to close Catholic youth groups (see above section) and force lesson changes on the catholic schools. Thereafter Catholic and Protestant clergy (vicars) were a source of opposition for the Nazis, many of whom were arrested by the Gestapo and sent to the concentration camps (e.g. Niemoller). A small section of the German Church remained loyal to the Nazis and flew swastikas inside their churches.

Areas

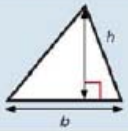
Rectangle = $l \times w$



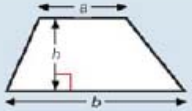
Parallelogram = $b \times h$



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



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

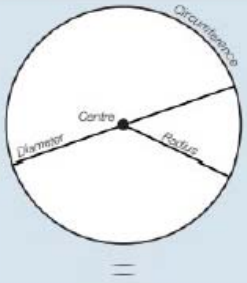


Circles

Circumference =

$\pi \times diameter = \pi d$

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



Area of a circle =

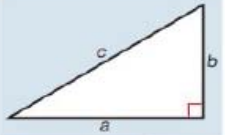
$\pi \times radius\ squared = \pi r^2$

Right-angled triangles

Pythagoras' Theorem

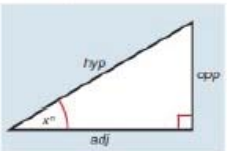
For a right-angled triangle,

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



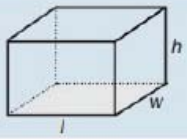
Trigonometric ratios (*new to F*)

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



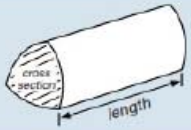
Volumes

Cuboid = $l \times w \times h$



Prism =

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

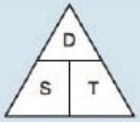


Cylinder = $\pi r^2 h$

Compound measures

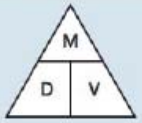
Speed

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



Density

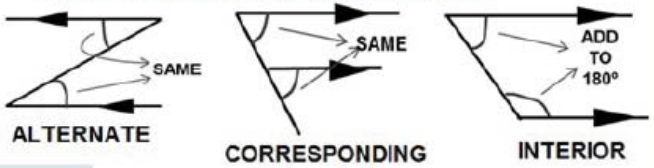
density = $\frac{mass}{volume}$



Pressure

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

Angles formed by parallel lines



Constructing Pie Charts

The angle to draw for each sector is

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

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)

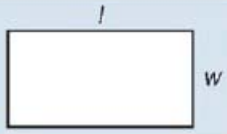
PRIME NUMBERS

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

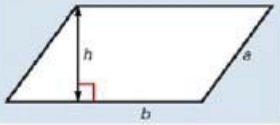
Foundation Formula Quiz

Areas

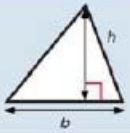
Rectangle =



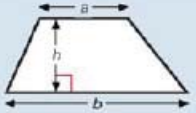
Parallelogram =



Triangle =



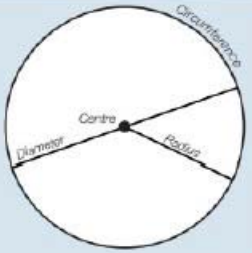
Trapezium =



Circles

Circumference =

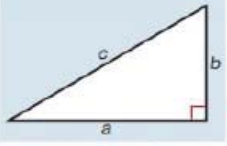
Area of a circle =



Right-angled triangles

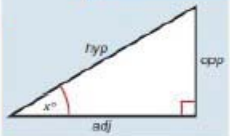
Pythagoras' Theorem

For a right-angled triangle,



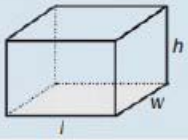
Trigonometric ratios (*new to F*)

sin $x°$ = cos $x°$ = tan $x°$ =

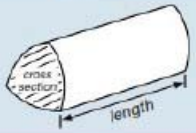


Volumes

Cuboid =



Prism =

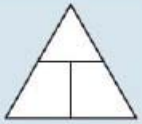


Cylinder =

Compound measures

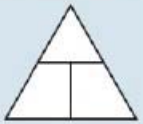
Speed

speed =



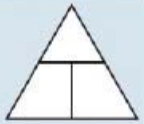
Density

density =

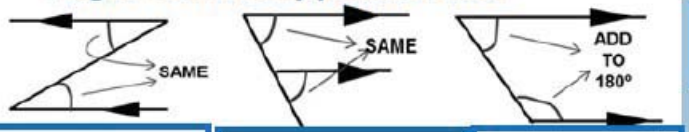


Pressure

pressure =



Angles formed by parallel lines



Constructing Pie Charts

The angle to draw for each sector is

Angle =

Angles in Polygons

Sum of Interior Angles =

Where n is the number of sides of the shape

Exterior Angles add up to

One exterior angle in a REGULAR polygon =

$Interior + Exterior =$

Other useful formu-

$gradient =$

$\%\ change =$

Types of numbers

SQUARE NUMBERS

CUBE NUMBERS

PRIME NUMBERS

Foundation Formula Quiz

1: What is a worldview?

⇒ **A worldview is a collection of attitudes, values, stories and expectations about the world around us, which inform our every thought and action.**

⇒ **Everyone has a unique worldview.**

⇒ **A worldview in based on beliefs.**

⇒ **A worldview influences your actions and thoughts.**

⇒ **It makes up who you are as an individual.**

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

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

Challenge: Write out a different interpretation for each belief.

2. What builds a world view?

⇒ A worldview is built by personal experiences and beliefs.

⇒ This means worldviews can change over your lifetime as you experience more things in your life.

⇒ A sibling who has experienced the same things you have will still have a unique worldview as they will have had different feelings and understood things in their own unique way.

⇒ This means there is only one worldview that is the same as yours in the whole world.

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

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

3. To what extent are beliefs unshakable?

⇒ **There are many beliefs people have different opinions on.**

⇒ **People as a result of their beliefs have gone to great lengths to protect or show their beliefs publicly.**

⇒ **Some people have boycotted companies (refused to buy things from the company) or participated in marches/protests.**

⇒ **Others have gone to jail for their beliefs.**

⇒ **There are even individuals who have been killed for their own beliefs.**

Enquiry task:

"There are some beliefs that should NEVER be supported."

Evaluate the statement.

In your answer you need to include:

1 paragraph supporting the statement

1 paragraph of a different view

1 conclusion showing your personal view point

4. Different beliefs about God.

There are many beliefs about God throughout all of humanity.

Theses beliefs can be broken down into 3 main categories:

⇒ Atheist - A person who disbelieves or lacks belief in the existence of God or gods.

⇒ Agnostic - A person who believes that nothing is known or can be known of the existence or nature of God.

⇒ Theist - A person who believes in the existence of a god or gods, specifically of a creator who intervenes in the universe.

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

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

5. Atheist verses Humanist worldview

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

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

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

6. Bonhoeffer—Christian case study

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

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

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

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

. Doss—Christian case study

⇒ Desmond was an American Christian during WW2.

⇒ Desmond was heavily influenced at a young age by the Sixth Commandment of 'Thou shalt not kill'.

⇒ During WW2 Desmond felt it was an honour to serve God and country, but he wanted to do it as a medic, by saving life instead of taking life.

⇒ Some of Desmond's fellow soldiers believed he should carry a weapon for protection, but he told them that he would put his trust in God. He said that "they could do the fighting and I would do the patching"

⇒ In May 1945, his battalion were sent up on the top of a 400-foot-high cliff named Hacksaw Ridge to fight the Japanese.

⇒ In this battle about 75 men were wounded and could not move. Desmond was the only medic and would not leave his men.

⇒ He stayed at the top of the cliff and let them down one by one to where they could be taken on down to the aid station.

⇒ He kept praying: 'Lord, help me to get one more.' And Desmond felt God did help him that day. He got all the men down safely and did not get a scratch from the bullets that were going past him as he worked to help his fellow men.

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

How might someone argue that Doss was a war hero.

8. Nicky Cruz—Conversion Case Study

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

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

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

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

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

After this Nicky became a Christian and left the gang.

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

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

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.

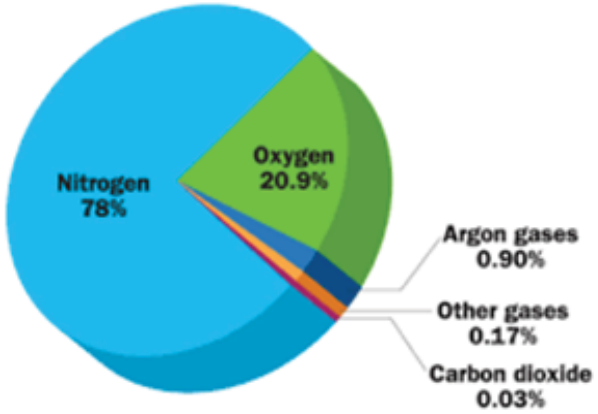
Combustion

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: $Fuel + O_2 \rightarrow CO_2 + H_2O$

Incomplete Combustion: $Fuel + O_2 \rightarrow CO + H_2O + C$

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.

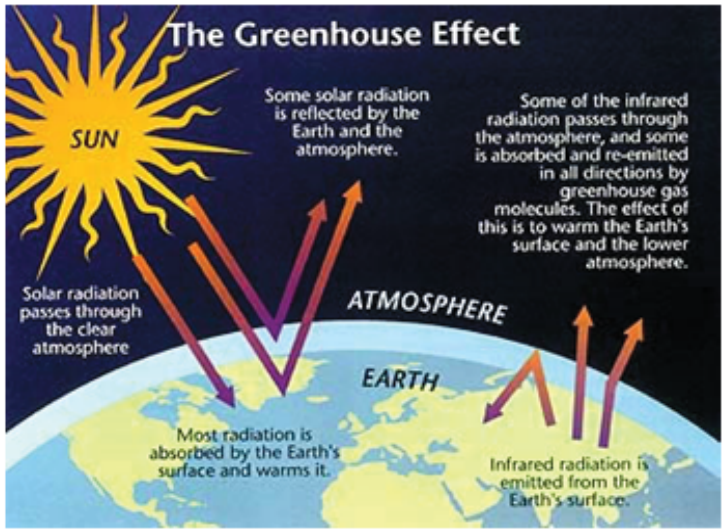
The Formation of Fossil Fuels

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.

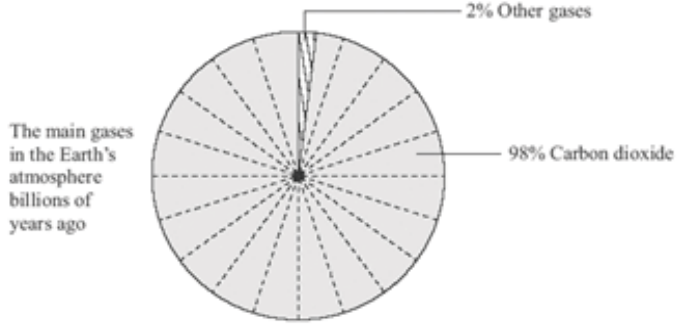
The Greenhouse Effect

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.

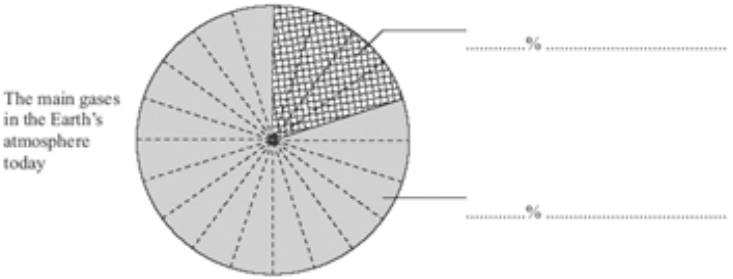


Enquiry Task

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.

_____
_____ (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

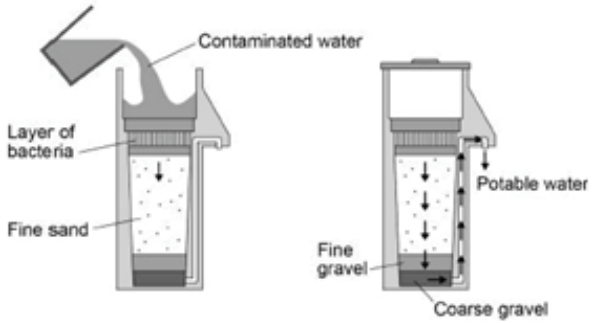
Water is important to all living organisms. In some parts of Africa getting potable water may be difficult.

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:

_____

_____

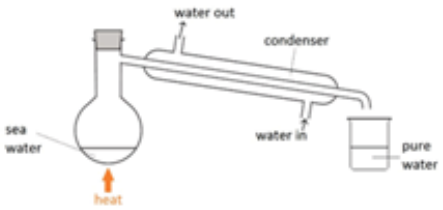
_____

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



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.

Aluminium oxide is separated from bauxite ore.

↓

Aluminium oxide is purified.

↓

Aluminium oxide is mixed with cryolite.

↓

The mixture is heated to 950 °C to melt it.

↓

Aluminium is extracted by electrolysis.

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.

1

Homeostasis is the regulation of a **constant internal environment**. The conditions are maintained to ensure optimum conditions for metabolism and changes in response to both internal and external fluctuations.

In humans, homeostasis regulates the **blood glucose** (sugar) levels, the body **temperature**, CO_2 levels and **water** levels.

The levels are monitored and regulated by automatic control systems which can be either nervous responses (coordinated by the **nervous system**) or chemical responses (coordinated by the **endocrine system**).

Information about the environment is called a **stimulus** and is detected by a **receptor**. The information is processed by a **central coordination** system and a response is initiated by an **effector**.

The nervous pathway:

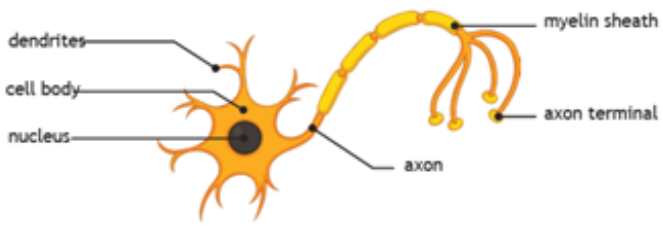
A stimulus is a change in the environment (internally or externally). In a typical response to stimuli, this information is received by the receptor and sent as an electrical impulse along a sensory neuron towards the central nervous system (CNS). The CNS is comprised of the brain and spinal cord. Here, the impulse is passed through relay neurons and a response to the stimulus is coordinated. This could be consciously or subconsciously. The CNS sends information about the response along a motor neuron as an electrical impulse. The effector receives the impulse and carries out the response.

[stimulus] receptor —>sensory neuron —>CNS—> motor neuron —. effector [response]

Examples of **receptors** include rod and cone cells within the eye which respond to light and allow us to see. Or it could be the cells in the skin which respond to pressure or temperature changes allowing us to feel. An **effector** could be a muscle or a gland. In response, a muscle might contract to make a movement or a gland releases a chemical into the body.

2

The Human Nervous System: The nervous system allows a fast, short-lived response to a stimulus in the surroundings. The information is received by a receptor, passed along the neurons (nerve cells) as an electrical impulse and results in a response.



The **axon** is the main part of the nerve cell. It is a long, stretched-out fibre of cytoplasm which the electrical impulse will travel along.
Some axons are surrounded in a layer of fatty cells called the **myelin sheath** and it helps to insulate the electrical impulse.
The branched endings, **dendrites**, connect the neurons together to create a network.

A **synapse** is the gap where the ends of two neurons meet. The information needs to be passed from one neuron to the next. The message is transmitted by chemical neurotransmitters. When the electrical impulse arrives at the terminal of the first neuron, it causes a release of neurotransmitter chemicals into the synapse. They travel across the gap and bind to receptor sites on the terminal of the next neuron. The receptor sites are specific for each type of neurotransmitter. A nerve impulse will only be created in the second neuron when a complimentary chemical binds.
A **reflex** is a fast and automatic response to a stimulus which may be harmful to the organism. They are an **involuntary** action. The pathway which carries the information about a reflex action is called a **reflex arc**.

1

Humans use the nervous system to react to changes in the environment.

(a) (i) Which word means a change in the environment?

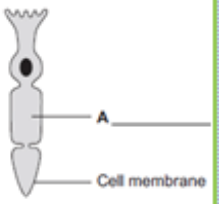
neurone	reflex	stimulus

(1)

Figure 1

(ii) **Figure 1** shows a light receptor cell. Use the correct answer from the box to label part **A** on **Figure 1**.

chloroplast	cytoplasm	vacuole



(ii) **A** boy is riding a bicycle on a sunny day. The boy's response to danger is to pull on the bicycle brakes. Which type of effector causes this response?

Tick **one** box. (1)

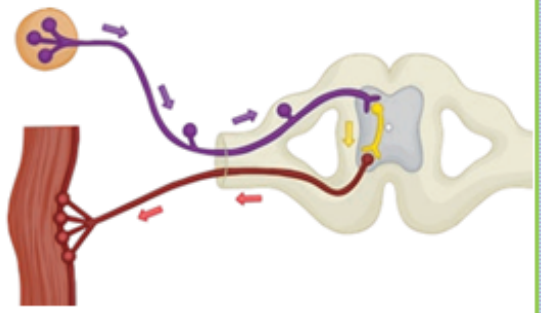
A gland	☐
A muscle	☐
A synapse	☐

Draw the answer to Question i_____i2)

2

TASK

Read the 4 steps to the reflex arc and order them from the first to the last step.



1-

2-

3-

4-

A-The stimulus is detected by the **receptor** cells and an electrical **impulse** is transmitted along the **sensory neuron**.

B– A **reflex arc** begins with the **stimulus** e.g. a bee sting or a hot object on the skin.

C- The response is coordinated **automatically** and sent along the **motor** neuron to the **effector** cells.

D-The impulse is passed through **relay neurons** in the spinal cord or the **unconscious** areas of the brain.

Copy and label the reflex arc, showing where each of the steps happen.

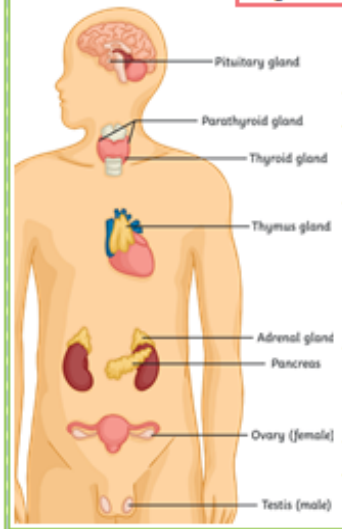
The endocrine system

3

The endocrine system is the collection of gland that produce and release hormones.

Hormones are chemical messengers transported in the bloodstream to and effector where they can activate a response. Hormones do a similar job to neurons in the nervous system but there are some differences.

	neurons	hormones
speed	fast	slow
duration	short	long
target area	specific	general



The hormones travel in the blood plasma to their target cells and affect only these target cells.

EXAMPLES:

The pituitary gland produces FSH and LH to regulate the menstrual cycle. It acts as a master gland as many of the hormones it releases control and coordinate the release of other hormones from other glands in the body.

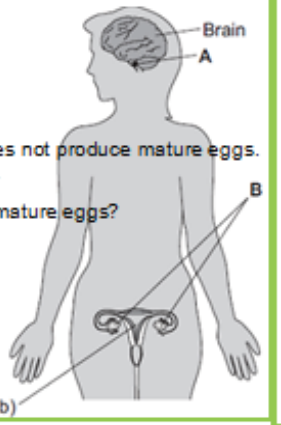
The ovaries produce oestrogen. During puberty, it increases and stimulates and egg to be released on average every 28 days.

The testes produce testosterone, which stimulates the production of sperm.

Task

4

The diagram shows the position of two glands, **A** and **B**, in a woman



(ai) Name glands **A** and **B**. _____**(2)**

(aii) Gland **A** produces the hormone Follicle Stimulating Hormone (FSH). FSH controls changes in gland **B**.

How does FSH move from gland **A** to gland **B**?_____**(1)**

(b) A woman is not able to become pregnant. The woman does not produce mature eggs. The woman decides to have In Vitro Fertilisation (IVF) treatment.

Which **two** hormones will help the woman produce and release mature eggs?

Tick **one** box. (1)

- ☐ FSH and Luteinising Hormone (LH)
- ☐ FSH and oestrogen
- ☐ Luteinising Hormone (LH) and oestrogen

Task

3

A–Give 3 examples of glands together with the hormones they produce _____(3)

B- Compare the endocrine and nervous system by giving a similarity between them and two differences _____(3)

C-Explain why the nervous system is better suited for reflex action than the endocrine system _____(2)

4

The menstrual cycle: occurs in females, approximately every **28 days**. It is a cyclical process of the building of the lining of the **uterus** and **ovulation**. If the **egg** become fertilised by a sperm, then **pregnancy** follows.

If the egg is not fertilised, then the lining of the uterus is shed away and leaves the body as the **menstruation** (or period).

Fertility can be controlled by a variety of hormonal and non-hormonal methods of contraception. These include:

Hormone	Where It Is Produced	Response Caused	Interaction with Other Hormones (HT only)
FSH	pituitary gland	An egg to develop in one of the ovaries.	Stimulates the production of oestrogen.
oestrogen	ovaries	The lining of the uterus builds up and thickens.	Stimulates the production of LH. Inhibits the production of FSH.
LH	pituitary gland	Ovulation (at around day 14 of the cycle).	Indirectly stimulates the production of progesterone.
progesterone	ovaries	The uterus lining to maintain.	Inhibits the production of LH.

- oral contraceptives that contain hormones to inhibit FSH production so that no eggs mature
- injection, implant or skin patch of slow release progesterone to inhibit the maturation and release of eggs for a number of months or years
- barrier methods such as condoms and diaphragms which prevent the sperm reaching an egg
- intrauterine devices which prevent the implantation of an embryo or release a hormone•
- spermicidal agents which kill or disable sperm
- abstaining from intercourse when an egg may be in the oviduct
- surgical methods of male and female sterilisation.

Hormones can be used to treat infertility: (HT)

Giving FSH and LH in a 'fertility drug' to a woman.

In Vitro Fertilisation (IVF) treatment. IVF involves giving a mother FSH and LH to stimulate the maturation of several eggs. The eggs are collected from the mother and fertilised by sperm from the father in the laboratory. The fertilised eggs develop into embryos. At the stage when they are tiny balls of cells, one or two embryos are inserted into the mother's uterus (womb).

5 **Task**

The concentration of glucose in the blood is controlled by homeostasis.

(a) Give one other example of an internal condition controlled by homeostasis._____**(1)**

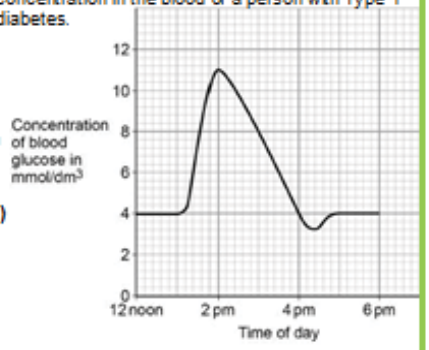
(b) Calculate the increase in blood glucose concentration between 1 pm and 2 pm._____

Increase in blood glucose = _____ mmol/dm**(1)**

(c) Suggest at what time the person ate lunch. Use the graph —> _____**(1)**

(d) Name the hormone the person injected that caused the blood glucose concentration to decrease._____**(1)**

The graph below shows the change in glucose concentration in the blood of a person with Type 1 diabetes.



(e) Explain the decrease in blood glucose concentration after the hormone was injected._____(2)

5 Diabetes: There are two types of diabetes: type 1 and type 2.

Type 1 diabetes is a disorder affecting the pancreas. In type 1 diabetes, the pancreas does not produce enough insulin to control the blood sugar level and so the levels become higher than normal. Type 1 diabetes is usually treated by injections of insulin.

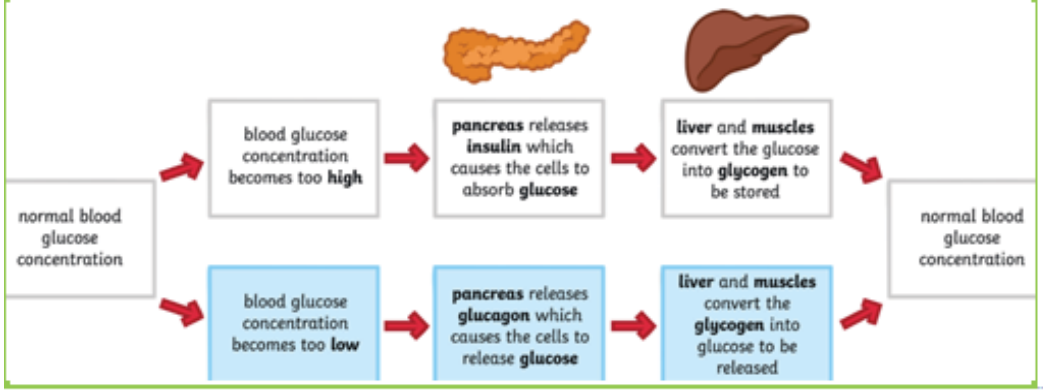
Type 2 diabetes is a disorder of effector cells which no longer respond to the hormones released from the pancreas. Type 2 diabetes can usually be managed through lifestyle choices such as maintaining a carbohydrate-controlled diet and regular exercise .The risk of developing type 2 diabetes is higher in people who are obese (BMI>30)

Control of blood glucose

The pancreas is the organ and gland which monitors and regulates the blood glucose concentration.

(HT only)

*If the blood glucose concentration becomes too low , a negative feedback loop is triggered and the pancreas releases another hormone , **glucagon**, which acts on the liver and muscles to cause the stored **glycogen** to be converted back into **glucose** and released into the bloodstream.*



6 **Investigation to see if reaction times can be reduced with practice.**

In this experiment you are working with a partner and you are always using the opposite hand to your writing hand.

1. One of the pair sits upright on a chair and places their forearm on the table so that their hand is hanging over the edge of the table.
2. The other partner places a ruler vertically between the person sitting down's thumb and first finger. The thumb and first finger should be as far apart as possible.
3. Ensure the 0cm end of the ruler is pointing downwards.
4. Place the 0cm mark level with the top of the thumb and drop without telling your partner you are going to do it. Do tell them that the aim is for them to catch the ruler as quickly as possible.
5. Reading from the top of the thumb, record how many centimetres it took to catch.
6. Repeat nine more times.
7. Swap roles with your partner.
8. Using the reaction time conversion tables, convert your results from centimetres to reaction times (s).

The independent variable is the method for improvement e.g. amount of practice, use of caffeine.

The dependent variable is the reaction time in seconds (from the cm to catch the ruler)

6 **Task**

Students investigated the effect of lack of sleep on reaction time. This is the method used.

1. Each student sleeps for a different amount of time.
2. Each student then completes a reaction time test on the computer five times.

The computer program asks the students to press a key on the keyboard when they hear a sound played at random. The table below shows the results of the investigation.

Student	Number of hours of sleep	Reaction time in milliseconds			
		Test 1	Test 2	Test 3	Mean
A	8	229.6	253.3	233.4	238.8
B	6	298.3	308.7	269.1	292.0
C	4	211.2	218.9	206.5	212.2
D	2	449.3	445.2	441.9	445.5
E	1	712.0	717.9	715.3	715.1

1- Calculate the percentage decrease in mean reaction time when the number of hours of sleep increases from 1 hour to 8 hours._____

Percentage decrease in reaction time = _____**(2)**

2- Apart from using a computer program, describe one other method of measuring reaction time._____

_____**(4)**

Topic Area 3– Organising and Planning a Sports Activity Session	
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.

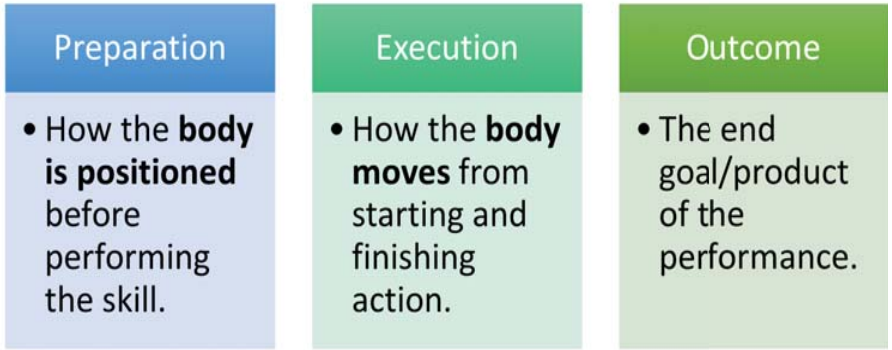
Risk Assessment– Can you create a Risk Assessment with AT LEAST FIVE possible hazards. This is for an activity (i.e. Football, Basketball) and the activity that it will take place in (e.g. AstroTurf/Sports Hall).

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

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 safety requirements.

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

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 involved 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 cotton. The better price improves income and reduces exploitation.
Globalisation	The process which has created a more connected world, with increases in the movements of goods (trade) and people (migration and tourism) worldwide.
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 large and have well-known brands.
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 the pastry will be tough.
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 cooking time for vegetables to serve hot.
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 and then do part of a main course. Whilst the main is cooking you can then go back to finish the dessert. The dishes need to be served together.

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,
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.