Harrow Way Community School
Learning for life, success for all

Year 9 Knowledge Organiser

Autumn Term

How do I complete Knowledge Organiser Homework?

Link to self-quiz video: https://youtu.be/cFUuhtPIMPU

Step 1

Check on:
ShowMyHomework for what words / definitions / facts you have been asked to learn.

Step 2

Write today's date and the title from your Knowledge Organiser in your self-quizzing book.

Step 3

Read the section of the Knowledge Organiser that you are studying. Read it slowly, you can read it aloud and with a ruler if this helps.

Step 4

Cover up the section and try to write out the information exactly as it is written on the Knowledge Organiser in your self-quizzing book.

DO NOT PEEK!

Step 5

Uncover the section and compare it to what you have written. If you have made mistakes or missed parts out, add them in using a pencil or a different colour.

Step 6

Repeat steps 3-5 again until you are confident.
You will need to bring your self-quizzing book in every day and your teacher will check your work.
You will be tested in class.

Knowledge Organiser - YEAR 9 - AUTUMN TERM

Contents

Art - Circles

1. Judy Pfaff

- A pioneer of installation-art
- Born in London in 1946
- Works in painting, printmaking, sculpture and installation
- Described as painting in space
- References spiritual, botanical and art historical imagery
- Work takes months or years to make, but exhibitions last only weeks
- Does not give narrative meaning to her work

Judy Pfaff

Klari Reis

6. Klari Reis

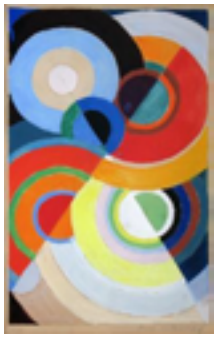
- curiosity and desire to explore and document the natural and unnatural with a sense of wonder and joy
- uses the tools and techniques of science in her creative process
- collaborates with local biomedical companies
- works in plastic and epoxy polymer and cutting edge technology
- uses dyes and pigments on aluminium and wooden panels
- pigments the plastic with powders, oils, acrylics and industrial dyes, built up through many layers of the ultra-glossy plastic
- the work is brightly coloured, ever changing and no two pieces are the same

2. Textiles

Applique: a decoration made by cutting shapes of fabric and sewing them to another piece of fabric
Embellishment: a decorative detail or feature added to something to make it more attractive
Stitch: a loop of thread than can connect fabric pieces together, either by hand or machine
Fabric: cloth produced by weaving or knitting textile fibres
Surface decoration: applying decorative stitches and other embellishments to the surface of fabric
Fabric manipulation: altering and changing the appearance of fabric by using different methods such as pulling the fibres, twisting and stitching
Couching: stitching over yarn or thread
Weaving: crossing threads over and under each other
Fabric fusion: cutting, attaching and marking man-made fabric with a soldering iron
Batik: dyeing fabric using hot wax as a resist
Heat press: fusing man-made fabrics together or transfer a design to fabric using dyes

Wassily Kandinsky

Robert Delaunay



Year 9
Circles + Rings

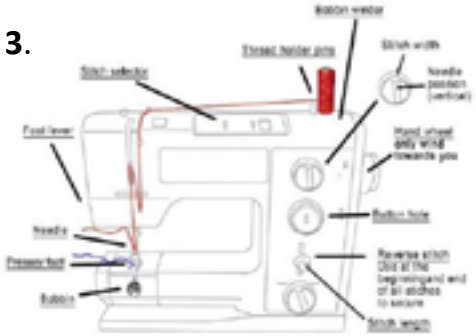
7. Painting

Acrylic paint: a fast-drying paint made of pigment suspended in acrylic polymer emulsion. Mixes with water, but water-resistant when dry
Wash: semi translucent layer of colour
Underpainting: first layer of paint applied to a canvas or board as a foundation for your painting. Useful for building contrast and tonal values
Glaze painting: a thin layer of paint that is very translucent, allowing some of the colour underneath to show through. The glaze subtly transforms the colour of what is beneath

4. Synonyms

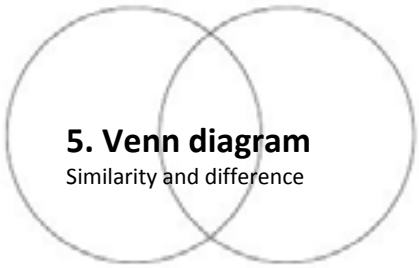
circles spirals helix rings round roundabout loops spheres discs balls orbit turn encircle surround revolve rotate rotor cycle cyclone coil

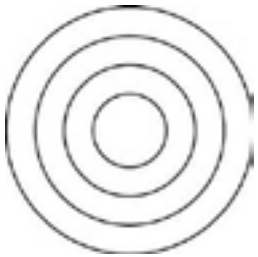
3.



5. Venn diagram

Similarity and difference





8. Mandala

https://harrowway.satchelone.com/school/homeworks/35720838

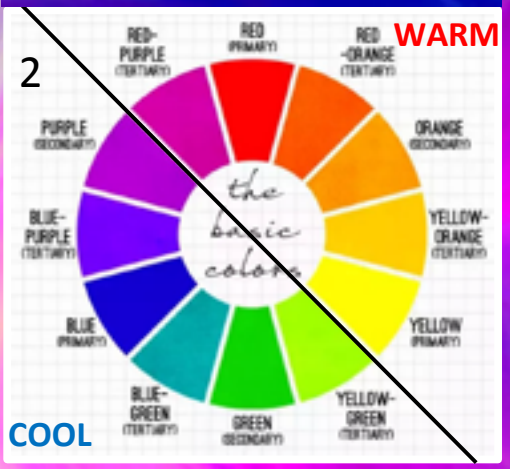
COLOUR

1

Colour plays a vitally **important** role in the world in which we live. **Colour** can sway thinking, change actions, and cause reactions. It can irritate or soothe your eyes, raise your blood pressure or suppress your appetite. As a powerful form of communication, **colour** is irreplaceable.

COLOUR WHEEL

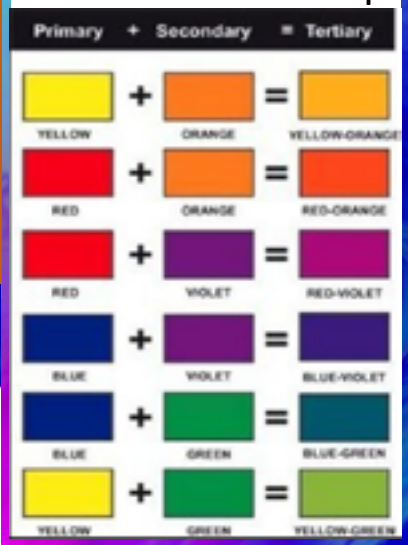
2



Cool colours painting

Warm colours painting

4



5

TINT
is adding white to a colour

TONE
is adding grey to a colour

SHADE
is adding black to a colour

ADJECTIVES TO DESCRIBE COLOURS

3

Light Bright Vivid Glowing Vibrant Brilliant Intense Dazzling Subdued Diluted Gloomy Depressing Pale Dull Murky Muted Monotonous Fluorescent Saturated Opaque Transparent

COLOUR SCHEMES

6

PRIMARY

Uses the primary colours: Red, Yellow & Blue. They can not be made by mixing other colours.

COMPLEMENTARY

Uses a pair of colours that are opposite each other on the colour wheel. The pairs are: Green/Red; Blue/Orange; Yellow/Purple.

SECONDARY

Uses the secondary colours: Orange, Green & Purple. Each secondary colour is made by mixing two primary colours.

HARMONIOUS

Uses three or four colours (primary, secondary and tertiary) that are next to each other on the colour wheel.

TERTIARY

Uses the tertiary colours. They are made by mixing a primary and a secondary colour next to each other on the colour wheel.

MONOCHROMATIC

Uses Tints, Tones & Shades of one colour. The word MONO means ONE and the word CHROMA means INTENSITY OF COLOUR.

DRAWING

The **basic craft of drawing** is about two things: **1. To control your hand** and **2. Learn to see.**

Line drawing

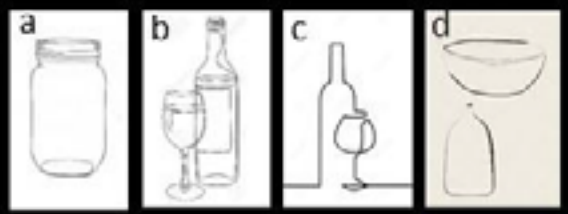
1 ELLIPSES:
The circle found at the top and the base of a cylindrical object; i.e. bottle, cylinder, etc. Ellipse can also occur when the sides of the bottle change direction, i.e. get narrow or wide.

2 CENTRE LINE: Divides the object vertically in two equal parts.
LINE OF SYMMETRY: the line at which the bottle is symmetrical.
Mirror image symmetry: exactly matching opposite sides

3 POSITIVE SPACE: *(Object in white)*
The space occupied by the object/s.

NEGATIVE SPACE: *(All in black)*
The rest of the space around or in between the object/s.

4 LINEAR DRAWING
A drawing using line only to:
a) outline the shape of the object;
b) to add detail;
c) using continuous line (without lifting your pencil of the paper from start to finish.
d) Minimalist drawing



Tonal drawing

5 FLAT TONE:
A solid block of tone, see Tonal Ladder. It has no outlines. Different flat tones next to each other define shapes.

6 SHADING:
When the tone gradually changes from dark to light. It can appear a) smooth or b) rough by using lines called **Hatching** or **Cross Hatching**.

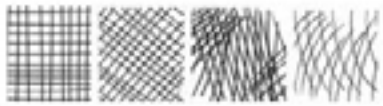
SHADING (light from the side):
On the outside of the object the tone changes gradually from one side to the other. Light and dark areas swap direction on the inside opening of the object like in this cup.

SHADING (light from the centre):
The tone is dark on both sides and smoothly gets light in the middle. It gives a 3D effect and looks very realistic.

7 TEXTURE and MARK-MAKING:
Texture is the **surface quality** of something. Artists use mark-making techniques to represent different textures.

8 Hatching

Cross- Hatching in 2,3 or more directions



Other elements of drawing

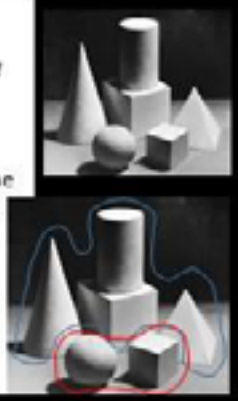
9 PERSPECTIVE:
the art of representing three-dimensional objects on a two-dimensional surface so as to give the right impression of their height, width, depth and position in relation to each other.

10 RANGE OF PENCILS:

11 FOREGROUND: An art term that describes the objects in the scene that are closest to the viewer. It is the part in front of everything else and has the most detail.

MIDDLE GROUND: lies between the foreground and background of a painting. The objects in this area appear smaller. They are usually placed behind the objects in the foreground.

BACKGROUND: is the part of a scene or picture that is farthest from the viewer. It usually has the least detail.

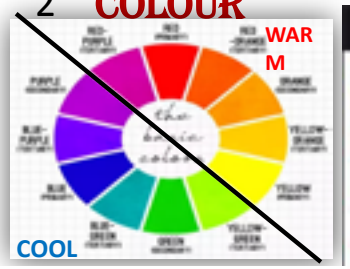


12 COMPOSITION:
Refers to the organisation, arrangement, and combination of objects within the borders of a **drawing** space.
For a great **drawing**, you want to bring the eyes of the viewer toward your centre of interest within an aesthetically pleasing **composition**.

FORMAL ELEMENTS

1 The Formal Elements are: **line, shape, form, tone, texture, pattern and colour**. They are used together to create artwork.

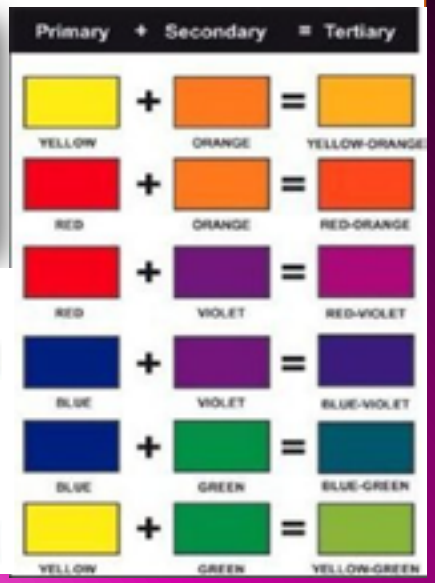
2 COLOUR



TINT
is adding white to a colour

TONE
is adding grey to a colour

SHADE

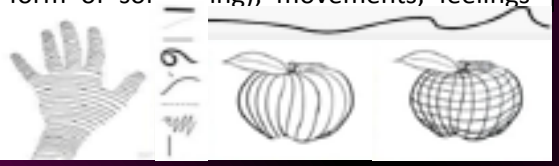


3 PATTERN

is a symbol or shape that is repeated. A design that is created by repeating lines, shapes, tones or colours. The design used to create a pattern is often referred to as a **motif**. Motifs can be simple shapes or complex arrangements. Tessellating any image creates a Repetitive pattern.

4 LINE

is the path left by a moving point, i.e. a pencil or a brush.
A line can take many forms. It can be horizontal, diagonal or curved. Line can be used to show: contours (the shape and form of something); movements, feelings



5 SHAPE

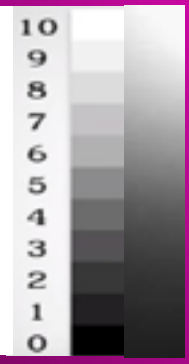
is an area enclosed by a line. It could be just an outline or it could be shaded in. When drawing shapes, you must consider the size and position as well as the shape of the area around it. The space between the shapes is called **negative space**.

6 FORM

is a three dimensional shape (3D), such as a cube, sphere or cylinder. Sculpture and 3D design are about creating forms. In 2D artworks, lines, tones and perspective can be used to create an illusion of form. The three dimensions of form are width, length and depth.

7 TONE

is the lightness or darkness of an object. This could be a shade or how dark or light a colour appears. Tones are created by the way light falls on a 3D object. In every 3D object there are minimum of 3 tones; light, mid-tone and dark. Tone can be flat or it can vary from dark to light.

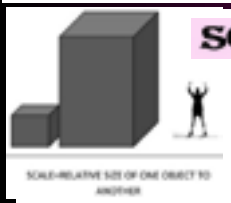


8 TEXTURE

is the **surface quality** of something, the way something feels or looks like it feels. **Actual texture** really exists, so you can feel it or touch it.
Visual texture is created using marks to represent actual texture. It gives the illusion of a texture or surface. You can create visual texture by using different lines, shapes, colours or tones.

9 SCALE

is the size of one object in relation to the other objects in a design



10 PROPORTION

refers to the relationship of the sizes of two or more subjects or elements.

PAINTING

1. The act of **painting**, using a brush, palette knife, sponge, or airbrush to apply the paint; 2. The result of the action – the **actual picture**.

1 Watercolour brushes:
Are specially made to allow the artist to control the flow of the colour from the **brush** onto the paper. A watercolour brush should hold a fine point when wet and spring back into shape after each stroke. It should carry the colour allowing the artist to:
a) lay it down on the paper evenly 2) consistency.

2 WATERCOLOUR:
a) Paints that are made of pigments suspended in a water-based solution (binder).

b) The art of painting with watercolours, especially using a technique of producing paler colours by diluting rather than by adding white.

WATERCOLOUR PAPER:
Best watercolour papers are made from **cotton fibres.** There are three types of w/c paper.

HP- Hot Press. Smooth surface for detailed work
CP (NOT) – Cold press. Slightly textured for most types of work
Rough – Heavily textured paper enhances the final piece of work.

3 WATERCOLOUR TECHNIQUES:
a) **Wash:** When watercolour mixture is gradually diluted with water.

b) Blending: When two colours seamlessly merge into one another.

c) Wet–on – Wet: Water is applied onto the paper and then paint is applied onto it.

d) Masking Fluid
It is a rubber type product that prevents the paint from reaching the paper and is peeled off to expose the whitepaper left untouched.

4 ROUND BRUSHES:
Good for sketching, outlining, detailed work, controlled washes, filling in small areas.

FLAT BRUSHES: Good for bold strokes, washes, filling wide spaces, impasto. Edge can be used for fine lines, straight edges and stripes.

5 ACRYLIC PAINT: Opaque and semi-opaque fast-drying paint made of pigment and acrylic polymer emulsion dilutable with water.

ACRYLIC PAINTING SURFACES:
Canvas, paper, wood, or anything which is neither greasy nor too glossy.

ACRYLIC PAINTING BRUSHES:
A good selection of round and flat stiff synthetic brushes. Palette knives.

6 ACRYLIC PAINTINGS TECHNIQUES:
UNDERPAINTING: A layer of paint applied first to a canvas or board.

a) Tonal Grounds Under Painting
This type of painting has the entire canvas covered in a single transparent colour. This layer will create backlighting shadows that will tone the entire painting and provide contrast.

b) A Tonal Under-Painting
A layer of paint applied first that acts as a foundation for the painting with some **built in contrast** and **tonal values.**

IMPASTO: A technique used in **painting**, where paint is laid on in very thick layers that the brush or **palette**-knife strokes are visible. Paint can also be mixed right on the canvas. When dry, impasto provides texture; the paint appears to be coming out of the canvas.

7 POSTERPAINT:
A semi-opaque paint with a water-soluble binder, used mainly in schools.

8 OIL PAINTS: is a type of slow-drying **paint** that consists of pigment suspended in a drying **oil**, commonly linseed **oil**. Not used in schools.

9 MIXED MEDIA:
A Technique that uses more than one medium or material. Assemblages and collages are two common examples of art using different media that will make use of different materials including cloth, paper, wood and found objects.

ASSEMBLAGE:
The making of 3D art, often involves using found objects.

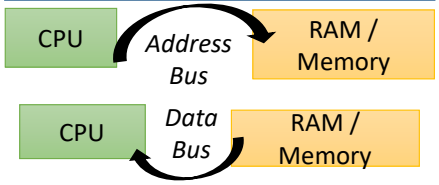
MIXED MEDIA COLLAGE:
This is an art form which involves combining different materials with paint to create a whole New artwork.

10 SGRAFFITO TECHNIQUE:
Used in **painting**, pottery, and glass. Consists of putting down a preliminary surface, covering it with another, and then scratching the top layer. The pattern or shape that emerges is of the colour below.

Year 9 Computer Science 1.1

An **EMBEDDED SYSTEM** is a combination of hardware and software, designed for a specific function within a larger **system**. (Washing machine, Microwave, Dishwasher.)

Interaction between CPU and RAM



The Fetch-Execute Cycle (FCE)

Fetch

- The address of the next instruction to be processed is copied from the Program Counter (PC) to the Memory Address Register (MAR)
- The PC is incremented to point to the next instruction that will be needed when the cycle starts again
- The instruction stored at the location held by the MAR is copied to the MDR

Execute

- The operation indicated by the instruction is performed by the appropriate component, for example:
- The Arithmetic Logic Unit (ALU) performs the operation given by the Control Unit
- The value of stored by the Program Counter or Memory Address Register might be changed

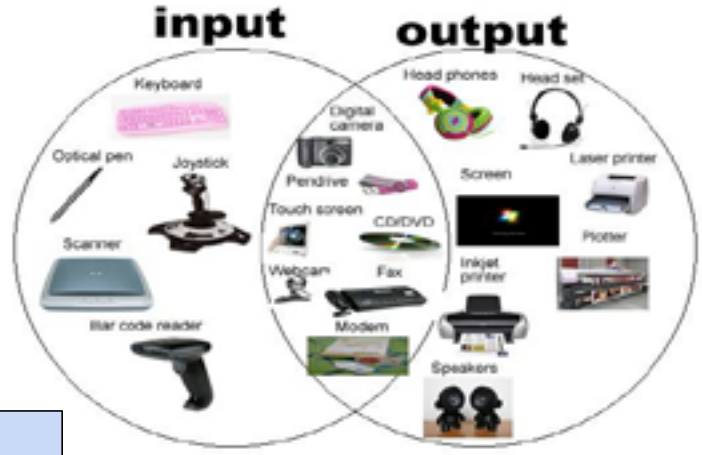
Decode

- The Control Unit decodes the instruction and sends control signals to the component within or outside the CPU that needs to act

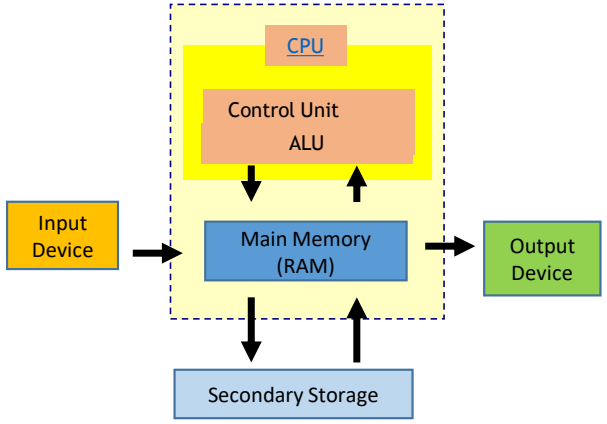
What is a Computer System?

Computer systems includes the computer along with any software and peripheral devices (hardware) that are necessary to make the computer function.

It will receive inputs, process the data it receives and then produce an output. **Input** ⇨ **Process** ⇨ **Output**



Computer Logic Diagram



Key words	
BIOS	Basic Input Output System. A small program stored on the ROM chip to load the OS.
CPU	Central Processing Unit. Used to control and execute commands within the computer. Measured in GHz,(the number of processes executed in 1 second.)
Motherboard	Used to connect all components to each other for them to communication.
RAM	Random Access Memory. Data and instructions are stored which are currently in use or recently been used by the CPU
Hardware	The physical parts / components of a computer
Peripheral	Any auxiliary device such as a computer mouse or printer that connects to and works with the computer in some way.
Input Device	A peripheral which converts data from a human to the computer system.EG Mouse.
Output Device	A peripheral used to bring data from the computer into a human form EG A monitor .
Clock Speed	Measured in Hertz. It is the frequency at which the internal clock generates pulses. The higher the rate, the faster the clock speed, the faster the computer works.
Cache Size	Fast memory between the CPU and RAM. It is used to store recent / common programs taking advantage of the short FDE cycle. The larger the size of the cache the more that can be stored without having to go back to slower memory (RAM), speeding up processing. Having 3 levels level 1 smallest quickest and nearest to the CPU Level 3 Slowest biggest and closer to the RAM.
Cores	A multi-core processor is a single component with two or more independent CPUs, each responsible for a FDE cycle. Allowing computers to do more than 1 thing at a time.

Year 9 Computer Science 1.2

Key Words	
Primary Storage	A device's internal memory, includes RAM, ROM and Cache memory. Used to store data and instructions that are required by the CPU.
RAM	Random Access Memory is volatile memory used to store data and instructions which are needed by the CPU. Also referred to as main memory.
ROM	Read-Only-Memory, internal memory that cannot be changed, stores the boot sequence for the device. This memory is non- volatile.
Secondary Storage	Long term storage, can be internal (hard-disk drive) or external (USB Drive/DVD-ROM/SD Card)
Hard Disk Drive	A magnetic storage device used to store data longterm, most computers have a built in hard drive
Magnetic Storage	A storage device that saves data using strong magnetic fields to record, change or delete data
Optical Storage	A storage device that uses laser light to retrieve data from the surface of optical media such as CDs & DVDs
Solid State Storage	A storage device that uses flash memory to store data. It has no moving parts. Normally an SSD, memory stick or SD card
Volatile	Data is lost when the device is switched off
Non Volatile	Storage which does not lose its contents when the power is lost
CPU	Central Processing Unit – the brains of the computer, where all the data and instructions are processed.
Bootstrap loader	A small program that loads the operating system from the secondary storage to the RAM and starts the computer.

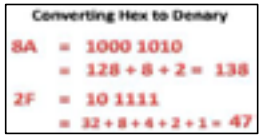
Memory - stores programs, operations and data while a program is being executed. There are several types of memory: registers, cache, RAM, ROM and virtual memory.

Storage - stores programs and files long term, even when they are not in use. Storage devices include: hard drives, USB memory sticks and SD cards. .

Digital Sound Sampling – The more samples taken means the improved quality of the digital signal. It becomes more like the original sound
Sample Rate – How many samples are taken. The Increase of the number of bits per sample allows for a more precise recording to be taken.

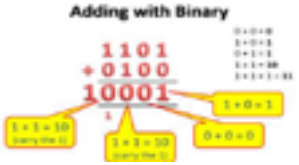
Virtual Memory
When RAM is full, a section of the hard drive can be used to store programs and instructions.

Compression – reduces the size of a file to enable it to be stored or sent easier.
Lossy – Compressed losing some quality. Normally done by reducing the colour depth. JPEG is a lossy file compression type.
Lossless – Compressed by sending the file reducing the memory example: red, red, red, blue, blue, red, red, red reduce to:3 x red, 2 x blue, 3 x red



Binary	Denary	Hex
0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	6	6
0111	7	7
1000	8	8
1001	9	9
1010	10	A
1011	11	B
1100	12	C
1101	13	D
1110	14	E
1111	15	F

Character Sets – A set of letters number and symbols.
ASCII - "American Standard Code for Information Interchange". Is used to represent letters and symbols as numbers. Standard ASCII uses 7 bits to encode characters. Extended ASCII uses 8 bits
Unicode uses 16 or 32 bits and is shown in hexadecimal (FFFF). The larger character set means that it can allow character sets from other languages and emoji's.

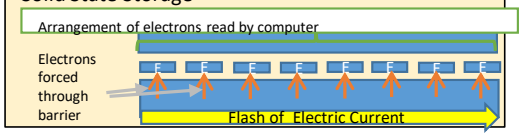


Size	Name
1 Bit = 0 or 1	Bit
8 Bits	Byte
1024 Bytes	Kilobyte
1024 Kilobytes	Megabyte
1024 Megabytes	Gigabyte
1024 Gigabytes	Terabyte

RAM	ROM
Volatile memory	Non-volatile memory
Stores open programs including the operating	Store the BIOS (bootstrap Loader)
Memory can be written to or read from.	Memory can only be read from and not written to.

Storage Characteristics
Capacity - how much data can it store?
Speed - how fast can it access the data?
Portability – easy to move from one place to another
Durability - how well does it last e.g. if it is dropped
Reliability - how consistently does it perform
Cost - how much does it cost per KB, MB or GB?

Flash Memory - Electrons are forced into a layer between two barriers which hold the charge by using a high electric current. Used in ROM and Solid State Storage



Cache memory is an extremely fast **memory** type that acts as a buffer between **RAM** and the CPU. It holds frequently requested data and instructions so that they are immediately available to the CPU when needed. **Cache memory** is used to reduce the average time to access data from the Main **memory**.

Year 9 Computer Science 1.3

A NETWORK - 2 or more computers connected together using wired or wireless media to share resources, files, programs and to communicate.

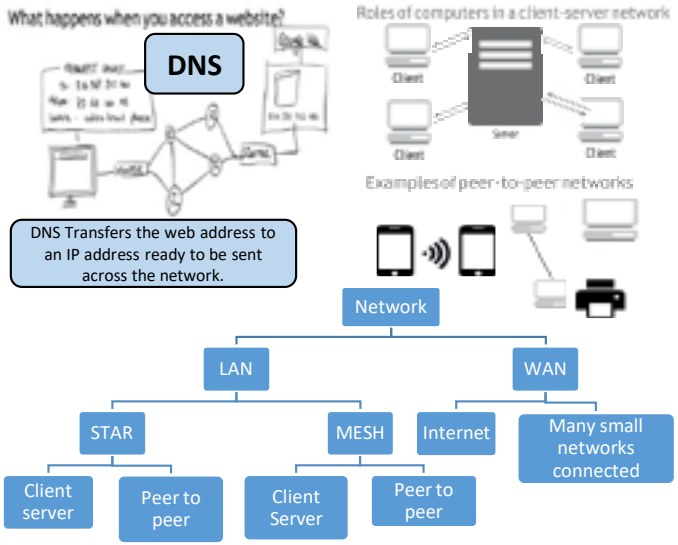
Factors that affect network performance include:
Number of devices and users - the bandwidth is shared between all devices, so the more devices, the less everyone gets to use
Transmission media - using Wi-Fi will result in slower data transfer speeds and a greater number of lost or corrupted data packets.
Interference - wireless transmission are prone to electromagnetic interference that can corrupt data as it travels
Obstacles - physical obstacles can prevent radio waves from travelling
Bandwidth – the amount of data that can be carried at a time
Latency –is the time delay between the moment the first data packet of a communication starts and when it is received at its destination
Collisions and errors - errors and high network traffic may result in data collisions between packets making them corrupted or lost.

A LAN - A collection of computers connected together over a small geographic area found in homes and single-site companies. The hardware is owned and maintained by the organisation that uses it.
A WAN - A collection of computers that are connected over a large geographic area. The hardware required is often owned and maintained by large telecommunication companies. They are used by companies that have office locations in countries throughout the world that need to be connected together. The Internet is the largest WAN in the world.

Hardware to connect to a network
- Network Interface Card (NIC) – Built into the motherboard it contains a MAC address that allows the computer to communicate on a network
- Router – Connects the network to an external source and transfers data to their intended destination. Routing data onto the Internet.
- Wireless Access Point – Allows wireless access to the internet
- Switch - Connects computers together on a network reducing collisions
- Transmission media – Fibre optic, Coaxial, Satellite, Wi-Fi, Bluetooth

The Cloud – storage, services and applications that exist on the Internet rather than a local device such as your PC.

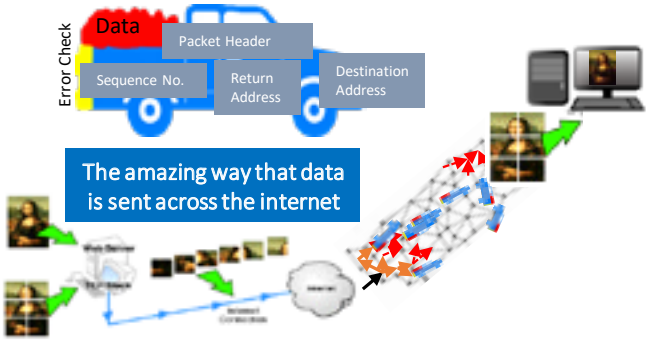
A Virtual Network is a type of network is not physical. It uses software to connect users.



The Internet
The Internet is a **worldwide collection of computer networks**
The set of rules **Internet Protocol** (IP) ensure that devices work together on the Internet. Every computer on the Internet has an **IP address** that is used to send data from one device to another.
Routers are essential to the Internet as they pass data packets between the interconnected networks that form the Internet via a process called **Packet Switching**.
The internet is like a major road network connecting places together. Different vehicles can use the road network to send things from one location to another. These vehicles represent the various **applications** that make use of the Internet, such as the World Wide Web (WWW), email, multiplayer games and video streaming services.

Client Server Network - Computers take the role of either a central server or a client. The server provides services to clients such as storing files and emails. There are different types of server: printer servers provide access to printers, file servers host files. The server allows the computers to have a central backup, communicate, share files and monitor and maintain everything from a central point. Its available 24/7.

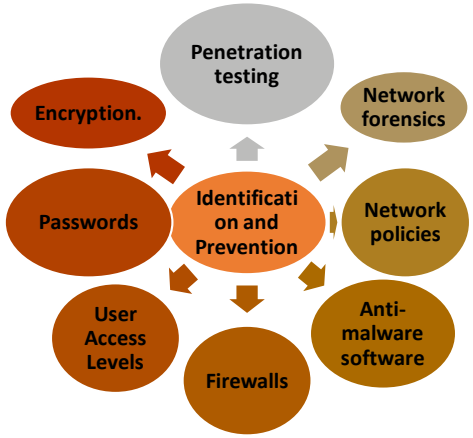
Peer to Peer Network - is connected directly together - NO central server -easy to set up . Each user has the responsibility of its own hardware and software and can then share resources, files and communicate with others on the network but only when they are connected.

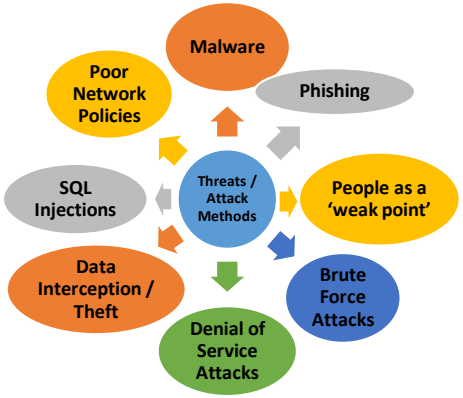


Star – All computers connect to a central switch. The switch routes the traffic to the correct computer. The switch is the main cost of the network.
Mesh – All computers connect to each other via a dedicated link. Cost of cables is expensive. Used mainly in wireless topologies.

Year 9 Computer Science 1.4

Identification and prevention	
Penetration testing	A company invites / employs experts to simulate network attacks such as DOS and SQL injections. They try and find weaknesses in the system and tell the company so they can make improvements to their system security.
Network Forensics	Network Forensics are used to monitor and find out how an attack was carried out and by whom on a network.
Network Policies	A set of rules which explains how employees must secure their passwords and conduct business online.
Anti Virus Software	Dedicated to finding / destroying viruses on a computer. They have to be up-to-date for them to work.
Firewalls	Monitors the data which flows in and out of the network. Having ports closed protects the computer from hackers, and it monitors and detects hacker activity.
User Access Levels	Different access is given to files and data meaning employees cannot view sensitive company information and cannot sabotage vital system data.
Passwords	Strong passwords reduce networks unauthorised access.
Encryption	Data is scrambled using a set of "keys" before being sent across a network so that it is unreadable if intercepted.





Threats and Attack Methods	
Social engineering	The act of manipulating people to force them to make mistakes which can compromise a network's security.
Phishing	Using Email and phone calls criminals impersonate companies like banks requesting your personal information: usernames, and bank details etc.
Brute Force	Criminals repeatedly try to 'login' with one password after another to hack an account
DOS	This can bring down websites. Using multiple computers (often with malware) they repeatedly access a website. The traffic increase overloads the server's CPU/memory, crashing it.
Data inception and theft	Hackers use 'packet sniffers' to sniff out and intercept data packets. Then decode and steal the information.
SQK injection	SQL injections 'bolts on' some SQL to the end of your password. This will then alter the statement and allow you to access the accounts of other users.
Poor Network policy	Network policies should be in place. These are a set of rules to keep the network safe from Threats. They include passwords and user levels.

Malware	
Standard Virus	Hide in files / programs and replicate themselves in order to spread into other programs / files. Their aim is to delete or damage data.
Worms Virus	These don't damage data, they replicate themselves, taking up more of the computer's resources, slowing down your computer and making it useless.
Trojan Virus	These are programs you can use. But in the background will cause harm, like deleting files, making annoying changes to your computer setup or creating a portal for other users to use to gain access to your system.
Spyware	This is used to spy on the user and send back as much information about them as possible (passwords, usernames, websites they visit, purchases they have made). A common piece of spyware is a key logger which runs in the background recording every key you hit. It collects data to steal your identification or sell your information to third parties.
Adware	Its aim is to download and display unwanted adverts and collect marketing information about your online habits. It will often also try to direct you to unwanted websites by changing your default homepage
Pharming	This malware tries to change the IP address stored in the DNS to another IP address so that the user is sent to a phoney website instead of the one they intended.
Scareware	Often comes in the form of a pop up telling you that you have a virus. The pop up will them advertise purchasable software hoping that you will pass over your money.
Ransomware	This will seek to lock your computer making it useless. It will then demand that you pay a sum of money in order for you to get your computer working again.
Rootkits	These pieces of malware contain a set of tools, which once installed, allow a criminal to access your computer at an administrator level, allowing them to do what they like.

Year 9 Computer Science 1.5

Key Words	
Application Software	Software installed to perform a specific task such as creating documents or spreadsheets
Operating System	Comes installed on your computer and is used to control the workings of a computer.
Utilities Software:	These carry out specific tasks which help the computer system run efficiently such as virus checking and Winzip.

Application Software

The processes that are carried out by end-users (people working on a computer system) are commonly done using application software. These are run and managed by the operating software. Applications come in a very broad variety and cover features like creating documents, editing images, performing calculations and browsing websites.

Application software

Programs that do specific tasks, such as write a letter (word processor) or edit a video.

Utility Software

Utility Software is the name given to the software tools that are designed to manage and optimise the performance of a computer system. There are a variety of functions that it performs.

Compression

Lossy Compression	Lossless Compression
This format can compress files to a much smaller size, but will lose some of the data from the files which cannot be recovered	This compresses the files to a slightly reduced size. All of the data can be recovered when uncompressing

Incremental Backup	Full Back up
This a process where only files that have been altered are selected for backup. It is much less time consuming than a full backup and less of a drain on the computers processing speed	This is a full back up of all of the files and data on a network. This can take some time. It is an effective way of ensuring all of the information is safe

Utility Software

Encryption	Antivirus software	Compression	Back up	Defragmentation	Disk checkers / cleaners
Protects the system by scrambling data so it cannot be accessed by unauthorised users	This prevents the system from becoming infected with malware	An algorithm reduces the space required to represent a file or its content. There are 2 types Lossy and Lossless	Makes copies of the data that are restored in the event of data loss There are 2 types Full and Incremental	Organises the data on an HDD into clusters so its easily accessible.. This improves the speed the system can operate.	These scan the hard drive and find files that are not used or are unnecessary.

Graphical User Interface (GUI) - Uses WIMP – Windows Icons Menus/Mouse and pointers. Found on most modern operating systems.
Command Line - Line by line code like Python
Language interface - Uses natural language like SIRI
Menu Interface - Uses lists to choose from like ATM or Sky TV.

Operating System (OS)

User Interface Manager
Provides the user interface that allows users to control the computer.

Device Manager
Allocates resources to external hardware devices and allows them to be used by applications.

Memory Manager
Controls the allocation of memory between applications.

User Manager
Authenticates and separates users of the computer.

Process Manager
Controls the allocation of CPU cycles to multiple running applications.

File Manager
Controls the opening, reading and writing of files to storage and determines whether files are documents or executable programs.

Operating Systems Functions	
Device management	Controlling hardware components and managing peripherals
Platform for software	Allows software and applications to run
Providing a user interface	A way the user is able to interact with the software. These can be Graphical user interface (GUI), Command line Interface, Natural Language Interface and Menu Interface.
Multitasking facilities	Allows for many programs and software to operate at the same time.
Memory Management	Looking after where data is stored in the computer's memory
File Management	Naming, Allocating to folders, Moving files, Naming and Saving files
Managing users details	Allocation of an account and their user access rights.
Providing utility software	Software tools that are designed to manage and optimise the performance of a computer system

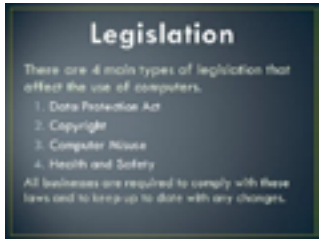
Year 9 Computer Science 1.6

Stakeholders
This term refers to all the people that have an interest in an organization, or issue. For example a the stakeholders in a school are the students, parents or guardians, teachers and local community. In terms of computing technology the global community are stakeholders and the developments in this area have an impact, to some degree, on everyone. This section will examine the impact technology has on different groups within society.

Stakeholders Rights and Responsibilities
All people have the right to access technology and are allowed to use computer systems. This includes being **allowed to use computer systems** and to **access internet services**. These must be legally acquired, which usually means through payment. With the rights of access come **responsibilities**, these include using computers **ethically** and disposing of old equipment in an **environmentally friendly** way.

The 8 principles of the Data Protection Act

1. Data must be used and processed in a fair and lawful way
2. Data must only be used for the stated purpose
3. Data should be adequate, relevant and not excessive for the use
4. Data must be accurate and kept up-to-date
5. Data should not be kept longer than necessary
6. Data should only be used according to the rights of the data subject
7. Data should be kept safe and secure
8. Data must not be transferred to organisations within other countries that do not offer a similar level of protection



Proprietary Software
This is software that you pay for, you can not access the source code and is owned by a company.

Open Source Software
This is software that is free, the source code is open and everyone can access it.

Factors Affecting the Digital Divide
Access – Not all areas in the UK have access to high speed internet as the map shows. The government has been driving forward an initiative to improve this balance, but there remains large areas where access to the internet is limited.

Economic – The cost of broadband internet access and computer systems is too expensive for some people in society and this means they are part of the divide between the **'haves and have nots'**

IT Literacy – Although IT is part of the school's curriculum there are still large numbers of people in society, especially among the older community, who are not able to use computers.

There are laws that control the use of Computer Systems. You are required to know the principles of these laws.

Data Protection Act – This law governs the information that is held on computer systems about people. According to this law the users must: **Keep information Secure, only use necessary info, Only Keep for as long as necessary , keep the information accurate and up to date, not use the information for any other purpose without permission.**

Computer Misuse Act – This law restricts how computers can be accessed and used. It is principally designed to stop hacking. It states there should be **no unauthorised access, unauthorised modification**, and **no accessed with intent to damaged**

Copyright Designs and Patents Act – This law is designed to **protect the work and content of individuals** from being **used or shared without permission**.

Freedom of Information Act – This law protects **people's rights to access information** that should be available to the public **including services such as Government, Health, Schools, Police and Courts**. Information from these organization can be accessed on request

Creative Commons Licensing – This law gives people the right to share and use information in certain formats: **Public Domain** (No restrictions); **Attribution Commercially** (Work used with the creator given credit) ; **Attribution Non-Commercially** (Work shared, but not sold on, with the creator given credit)

Digital Divide
This term refers to all the people that have an interest in an organization, or issue. For example a the stakeholders in a school are the students, parents or guardians, teachers and local community. In terms of computing technology the global community are stakeholders and the developments in this area have an impact, to some degree, on everyone. This section will examine the impact technology has on different groups within society.

Energy Consumption – Lots of energy is required for the production and assembly of computer equipment. Energy is also required to run computers and to maintain online storage systems. To reduce the demands on energy manufacturers have developed smarter technologies which require less energy to run systems and smaller more efficient devices.

E Waste – Old computers contain some parts that can be recycled and some metals that are valuable such as gold and aluminium. Other parts that cannot be recycled form waste which accounts for millions of tonnes that is dumped into landfills.

Sustainability – Computer systems have some positive impacts. The use of paperless communication (email, social media) had reduced the need for paper production, and computers are used to develop and produce sustainable technology. Although much of the material used in making computer systems relies on non renewable resources (metals) there are an increasing number of components that can be renewed for future uses.

Recycling – There are legal guidelines for the disposal of computer systems and there are companies that deconstruct the machines and extract all of the valuable materials for recycling. It is also possible to extend the life of a computer system by donating them through charities. This process can help bridge the gap in the digital divide.

Year 9 Design and Technology Knowledge Organiser Access FM and health and safety

We use **ACCESS FM** to help us write a **specification** - a list of requirements for a design - and to help us **analyse and describe** an already existing product.

ACCESS FM - Helpsheet

A is for **Aesthetics**

Aesthetics means **what does the product look like?**
What is the: Colour? Shape? Texture? Pattern? Appearance? Feel? Weight? Style?

C is for **Cost**

Cost means **how much does the product cost to buy?**
How much does it: Cost to buy? Cost to make?
How much do the different materials cost? Is it good value?

C is for **Customer**

Customer means **who will buy or use your product?**
Who will buy your product? Who will use your product?
What is their: Age? Gender?
What are their: Likes? Dislikes? Needs? Preferences?

E is for **Environment**

Environment means **will the product affect the environment?**
Is the product: Recyclable? Reuseable? Repairable? Sustainable? Environmentally friendly? Bad for the environment?
6R's of Design: Recycle / Reuse / Repair / Rethink / Reduce / Refuse

S is for **Size**

Size means **how big or small is the product?**
What is the size of the product in millimeters (mm)? Is this the same size as similar products? Is it comfortable to use? Does it fit? Would it be improved if it was bigger or smaller?

S is for **Safety**

Safety means **how safe is the product when it is used?**
Will it be safe for the customer to use? Could they hurt themselves? What's the correct and safest way to use the product? What are the risks?

F is for **Function**

Function means **how does the product work?**
What is the products job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?

M is for **Material**

Material means **what is the product made out of?**
What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

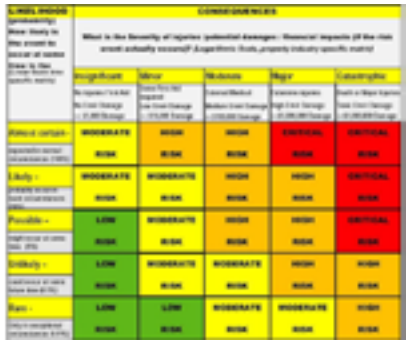
Year 9 Design and Technology Knowledge Organiser Access FM and health and safety

Risk assessment

A widely accepted practice when carrying out a practical activity is to carry out a risk assessment before the work commences. In a risk assessment, all of the hazardous presented by the activity need t be identified, along with the risk that they present. The level of each risk is then considered, and a decision is made whether it is acceptable to continue the activity. If not, then it might be possible to reduce the risk in some way so that the activity can go head more safely.

Risk assessment table (like the one shown below are used to determine if the level of risk is acceptable. This is assessed in two ways:

- How likely it is that an accident will happen (likelihood), and
- How much damage or injury could occur if it does (severity)



Control of substances hazardous to health (COSHH)

COSHH is the law that requires employers to control substances that are hazardous to health. You can prevent or reduce workers exposure to hazardous substances by:

- finding out what the health hazards are; deciding how to prevent harm to health (risk assessment);
- providing control measures to reduce harm to health;
- making sure they are used ;
- keeping all control measures in good working order;
- providing information, instruction and training for employees and others;
- providing monitoring and health surveillance in appropriate cases;
- planning for emergencies.

Personal protective equipment. (PPE)

Personal Protective Equipment (PPE) is equipment that workers can use or wear to guard against risks in the working environment. For instance, workers use items like helmets, gloves, and hi-vis clothing on a construction site staff, while in a laboratory you will often find technicians using safety goggles, masks, and coveralls

PPE can range from basic protective clothing, like gloves, helmets, and footwear, to specialised gear like fall harnesses or respirators. However, they all have the same thing in common: safeguarding the wearer from injury or other health issues. In any workplace, there are risks that could cause injury or illness to employees. Under UK law, it is the duty of the employer to make sure that all reasonable precautions are taken to remove or reduce this risk to staff, taking the form of preventative or protective measures.

Year 9 Design and Technology Knowledge Organiser Energy Sources

Energy is needed to convert raw materials into finished products. It may also be needed to operate products as they are being used.

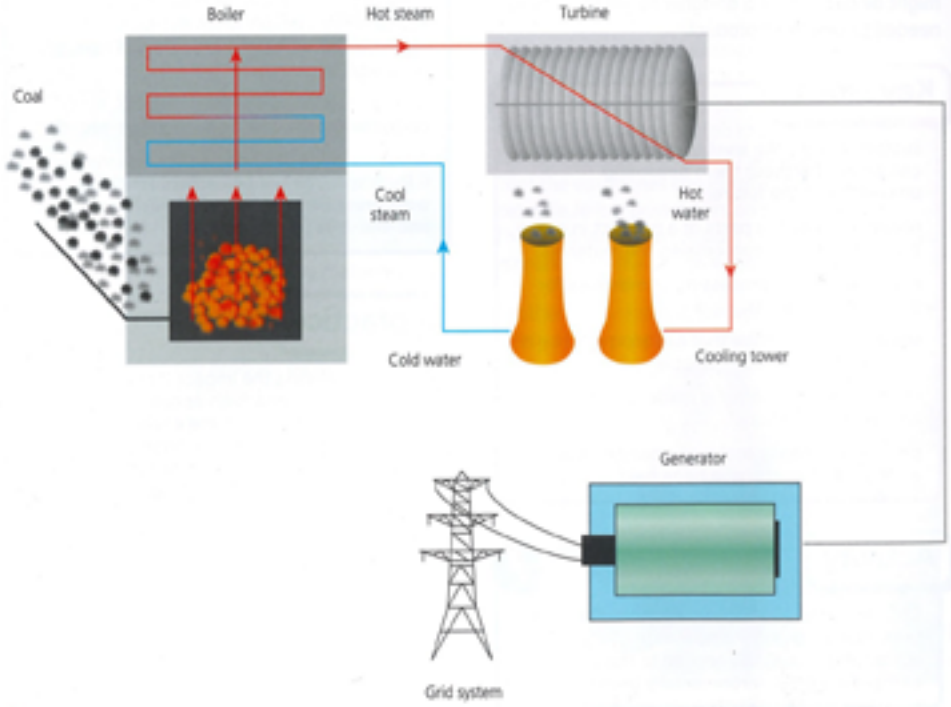
How electricity is generated

The most common type of energy used in manufacturing is electricity. Other sources of energy have to be converted to make electricity. This normally involves using the energy source to turn a turbine and generator – how the turbine is turned will depend upon the energy source. A generator acts like the opposite of an electric motor (see Section 3.2): rather than electricity being used to turn a motor, the turning of the generator creates electricity.

Fossil fuels

Fossil fuels are a **non-renewable energy source**. This is because they are not easily replaced and will eventually run out. They are formed from the remains of plants and animals that died a very long time ago and are buried underground. The most common examples are coal, oil and gas.

Fossil fuels are burnt in a furnace at a power station, which creates steam. This then turns the turbines. One problem with this type of energy generation is that it releases a lot of carbon emissions into the atmosphere, which contributes to global warming.



▲ How electricity is generated in a coal-fired power station

Nuclear power

With **nuclear power**, the heat needed to create steam is produced using a nuclear fission reaction. Nuclear power is a non-renewable energy source as it uses uranium for fuel. It does not produce any greenhouse gases, but it does produce some radioactive waste.

Although nuclear power stations are generally safe, there have been a small number of incidents where highly dangerous radioactive materials have been released into the environment. The most well-known of these is the Chernobyl disaster, which took place in 1986. The effects of this are still being felt in the surrounding areas and are likely to continue to do so for many years to come.

Key words

fossil fuels – fuels formed over a long period of time from the remains of dead plants and animals, e.g. coal, oil and gas.

non-renewable energy source – an energy source that cannot quickly be replaced and will eventually run out.

nuclear power – energy produced through the use of nuclear reactions.

▲ A wind turbine farm

Year 9 Design and Technology Knowledge Organiser Energy Sources

Sustainable Sources

Wind and hydroelectricity

More and more energy is being produced using **renewable energy sources**. These are sources that will not run out and can be quickly replaced.

One example is **wind turbines**, which can be turned using the wind. This produces no carbon emissions. These turbines must be placed where there is a good source of wind, such as at sea or in hilly areas. As a result, some people feel that they spoil views of the countryside and coastline.

Another renewable energy source is **hydro-power**. This is where a large volume of water is stored behind a dam. A small amount is allowed to continuously flow out, which turns the turbines.

▲ A hydro-power dam

Solar power

Solar power is different from most energy sources as it does not make use of turbines. Instead, solar panels convert energy from the sun into an electric current. The advantage of this energy source is that it is renewable and produces no carbon emissions. The main disadvantage is that it cannot produce power when there is no sunlight.

▲ Solar energy panels convert energy from the sun into an electric current

Tasks you can do

Key words

renewable energy source – an energy source that is quickly replaced by natural means and will not run out.

wind turbine – a turbine that produces electricity as a result of being turned by the wind.

hydro-power – the use of flowing water to produce electricity.

solar power – converting energy from the sun into electricity.

Find out more

How fossil fuels are formed: www.bbc.co.uk/bitesize/guides/z279hyc/revision/1

How coal is used to make electricity in Australia: www.originenergy.com.au/blog/what-is-coal/

The arguments for and against using nuclear power: www.technologystudent.com/energy1/nuclear1.htm

How solar cells work: www.energysavingtrust.org.uk/renewable-energy/electricity/solar-panels

Activity

Imagine that a nuclear power station is to be constructed close to your home town. In a group, discuss the benefits that this might bring to the town and wider area, along with the potential downsides. Decide as a group whether you think the power station should be built and justify your choice to the whole class.

In practice

Design a future transport vehicle that uses renewable energy sources to power it.

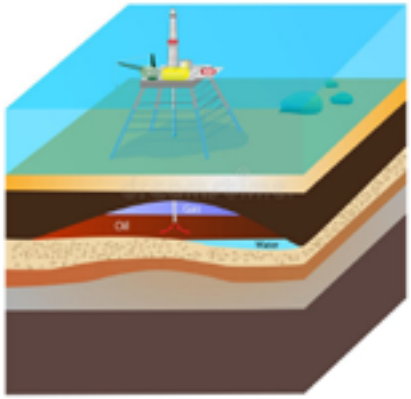
Knowledge check

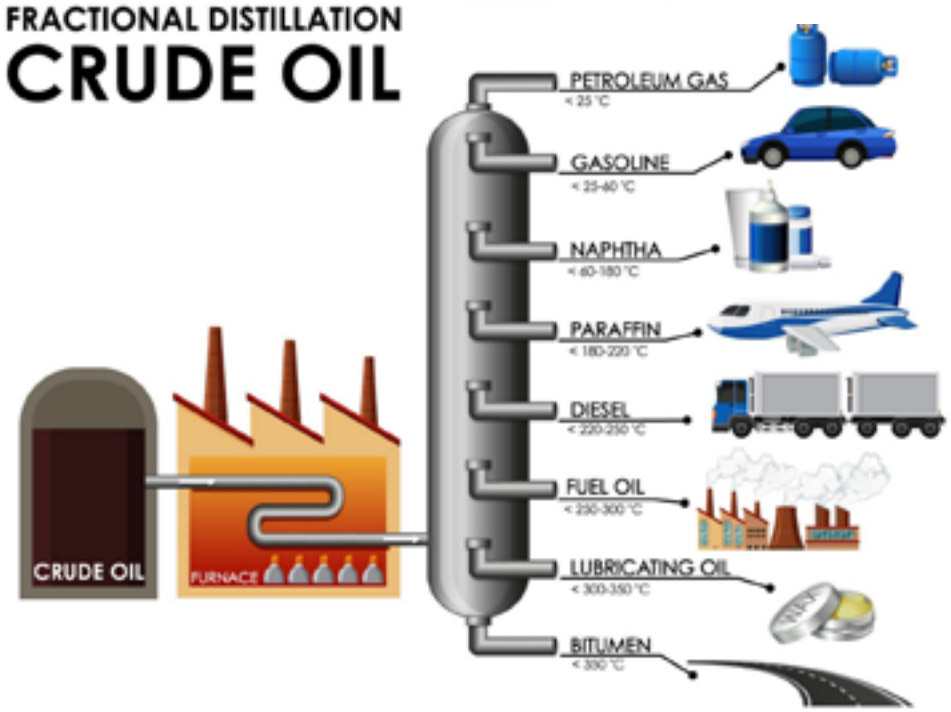
1. State what is meant by a renewable and a non-renewable energy source.
2. Give three examples of fossil fuels.
3. Describe how electricity is generated using nuclear power.
4. Name two renewable methods of turning turbines to generate electricity.
5. Give two advantages of solar power.

Extension

6. Tidal power is an alternative source of energy that is used to generate electricity. Describe how electricity is generated using tidal power, and outline the advantages and disadvantages of using this source of energy.

Crude Oil and Natural Gas





Year 9 Design and Technology Knowledge Organiser Legislation and marks

Copy right

Copyright provides protection for piece of work. Such as literature, web content, music, film or technical drawings and indicates that they must not be copied without permission. Where copyright applies it will be marked with the copy right symbol.

In the UK , there is no fee to apply a copyright and no register of copyright to which it needs to be added.

Copyright s different from patent, as it only protects how ideas are expressed– not the actual ideas themselves.

Patent

A Patent is a legal document, that gives its owner the right to exclude other people from, making, using , selling or importing something they have invented.

Patents provide the protection for a set number of years—not indefinitely

It is important to note that the patent does not protect a product itself, only the ideas and inventions that have gone into its design or manufacture.

Trademarks

A trademark typically protects a brand or logo that identifies the product or well know business. Many companies have a well-known brand or logo that is instantly recognisable by their customers, making the brand an asset to the company.

Trademarks are usually identified by the symbol that follows them:

- If a trademark is registered, the ® is used
- If a trademark is not registered, the ™ symbol is used.

Registered trademark.

A patent protects an invention and how it works. whereas a registered design can be used to protect the way a product looks.

Where a product instantly recognisable and successful because of its unique appearance, a company may want to prevent other people from copying the way it looks. A registered design can last for 25 years

but must be renewed every 5 years. An example of a famous registered design is the shape of the coca cola bottle.

Year 9 Design and Technology Knowledge Organiser Legislation and marks

British standards - kite mark

British standards are created by the British Standards Institute (BSI). They are technical specifications that can be used as guidance when designing or manufacturing new products. Conformity to the standards helps to make products better quality, easier to use more sustainable and more secure and safer.

Companies, designers and manufacturers need to pay close attention to the standards that are applicable to the products they are producing. For example a company that designs and manufactures toys will need to consider flammability and toxicity of material and the risk of choking on small parts.

European conformity (CE)

The CE mark is the symbol for European Conformity. Recognised world wide, it indicates that the product conforms with the health, safety and environmental protection for protects sold in the European Economic Area (EEA)

To demonstrate conformity, the manufacturer may need to have the product checked and tested, o it is critically important that during the development of the design all of the associated directives and regulations are listed in the specification and the requirements incorporated into the design.

Waste Electrical and Electronic Equipment (WEEE)

The Waste Electrical and Electronic Equipment (WEEE) directive is an EU directive covering the collection, recycling and recovery of waste electrical equipment and electronic goods.

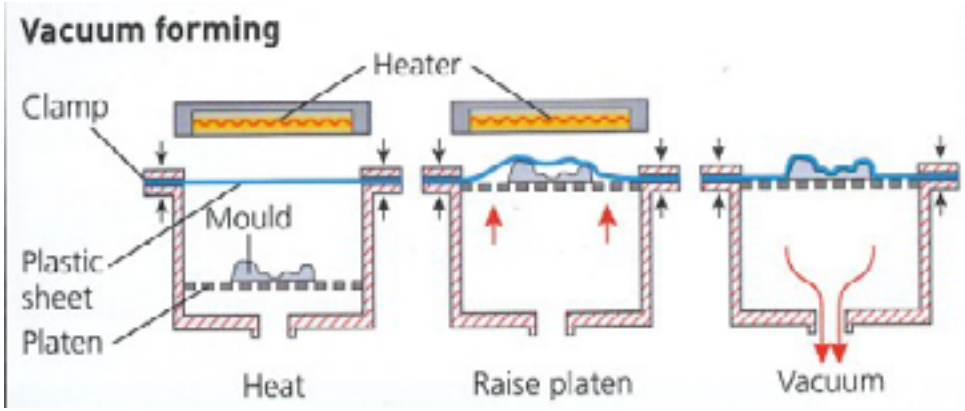
Before the WEEE directive, waste electrical and electronic equipment in the Uk was often disposed of and processed alongside other household waste. Since the WEEE directive, although waste electrical equipment can still be taken to designated waste recycling centres, it is then sent specialist recycling and treatment centres, where it can be recycled or disposed of safely.

Year 9 Design and Technology Knowledge Organiser Manufacturing Processes

Vacuum forming

Vacuum forming is used to shape and form thin sheet thermoplastic polymers.

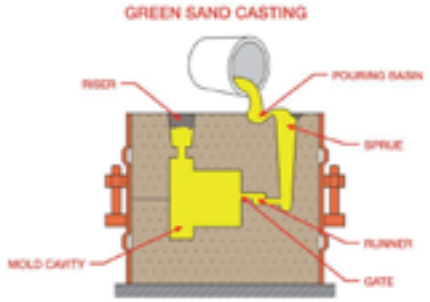
- A mould is located within a vacuum chamber and a polymer, such as high impact polystyrene, is clamped in the frame above the mould.
- The polymer is heated from above: once it is uniformly pliable, it is lowered onto the mould.
- A vacuum pump is turned on to remove the air between the polymer and the mould
- The polymer is drawn down over the mould and left to cool.
- Once cooled, the polymer will have taken the form of the mould.



Casting

What is metal casting?

Metal casting is the process of making objects by pouring molten metal into an empty shaped space. The metal then cools and hardens into the form given to it by this shaped mould. Casting is often a less expensive way to manufacture a piece compared with machining the part out of a piece of solid metal. There are many metal casting methods to choose from. What type of casting is most efficient depends on the metals used, the size of the run, and the complexity of the casting



Overview of the casting.

There are a number of different methods of casting, each of which are done in a slightly different way. Each have some similarities: which are.

- Metal is heated until it is molten.
- The metal is poured into a mould, through the sprue. It will be filled until metal is visible in the riser.
- The metal is allowed to cool and solidify. Then it is removed from the mould.
- Any finishing wok is then completed on the work piece.

Year 9 Design and Technology Knowledge Organiser Manufacturing Processes

Soldering

Soldering is a joining process used to join different types of metals together by melting solder. Solder is a metal alloy usually made of tin and lead which is melted using a hot iron. The iron is heated to temperatures above 300 degrees Celsius which then cools to create a strong electrical bond.

What Metals are Used?

Filler metals used in soldering were once lead based (lead solder), however, owing to regulations, lead-based solders are increasingly replaced with lead free solders, which may consist of antimony, bismuth, brass, copper, indium, tin or silver.

Soldering Iron

A soldering iron is a **hand tool used to heat solder**, usually from an electrical supply at high temperatures above the melting point of the metal alloy. This allows for the solder to flow between the work pieces needing to be joined.

This soldering tool is made up of an insulated handle and a heated pointed metal iron tip.

Addition manufacture—3D printing

3D printing or **additive manufacturing** is the construction of a three-dimensional object from a CAD model or a digital 3D model. It can be done in a variety of processes in which material is deposited, joined or solidified under computer control, with material being added together (such as plastics, liquids or powder grains being fused), typically layer by layer.

Rapid prototyping, a 3D printing process works by depositing hot filament polymer such as acrylonitrile butadiene styrene (ABS) or the natural Polylactic acid (PLA) polymer.

Some of the more sophisticated rapid prototyping machines have multi coloured polymer can be deposited one after another, so each component within the product can be a different colour.

Dance - Terminology

Year 9 - Knowledge Organiser - Dance

Performing skills

Term	Definition
Timing	moving to the beat of the music and/or your group.
Energy	performing actions with the full amount of effort required.
Movement memory	remembering all of the movements.
Accuracy	making the correct shapes with your body.
Facial expressions	showing the mood of the dance through your face.
Extensions	fully extending the legs, toes, arms and fingertips
Focus	being fully committed to the performance by ignoring distractions.
Flexibility	being able to perform a wide range of movements with ease.
Projection	extending your performance to the back of the venue.
Musicality	expressing the dynamics of the music through your body.

Class terminology

Conditioning - develops the strength and endurance of particular muscles.

Exercises - short phrases of movement that develop a dance technique. Rehearsed right and left side.

Travel - travelling movements such as leaps, rolls and gallops which move the dancer from one side of the room to the other.

Sequence - often considered a mini dance, a sequence will help dancers to develop the dance style and last no longer than a minute.

Dance - is produced with the aim of performing it to an audience. A dance will usually use most or all of the song to perform to.

Choreography skills

Term	Definition
Narrative	telling a story by playing a character.
Characterisation	playing the role of a character.
Theme	The subject or topic that the dance will explore.
Levels	the different heights the dancer reaches whilst performing.
Formations	the positions or shape that the dancers stand in.
Directions	the direction of travel or the way that the dancers are facing.
Transitions	linking one movement to another.
Dynamics	how the actions are performed.
Unison	same movements at the same time.
Canon	same movements performed one after another.

Reflecting - Structure for success

WHAT is the skill?

↓

HOW do you know it is a strength/weakness?

↓

WHY is this skill important for a dancer to have?

↓

IMPROVEMENT - strategy to improve

Dance - Movements

Jazz dance

Jazz dance uses extensions and foot positions from ballet, but aims to have a freer feel to the movement by using contractions and arches in the back and a variety of floor work.

Foot positions we will use:

Key movements	
Name	**Description**
Step ball change	a travelling movement with a gallop feel.
Jazz pas de bourree	behind, side, front.
Jazz pirouette	a turn on one leg.
Split leap	a jump which aims to replicate the splits in the air.

Contemporary dance

Contemporary is considered the freest of all dance styles. It uses the feeling of contracting and releasing the body whilst also experimenting with falls, floor work, turns and travels.

Foot positions we will use:

Key movements	
Name	**Description**
Lunge	moving one leg forward whilst remaining on balance.
Contraction	curving the spine then releasing.
Body circle	circling the body including the head.
Shift	transferring the weight from one leg to another

Street dance

Street dance has many sub-styles like hip hop, popping and locking and breaking. These are normally up-beat and energetic movements that suit the style of the current music trend.

Foot positions we will use:

Key movements	
Name	**Description**
Top rock	shifting the weight from one foot to another in a rocking motion.
Tutting	making intricate shapes with your hands and arms.
Popping and Locking	popping forces body parts outwards, whilst locking is similar to contacting the body part.

Year 9 - Drama - Term 1

Acting Terminology

Definition	Term	⇩⇩ Cover & Test ⇩⇩
A scene featuring two characters. 'Duo' means 'two', 'logue' means 'to speak'.	**Duologue**	
A speech in which just one character speaks. 'Mono' means 'one', 'logue' means 'to speak'.	**Monologue**	
The words characters say in a play.	**Dialogue**	
The author / writer of a play.	**Playwright**	
The basic movements characters make around the stage. e.g. Kelly enters from SR and sits down at the table. Dave walks away from the table.	**Blocking / Staging**	
What your character wants in that moment/scene.	**Objective**	
The thing that is stopping your character getting what they want.	**Obstacle**	
What your character does to get their objective.	**Tactics**	
One or two important words per sentence that you have chosen emphasise.	**Key Words**	
A bird's eye view diagram of the stage on to which you can draw the blocking (movements).	**Stage Diagrams**	

Directing Skills

When you are directing a scene, here are some questions you should ask the actors:
★ What does your character **want** from the scene (their objective)?
★ How is your character **trying to get** what they want (their tactic)?
When you are directing a scene, here are some questions you should ask yourself:
★ Is your s**taging** interesting? e.g. making the 'V' shape, using levels, giving focus to main characters.
★ Are your actors **moving** like their characters? e.g. using gestures, facial expressions and reactions.
★ Are your actors **speaking** like their characters? e.g. using a clear emotion or attitude.
★ Would your performance **make sense** to an audience who had never seen it before?

Year 9 - Drama - Term 1

Objective

What your character wants in that moment/scene.
e.g. Dave wants a rest because he's tired.

Highlighting

Highlighting your lines helps when using 'script-in-hand technique'.
Do not highlight your **name** or **stage directions**, only your **dialogue**.

Key Words

Underline one or two important words per sentence that you have chosen emphasise.

Tactics

What your character does to get their objective. You write these to the **left** of each line.

Your script should have all these notes on every page!

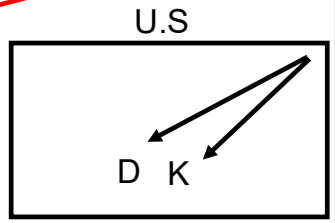
Example Script

Tactics

Objective: To rest.

Obstacle: Kelly wants to walk on.

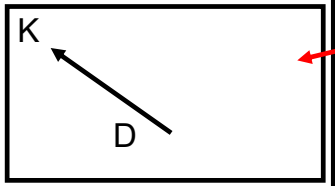
(A wood at night. Dave and Kelly enter from USL. Dave is struggling to carry a big, heavy looking back-pack. Kelly is carrying an identical one and making it look easy.)



To complain.

Dave: This is bag is so heavy! I need a rest.

(He dumps his bag on the floor and sits down)



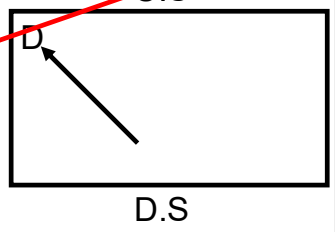
Kelly: Don't be such a wimp! Give it here.

(Kelly picks up the bag with ease and walks off USR)

To dismiss / to insist.

Dave: Fine! Go! I'm staying here and having a rest.

(In the bushes something growls)



To beg.

Dave: Ummm… on second thoughts, wait for me!

(Dave runs off after Kelly)

Obstacle

The thing that is stopping your character getting what they want.
e.g. Kelly wants to keep walking which means Dave can't rest.

Stage Diagrams

A bird's eye view diagram of the stage on to which you can draw the blocking (movements).

Gestures

Draw a sketch or make a note of the gesture, facial expression or movement you are linking to each line.

English Department

YEAR 9

Autumn Term – Grammar

PARTS OF SPEECH

There are several different types of word in the English language. The different word types are known as **parts of speech**.

NOUN – An object, thing, person or place

E.g. tree, happiness, school, Josie, Hampshire, England

ADJECTIVE – A word that describes a noun

E.g. tall, incredible, inspirational, pleasant, large, beautiful

VERB – A word that describes an action

E.g. grow, uplift, teach, sulk, travel, visit, run, smile, laugh

ADVERB – A word that gives more information on how an action occurs, often with the suffix *-ly*

E.g. vigorously, wonderfully, skilfully, sullenly, slowly, joyfully

PRONOUN – A word that represents a noun in a sentence

E.g. it, she, he, they, them, us, me, I, you, we, this, that

POSSESSIVE PRONOUN – A special type of pronoun that denotes ownership or belonging

E.g. my, your, his, her, their, our

PREPOSITION – A word that signals the relationship between two things in a sentence, normally to do with time and location

E.g. on, under, above, beside, after, before, with, inside

CONJUNCTION – A word that joins clauses in a sentence

E.g. for, and, nor, but, or, yet, so, because, although, therefore

DETERMINER – A word/phrase that goes in front of a noun to help clarify what the noun refers to.

E.g. this, that, some, many, all, each, every, another, one, two

DEFINITE ARTICLE – The word 'the' (a type of determiner)

INDEFINITE ARTICLE – The word 'a/an' (a type of determiner)

TENSE

In grammar, **tense** is the system for indicating the timeframe for the events you are writing about. *The word 'tense' comes from the Latin word 'tempus', which means 'time'.*

There 12 tenses in English, and they fall into three groups: **present tenses**, **past tenses**, and **future tenses**. The tense of a piece of writing is indicated by **verb forms**; which means that, to change the tense, you need to change the verb forms in some way. *When writing, you should keep your tense consistent: shifting randomly between tenses is a grammatical error and can quickly become confusing for readers.*

Here are the twelve tenses. Notice how the verb forms change for each tense:

PRESENT TENSES

Present simple tense: *Josie plays netball*

Present continuous tense: *Josie is playing netball*

Present perfect tense: *Josie has played netball*

Present perfect continuous tense: *Josie has been playing netball*

PAST TENSES

Past simple tense: *Josie played netball*

Past continuous tense: *Josie was playing netball*

Past perfect tense: *Josie had played netball*

Past perfect continuous tense: *Josie had been playing netball*

FUTURE TENSES

Future simple tense: *Josie will play netball*

Future continuous tense: *Josie will be playing netball*

Future perfect tense: *Josie will have played netball*

Future perfect continuous tense: *Josie will have been playing netball*

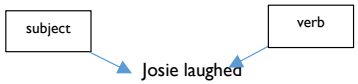
CLAUSE STRUCTURE

Sentences are built out of smaller units called **clauses** and **phrases**. The most basic type of sentence is called a **simple sentence** and consists of only one clause.

A clause must contain two elements: a **subject** and a **verb**.

The subject of a clause must be a **noun** or **noun phrase**.

Here is an example of a basic clause:



A clause can also contain a third element, called the **object**, which must also be a **noun** or **noun phrase**.

You can think of the subject as the 'thing' which *does* the action indicated by the verb. In the example above, Josie is the one laughing, which is why she is the subject of the sentence.

The object is the 'thing' which *receives* the action indicated by the verb. Here is an example of a clause with an object:

Here, Selma is the one being *laughed at* – she is not the one doing the laughing. Therefore, she is the object in the clause.

Most clauses in English follow the order *subject, verb, object.*

PUNCTUATION

Punctuation adds structure, order and clarity to sentences.

Commas are used to separate clauses in a sentence. This essentially means that they neatly divide up the different meanings and ideas in sentences. They can also be used to separate items in a list. *Without commas, writing becomes a continuous flow of information that quickly becomes meaningless.*

Apostrophes are used for two reasons: to show ownership, e.g. *Josie's friend Selma*, or to indicate where letters have been removed in contractions, e.g. *didn't, don't, can't.*

Colons are used before an explanation, or when you are about to add further information to a point. *In this way, they work a bit like the word 'because'.* Colons can also be used to introduce a list.

Semicolons are used to divide two closely related sentences.

English - Morphology

PREFIXES

*These are morphemes added to the **beginnings** of words in order to alter the meaning in some way.*

Prefix	Meaning
un-	opposite of
de-	away
dis-	apart
pre-	before
con-	with
anti-	against
inter-	between
intro-	inwards
ex/e-	out of
pro-	forwards
sub-	below
re-	back/again
trans-	across
geo-	relating to Earth
bio-	relating to life
tele-	far off/distant

IMPORTANT TERMS 1

MORPHEME – A 'chunk' of a word that carries meaning.

MORPHOLOGY – The study of how words are formed from smaller parts.

ETYMOLOGY – The study of where words come from and how they evolve over time.

LATIN – An extinct language, spoken by the Romans, from which we get many of our morphemes.

GREEK – Another extinct language, older than Latin. We tend to see Greek morphemes in technical or scientific words.

BOUND MORPHEME – A morpheme that cannot stand as a word on its own: it must be used in combination with another morpheme in order to form a word. Prefixes and suffixes are bound morphemes, as are most of the roots in the box to the right.

FREE MORPHEME – A morpheme that can stand as a word by itself, such as 'book'. While most of our bound morphemes come from Latin or Greek, many of our free morphemes can be traced to other ancient languages.

MORPHOLOGICAL ANALYSIS

*By breaking a word down into its separate morphemes, we can analyse how the **meaning** of the word emerges from its separate parts.*

transportation

PREFIX	ROOT	SUFFIX
trans-	port	-ation
'across'	'carry'	*nominal – a process*

'The process of carrying something from one place to another.'

English Department

YEAR 9

MORPHOLOGY

ROOT MORPHEMES

Root morphemes are 'chunks' of words that carry a certain 'flavour' of meaning. These roots appear in many different words, and they always signal the same meaning. If you can recognize the root in a word that you don't know, this will help you work out what the word means.

Root	Meaning	Origin
spect	look/see	Latin
rupt	break	Latin
port	carry	Latin
grad/gress	step	Latin
capt/cept	take	Latin
flec/flex	bend	Latin
fact	make	Latin
vert/vers	turn	Latin
spire	breathe	Latin
cede/ceed	go	Latin
struct	build	Latin
mis/mit	send	Latin
tract	pull	Latin
junct	join	Latin
ject	throw	Latin
dict	speak	Latin
fract	shatter	Latin
duc	lead	Latin
graph	write/draw	Greek
photo	light	Greek
phon	sound	Greek
chron	time	Greek
morph	form	Greek

ETYMOLOGY BASICS

- Modern English evolved from Anglo-Saxon (Old English);
- Anglo-Saxon evolved into Middle English, which evolved into Modern English;
- Many of our words come from other languages, such as Latin, French, Old Norse, and Greek;
- With many of our synonyms, the two words that form the pair come from different languages – these are called *dual variations.*

IMPORTANT TERMS 2

SUFFIX – A morpheme added to the end of a word to alter its meaning in some way. Suffixes that form nouns are called *nominal suffixes*, suffixes that form verbs are called *verbal suffixes*, suffixes that form adjectives are called *adjectival suffixes*, and suffixes that form adverbs are called *adverbial suffixes*.

ANGLO-SAXON – The language also known as Old English, spoken by the Germanic peoples who settled in England in the 5th century.

INFLECTION & DERIVATION

Prefixes and suffixes alter the meanings of words in two ways: inflection and derivation.

INFLECTIONAL MORPHEMES – In the English language, all inflectional morphemes are suffixes. They alter how a word functions, but they do not alter the meaning or the word type. There are eight of them:

-s or –es turn a word into a plural.

-s' or -'s turns a noun into a possessive (showing ownership).

-s is added to verbs to indicate the third person singular..

-ed indicates verbs in the past tense.

-ing indicates the present participle, meaning an action that is ongoing.

-en indicates a form of past participle.

-er is added to adjectives to form a comparison.

-est is added to adjectives to create a superlative.

DERIVATIONAL MORPHEMES – These can be prefixes or suffixes. They either change a word's meaning, or they change one word type into another, e.g. a noun into an adjective. There are many derivational morphemes in English.

French y9

Core Language

VERB INFINITIVES

1-ETRE = to be
2- AVOIR = to have
3- FAIRE = to do
4- ALLER = to go
5- JOUER = to play
6. REGARDER = to watch
7. ECOUTER = to listen
8. AIMER = to like
9. MANGER = to eat
10. BOIRE = to drink

PRESENT TENSE VERBS WITH "JE"

1- je suis = I am
2- j'ai = I have
3- Je fais = I do
4- je vais = I go
5- je joue = I play
6. Je regarde = I watch
7. J'écoute = I listen
8. J'aime = I like
9. Je mange = I eat
10. Je bois = I drink

PAST TENSE VERBS WITH "JE"

1- j'étais = I was
2- j'avais = I had
3- j'ai fait = I did
4- je suis allé(e) = I went
5- j'ai joué = I played
6. j'ai regardé = I watched
7. j'ai écouté = I listened
8. j'ai aimé = I liked
9. j'ai mangé = I ate
10. j'ai bu = I drank

FUTURE TENSE VERBS WITH "JE"

1- je vais être = I will be
2- je vais avoir = I will have
3- je vais faire = I will do
4- je vais aller = I will go
5- je vais jouer = I will play
6. je vais regarder = I will watch
7. je vais écouter = I will listen
8. je vais aimer = I will like
9. je vais manger = I will eat
10. je vais boire = I will drink

TIME MARKERS

PAST
1- hier = yesterday
2- l'année dernière = last year
3- la semaine dernière = last week

FUTURE
1- demain = tomorrow
2- l'année prochaine = next year
3- la semaine prochaine = next year

PRESENT
1- aujourd'hui = today
2- maintenant = now
3- quelquefois = sometimes
4- tous les jours = everyday
5- une fois par semaine = once a week
6- toujours = always
7- souvent = often
8- soir = evening
9- matin = morning
10 – d'habitude = usually

OTHER VERY IMPORTANT PHRASES

1- je peux +inf = I can
2- je veux +inf = I want
3- je voudrais / j'aimerais = I would like
4- on peut = we can
5- on doit / il faut = you have to
6- depuis = for / since
7- il y a = there is
8. qui = who
9. où = where
10. dans = in
11. ne..pas = not
12. ne…plus = not anymore
13- ne… jamais = never

CONNECTIVES AND INTENSIFIERS

1- d'abord = firstly
2- puis / ensuite = then
3- enfin = finally
4- et = and / ou = or
5- mais = but
6- cependant = however
7- si = if
8- quand = when

1- trop = too
2- très = very
3- assez = quite
4- un peu = a little
5- vraiment = really

OPINIONS

1- à mon avis / selon moi = in my opinion
2- je pense que / je trouve que = I think that
3- c'est = it is
4- c'était = it was
5- ce sera = it will be
6- parce-que / car= because

génial / chouette = great
Intéressant = interesting
marrant / drôle = fun
ennuyeux / barbant = boring
pénible = annoying
nul / horrible = rubbish

Moi, mes amis et ma famille – *Me, My friends and my family*

Ma description physique	*My physical description*
J'ai les cheveux …	*I have … hair*
courts/longs	*short/long*
raides/bouclés/frisés	*straight/curly*
noirs/bruns/blonds	*black/brown/blond*
roux/gris/blancs	*red/grey/white*
J'ai les yeux …	*I have … eyes*
bleus/verts	*blue/green*
gris/marron	*grey/brown*
J'ai …	*I have …*
des lunettes	*glasses*
des boutons	*spots*
une moustache/une barbe	*a moustache/a beard*
Je suis …	*I am …*
petit(e)/grand(e)	*short/tall*
de taille moyenne	*of average height*
mince/gros(se)	*thin/fat*

Les adjectifs de personnalité	*Personality adjectives*
Il/Elle est …	*He/She is …*
agaçant(e)	*annoying*
arrogant(e)	*arrogant*
amusant(e)	*amusing, funny*
bavard(e)	*talkative, chatty*
charmant(e)	*charming*
content(e)	*happy*
fort(e)	*strong*
impatient(e)	*impatient*
impoli(e)	*impolite*
indépendant(e)	*independent*
intelligent(e)	*intelligent*
marrant(e)	*funny*
méchant(e)	*nasty/mean*
têtu(e)	*stubborn, pig-headed*

La famille	*Family members*
les parents	*parents*
le père	*father*
la mère	*mother*
le beau-père	*stepfather/father-in-law*
la belle-mère	*stepmother/mother-in-law*
le mari	*husband*
la femme	*wife*
les enfants	*children*
le fils	*son*
la fille	*daughter*
le frère	*brother*
la sœur	*sister*
le demi-frère	*half-brother, stepbrother*
la demi-sœur	*half-sister, stepsister*
le beau-frère	*brother-in-law*
la belle-sœur	*sister-in-law*
les grands-parents	*grandparents*
le grand-père	*grandfather*
la grand-mère	*grandmother*
les petits-enfants	*grandchildren*
le petit-fils	*grandson*
la petite-fille	*granddaughter*
l'oncle (m)	*uncle*
la tante	*aunt*
le cousin/la cousine	*cousin*

Les rapports en famille	*Family relationships*
Je m'entends bien avec …	*I get on well with …*
Je me dispute avec …	*I argue with …*
Je me chamaille avec …	*I bicker with …*
Je m'amuse avec …	*I have fun with …*
Je m'occupe de …	*I look after …*
le frère ainé/cadet	*older/younger brother*
la sœur ainée/cadette	*older/younger sister*
Il/Elle est/a l'air/semble …	*He/She is/looks/seems …*
dynamique	*lively*
égoïste	*selfish*
jaloux/-ouse	*jealous*
sévère	*strict*
timide	*shy*
travailleur/-euse	*hard-working*

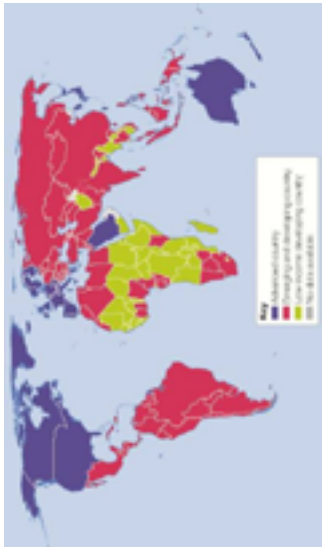
Les amis	*Friends*
l'ami (m)/le copain	*(male) friend*
l'amie (f)/la copine	*(female) friend*
le petit ami/le petit copain	*boyfriend*
la petite amie/la petite copine	*girlfriend*
Je retrouve mes amis au parc.	*I meet up with my friends in the park.*
Je traîne en ville avec mes copines.	*I hang out in town with my (female) friends.*
On rigole bien ensemble.	*We have a good laugh together.*
On regarde un film ou des clips vidéo.	*We watch a film or music videos.*
On joue au foot ou au basket ensemble.	*We play football or basketball together.*
On discute de tout.	*We talk about everything.*
Un(e) bon(ne) ami(e) …	*A good friend …*
écoute mes problèmes/ mes secrets	*listens to my problems/secrets*
discute de tout avec moi	*talks about everything with me*
aide tout le monde	*helps everyone*
accepte mes imperfections	*accepts my faults*
a les mêmes centres d'intérêt que moi	*has the same interests as me*
a le sens de l'humour	*has a sense of humour*

On va sortir	Going out
Je vais …	*I am going …*
aller à un match/au bowling	*to go to a match/the bowling alley*
aller au cinéma/à la piscine	*to go to the cinema/the swimming pool*
voir un spectacle	*to see a show*
faire du patin à glace/du skate	*to go ice skating/skateboarding*
faire les magasins	*to go shopping*
jouer à des jeux vidéo	*to play video games*
Tu veux venir?	*Do you want to come?*

Une sortie	An outing
J'ai contacté un copain/une copine.	*I contacted a friend.*
J'ai quitté la maison.	*I left the house.*
J'ai raté le bus.	*I missed the bus.*
Je suis allé(e) en ville.	*I went into town.*
J'ai écouté de la musique.	*I listened to music.*
J'ai retrouvé mon copain/ma copine.	*I met up with my friend.*
J'ai discuté avec mon copain/ma copine.	*I talked to my friend.*
J'ai mangé un sandwich.	*I ate a sandwich.*
J'ai acheté des vêtements.	*I bought some clothes.*
C'était super.	*It was great.*
J'ai passé une très bonne journée.	*I had a very good day.*

Year 9 Geography Knowledge Organiser Term 1: Development

Location of AC's, EDC's and LIDC's



Development Indicators

Development is a process of change and growth for a country including:
Economic development
Social development
Sustainable development

Mumbai, India

Dharavi is India and Asia's largest shanty town situated in the city of Mumbai. Over 1 million people live here and it is growing every day!

Impacts of Rapid Urban Growth

Advantages	Disadvantages
1. Jobs	1. Disease spreads
2. Low crime rate	2. Lack of education
3. Sense of community	3. Limited access to water
4. High levels of recycling	4. Cramped living conditions
5. More homes have electricity	5. Lack of hygiene

Economic Activities

PRIMARY ACTIVITIES = An industry that extracts raw materials directly from the land or sea (farmer, fisherman)

SECONDARY ACTIVITIES = An industry that processes or manufactures primary raw materials, assembles parts made by other industries, or is part of the construction industry (factory worker)

TERTIARY ACTIVITIES = An occupation, which provides a service to people (fireman, teacher, shop assistant)

QUATERNARY ACTIVITIES = An industry that provides information and expertise (scientist)

The Development Gap

We can use the following strategies to reduce the development gap between countries:

1. Microfinance loans
2. Aid
3. Fair Trade
4. Investment
5. Intermediate technology
6. Debt Relief
7. Tourism
8. Industrial Development

Speak Like a Geographer

TNC, NGO, Poverty, Conflict, Agriculture, Natural resources, Raw materials, AC, EDC, LIDC, Landlocked, Development Indicators, Quality of life, Port, Trade, Debt, Aid, Development gap, Absolute poverty, Relative poverty, Climate, Refugee, Migration, GNI, GDP, Globalisation

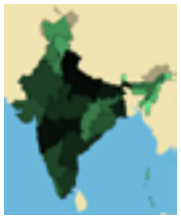
Fieldwork

Skills

Choropleth Map:

Advantages: Visually effective - can see a large amount of information and general patterns

Disadvantages: Map assumes the whole region/area has the same value, but there could be variations



Year 9 Geography Knowledge Organiser Term 2: Polar Environments

Location

The Arctic Is a polar region located in the northernmost region of Earth.

Antarctica Is a polar region located in the southernmost region of Earth.

Antarctica

- It is 50 times larger than the UK
- Is a desert
- Has no permanent population and no country owns it
- Is the coldest and windiest continent
- Has a wide variety of flora (mosses, algae and lichen but NO trees/bushes)and fauna (penguins, seals, whales, birds)
- Human uses and threats: fishing, tourism, research

The Arctic

- The Arctic consists of the Arctic Ocean, adjacent seas, and parts of Alaska, Finland, Greenland, Iceland, Northern Canada, Norway, Russia, and Sweden but no country owns it
- Arctic indigenous peoples live in several countries
- Has a wide variety of flora (mosses, algae and lichen and small shrubs but NO trees/bushes)and fauna (polar bears, caribou, fox, wolf, whales and birds)
- Human uses and threats: fishing, whaling, tourism, research, transportation

Glaciation

Ice covers about 10 per cent of the Earth's surface. This ice is in the form of glaciers and ice sheets.

About 20,000 years ago, ice covered much of the continent of Europe, including most of the United Kingdom. Glaciers grow and shrink with seasonal changes in temperature.

1. Firstly snowflakes accumulate in a hollow part of a mountain.
2. As the snow continues, the weight begins to compress the snow.
3. The compression turns the snowflakes into denser glacial ice.
4. Snow will now continue to build on this glacial ice.
5. The now heavier glacier will move down the hillside eroding the surface beneath it.

Antarctic Treaty

Agreed in 1959 to protect Antarctica.
54 countries have now signed up to the treaty

- To make Antarctica a natural reserve that is devoted to peace and science
- To allow scientists freedom to work
- To share scientific knowledge
- To set aside any territorial claims
- To ban nuclear explosions and the disposal of radioactive waste
- To make sure all visits to Antarctica comply with the treaty
- To ban all commercial mining until at least 2048.
- To ensure all waste is disposed of without damaging the environment
- To protect all animals and plants.

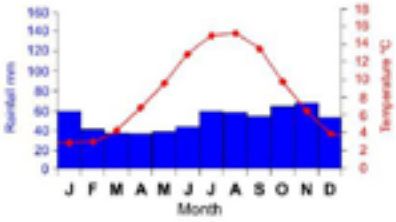
Speak Like a Geographer

Arctic, Antarctica, Glaciation, Glaciers, Tourism, Stakeholder, Antarctic Treaty, Mining, Natural resources, Distinctive, Resource depletion, Altitude

Fieldwork

Skills

A climate graph shows how temperature and precipitation vary throughout the year for a particular location.



Health and Social Care Knowledge Organiser- Year 9

Growth and development across life stages

Lifestages

1. Infancy (0 – 2 years)
2. Early childhood (3 – 8 years)
3. Adolescence (9 – 18 years)
4. Early adulthood (19 – 45 years)
5. Middle adulthood (46 – 65 years)
6. Later adulthood (65+ years)

Holistic Development

1. **P**hysical development – Physical growth and physiological change
2. **I**ntellectual development – Developing thinking and language skill and common activities that promote learning and development
3. **E**motional development – Developing feelings about self and other
4. **S**ocial development – Forming relationships

Care Values

1. Empowering and promoting independence by involving individuals, where possible, in making choices
2. Respect for the individual by respecting service users' need, beliefs and identity
3. Maintaining confidentiality
4. Preserving the dignity of individuals to help them maintain privacy and self-respect
5. Effective communication that displays empathy and warmth
6. Safeguarding and duty of care
7. Promoting anti-discriminatory practice by being aware of types of unfair discrimination and avoiding discriminatory behaviour

B1 Different types of life event

1. Physical events

a) Accident/ injury
b) Ill health

2. Relationship changes

a) Entering a relationship
b) Marriage
c) Divorce
d) Parenthood
e) Bereavement

3. Life circumstances

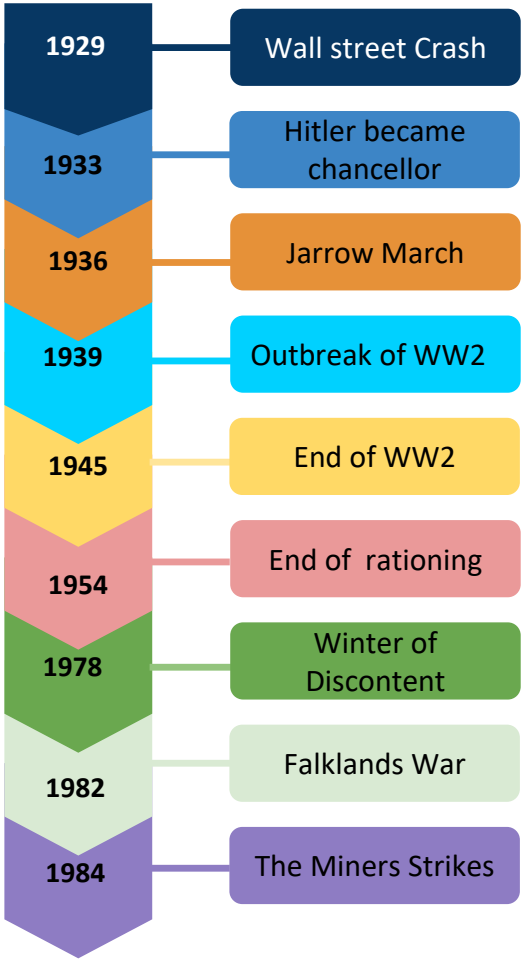
a) Moving house, school or job
b) Exclusion from education
c) Redundancy
d) Imprisonment
e) Retirement

Physical and lifestyle factors that can have positive or negative effects on health and wellbeing:

a. Genetic inheritance, including inherited conditions and predisposition to other conditions
b. Ill health (acute and chronic)
c. Diet (balance, quality and amount)
d. Amount of exercise
e. Substance user, including alcohol, nicotine, illegal drugs and misuse of prescribed drugs
f. Personal hygiene

Year 9 History: Autumn Term

Two Grans' 20th Century



Part 1. Making peace after WWI

WWI ended with an armistice in November **1918.**

Peace Conference held at Versailles to decide how Germany would be punished. Led by the Big Three: George Clemenceau (France), David Lloyd-George (Britain), Woodrow Wilson (USA)- meet at Paris Peace Conference.

Terms of the Treaty of Versailles:

LAND: Alsace & Lorraine to France/Polish Corridor lost/Saar coalfields lost.

ARMY: Reduced to 100,000 men, no tanks, no submarines or military aircraft.

MONEY: Germany to pay reparations of £6.6 billion. Paid annually in gold & raw materials.

BLAME: Germany take blame for causing WWI. War Guilt clause 231.

Treaty	A formal agreement between two or more countries.	*The Big three negotiated the peace treaty to end WW1 at the palace of Versailles*
Trade	Buying and selling goods and services	*People often trade things they have made for money*
Economy	To do with trade and money	*War changes a country's economy*
Politics	Relating to the government or leadership	*People who want to govern a country will often study politics*

Part 2. What world did they return to?

Following the First World War many European countries needed to rebuild. What kind of world did soldiers return to after the First World War and how were they supported to deal with the impacts of WW1

Key Words

Strike	*Refusing to work in order to attempt to force a change.*	*Industrial workers in England began to strike because they felt they weren't treated fairly.*
Human Rights	*A set of beliefs that detail what every person should be able access and do.*	*After the First World War housing was improved as it was seen as a human right to have access to good quality housing*
Employment	*Being able to find a paid job.*	*Many soldiers returning from the First World War returned to their jobs that they had left behind before the war*
Benefits	*A payment made by the government to someone who is unable to support themselves financially.*	*Wounded soldiers returning from the First World War may receive benefits from the government to help support them recover after WW1.*

Year 9 History: Autumn Term

Part 3: Political ideology

Throughout the 20th Century people would begin to explore different ways of ruling their countries, below is a list of some of the more common methods of government in the 20th Century.

Fascism	An extreme right wing political belief. Typically fascists believe the government should have all power over the country.	*Italy was the first country to have a fascist government, under Benito Mussolini. He would inspire Hitler's political beliefs.*
Capitalism	An economic and political belief that money and trade should be owned privately by people.	*England is a country which is capitalist. Many people will work jobs to earn money.*
Democracy	The belief that the government should be selected by the people.	*When the people of a country get to vote on who rules their country, it is considered a democracy.*
Communism	The political belief that all property and wealth is shared equally.	*In 1917 the Russian people overthrew the monarch to become communist.*

Part 4. The Russian Revolution

Russia was ruled by Tsar Nicholas II. He was an absolute monarch. Millions of Russian peasants lived in **poverty** while a small number of nobles controlled all the wealth.

Key words

Monarch	A sovereign leader who rules over a country, usually a King, Queen or Emperor.	*Tsar Nicholas II was the monarch of Russia during the First World War.*
Poverty	The state of being extremely poor	*Many of the Russian peasants were living in poverty.*
Abdicate	To give up the throne	*In 1917 Tsar Nicholas II abdicated the throne of Russia*

Grigori Rasputin	*A Russian monk who became the advisor and close friend of both Tsar Nicholas and Tsarina Alexandra*
Bolsheviks	*The communist party of Russia, who would overthrow and take control in 1917*

Part 5: The rise of dictators

After the First World War, people began to question and experiment with different types of government. This led to a development of dictatorship. In Russia, communism ruled from 1917. In 1925 Mussolini became the facist dictator in Italy. By 1934 Hitler would become the facist dictator of Germany.

Communist Russia: in 1917 Russia became the first communist government. They seized power through a violent revolution. They believed, in theory, that all wealth should be shared equally amongst the people of Russia. However, By 1919 the Russian royal family would be assassinated to ensure they couldn't take back control.

Fascist Germany: in January 1933 Hitler became the Chancellor of Germany, this meant he was in charge of the government. However, he believed that one man should be in charge, by 1934 Hitler would secure all power in GErmany and stop anyone that was a risk to his power.

Cable Street: On the 4th October 1936 Fascist Oswald Mosley attempted to parade the East End of London to demonstrate his extremist political beliefs. The people of East London stood protested against the British Union of Fascists and refused to let them parade Fascists and anti-fascists famously fought each other in Cable Street, East London. To this day a mural depicts the fight against fascism.

Hospitality & Catering - LO1.1

The hospitality and catering industry includes hotels, guest houses, bed and breakfasts (B&Bs), inns and pubs, restaurants, cafes and takeaways, contract catering (such as weddings), catering in leisure attractions (such as museums) and motorway service areas. It includes aeroplane meals and snacks on trains. It also includes food served in hospitals, prisons, schools and the armed services.

LO1 Understand the environment in which hospitality and catering providers operate

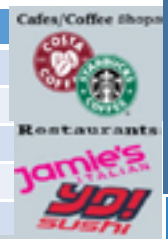
Commercial – make profit e.g. hotel

Non commercial – don't make profit e.g. prisons

Residential- can book in to stay over night

Non residential – cannot stay overnight

commercial	Non commercial
hotels	hospitals
B&B's	schools
pubs	army
Guest houses	Care homes
Holiday parks	prisons



Main sectors of the Hospitality Industry are:

- Accommodation e.g. Hotels & guest houses
- Food and drink e.g. Pubs & restaurants
- Meetings and events e.g. hotels and conference centres
- Entertainment and leisure e.g. spas , leisure centres , golf clubs, bowling alleys
- Travel and tourism e.g. Aeroplanes , cruise ships and hotels

- 1.7 million people employed
- £85 billion brought into the UK economy
- £7.5 billion on accommodation

Marriott Niagara

- 4 star Hotel
- 3 different themed restaurants
- Breakfast restaurant
- Room service
- Starbucks attached to ground floor!

Bristol hotel Gibraltar

- No food or restaurant on site
- Shared breakfast room across street with another hotel

Meals on wheels

Social meal service provided by volunteers, to people unable to prepare their own food.

Care home meals

food served may depend on the needs of the clients, some may have conditions which need special meals. Some residents may need help eating and drinking

Bed & breakfasts, Guesthouses, Farmhouses

Often showcase local themes or produce.
May be breakfast, Half board or full board, family run

Motels & Holiday parks

Lower standard than hotels, food is usually buffet style breakfast. Corporate or independen

CONTRACT CATERERS

These provide food and drink for a function where catering facilities are not already provided

They prepare the food for functions such as, weddings, banquets, garden parties, and parties in private houses. They may prepare and cook food in advance, and deliver it the venue, or they may cook it on site. They may also provide staff to serve the food if required.

Great for - **parties**

Weddings

Proms

Establishments that do not have facilities to provide food and drink

Armed services meals

Mass catering. Camps on active service, Canteens at bases.High energy, balanced nutritionally

Prisons

Food is prepared in by prison inmates to ensure that tight budgets for food are met

Restaurants

Variety of styles and food types, may be specialist eg Italian, or gourmet or fine dining
Styles of service vary with types of food and cost
See styles of service section for more...

Cafes

Can vary from independent "greasy" spoon, Tea rooms or coffee shops.
Serve snacks and full meals.

Type of Service	Description
Plate	Meals are pre plated in the kitchen. Good portion control methods. All plates are consistent in the food presentation. The method relies more on skilled kitchen staff than serving staff. Time consuming for the kitchen staff.
Family	The food is placed on the table, spoons are provided and customers serve themselves. It is a sociable method and it is easy and quick to serve. It requires larger tables. There is less portion control. It suits families.
Silver	Food is served by the staff using a spoon and folk. Full silver service is when all the food is served in this way. It provides a more personal customer experience, service can be slow. It is expensive and staff costs are high as more serving staff are required.
Gueridon	A person serves food from a side table of trolley. Sometime dishes are cooked or assembled in front of the customer. This requires skilled service and is very specialist. It is time consuming with high staff and menu costs.

Type of Service	Description
Cafeteria	Counters displaying food. Customers queue up. Simple basic experience for customers. High turnover and fast method. Low skill of serving staff. Customers may impulse buy from the displays.
Buffet	Food set up along a table, can be self service or served by staff. Less formal than plated or silver service. Fast and simple method, can be low cost depending of the food served. Poor portion control.
Fast food	Take-away service with the option to eat in. Customers collect food from a counter. Quick and simple method. Can have a high customer turnover. Often limited menu choice. Food served in disposable packaging.
Tray or trolley	A meal provided in a tray or a choice of food from a trolley. Food is served like this on airlines and in hospitals.
Vending	Food service from a machine. Food can be served 24 hours. Usually snacks are served in this way but it can also be hot meals.
Home delivery	Delivered to a house. Can be a take-away such as a Chinese or Indian meal. Care services such as meals on wheels also use this type of food service.

Fast food

Chains eg KFC, Dominos or independent businesses
Limited menu, low cost, eat in or take away
Disposable packaging

Take aways

Dedicated take away or restaurant attached or may be just take away, most food is cooked to order.

Public houses

Can serve "basket" meals sandwiches or full table service. Some chain pubs have a fixed menu eg Wetherspoons.

Bars

more cosmopolitan menu than pubs , often themed to the type of establishment. Table service or eat at the bar

Hospitality & Catering - LO1.2

What are the benefits of ratings?

- Reviews can make or break a business! A good review can increase business for establishments, as people will often try an establishment based on a recommendation.
- Reviews and ratings generate publicity, awards get you in the press!
- Customers might come from further away to dine or stay or both based on reviews.
- Customers can identify less favourable establishments that they will then avoid.

Michelin and rosette inspections are anonymous and are just 1 persons opinion. Trip Advisor and The Good Food Guide are lots of peoples opinions, so likely to be accurate.

PERSONAL ATTRIBUTES TO WORK IN THE HOSPITALITY AND CATERING INDUSTRY ARE VERY IMPORTANT BECAUSE IT IS CUSTOMER DRIVEN

- Friendly personality
- Pleasant and polite manner
- Clean and proper clothing, possibly a set uniform
- Spotlessly clean hands and nails
- A pleasant smell, i.e. no overpowering after-shave or perfume and no body odour
- Fresh breath, discreet make-up, long hair tied back, well-groomed appearance
- Steady hands to be able to carry and serve food
- Knowledge of the menu in order to answer any customer queries and advise on allergies, etc
- Enthusiasm for the job and a willingness to serve others
- Good health because of long hours on feet
- Polite, calm and tactful even when dealing with awkward customers
- Loyalty to place of work and the ability to 'sell' and 'promote' facilities to customers
- Ability to handle compliments and complaints

- **Personal Qualities:** Reliable, punctual, team worker etc.
- Can operate machinery e.g. coffee machines.

The organisation depends on the type and size of the establishment;a large restaurant may include all these roles:

- Head Chef or Executive Chef
- One or two sous chefs
- Chefs de parties or sectional chefs looking after each section (e.g. pastry)
- A demi chef de partie, reporting to and working the opposite shift to the chef de partie
- One or two commis chefs per section per shift
- An apprentice per section per shift.

Restaurant manager

- The restaurant manager is in overall charge of the restaurant.
- Takes bookings, relays information to the head chef, completes staff rotas, ensures the smooth running of the restaurant

Maître d'Hôte

Staff structure in a hotel

Employers want to employ most workers when they have busy times

Busy times of year:
- Christmas
- Tourist season
- School holidays
- Mothers day
- valentines

Days of the week
- Friday
- Saturday
- Sunday
- Pay day

Time of day
- Lunchtime
- Afternoon
- Dinner time
- (breakfast)

The kitchen brigade

PLONGEUR or ESCUELERIE

Kitchen Porter / Dishwasher.

ENTREMÉTIER/VEGETABLE CHEF

Entrée preparer/manager. Note that an entrée, under Escoffier, is a starter and not a main dish. Thus, the entremétier traditionally handles vegetable, egg, or soup dishes—generally things that do not involve meat. He or she may supervise the potager and legumier or take on these roles.

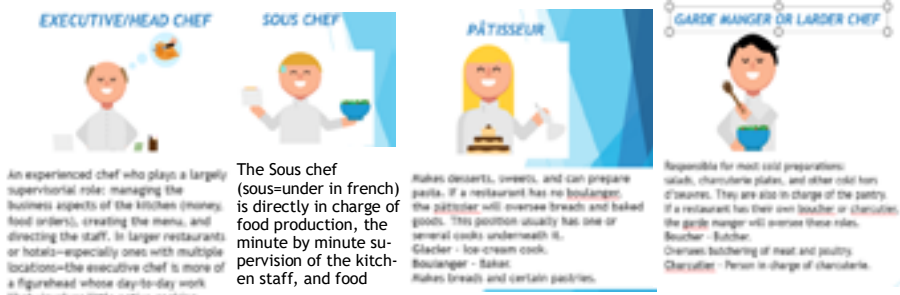
Full time

No specific number of hours that makes someone either full or part time, but a full time worker usually works more than 35 hours. The law says that workers don't usually have to work more than 48 hours a week on average, unless they choose to. This law is sometimes called the 'working time directive' or 'working time regulations'.

Part time

Part-time work is when a worker is contracted for anything less than the basic full-time hours. There are no set number of hours that makes someone full or part-time, however average part-time contracts are often 16-20 hours.

Hospitality Brigade



An experienced chef who plays a largely supervisorial role: managing the business aspects of the kitchen (money, food orders), creating the menu, and directing the staff. In larger restaurants or hotels—especially ones with multiple locations—the executive chef is more of a figurehead whose day-to-day work likely involves little active cooking.

The Sous chef (sous=under in french) is directly in charge of food production, the minute by minute supervision of the kitchen staff, and food

Makes desserts, sweets, and can prepare pasta. If a restaurant has no boulanger, the pâtissier will oversee breads and baked goods. This position usually has one or several cooks underneath it.
Glacier - Ice-cream cook.
Boulanger - Baker.
Makes breads and certain pastries.

Responsible for most cold preparations: salads, charcuterie plates, and other cold hors d'oeuvres. They are also in charge of the pantry. If a restaurant has their own boucher or charcutier, the garde manger will oversee these roles.
Boucher - Butcher.
Oversees butchering of meat and poultry.
Charcutier - Person in charge of charcuterie.

Senior cooks, line cooks.
Each is the head of a particular station, which prepares specific dishes or types of cuisine. This includes:

Considered the most respected of the chefs de partie, the saucier often reports directly to one of the sous chefs. Their central role is preparation of sauces and possibly sautéed dishes.

Responsible for the roasting and braising of meats. In the traditional Escoffier brigade, the rôtisseur would also be in charge of the grillardin and friturier. Today, he or she may simply take on these roles.
Grillardin - Grill cook.
In charge of the grill, specifically grilled meats.
Friturier - Fry cook.
Takes care of all frying, specifically deep frying.

Prepares and oversees all fish and seafood dishes. This position usually involves butchering the fish as well. Restaurants with an emphasis on shellfish may also employ an écailler.
An écailler prepares fruits de mer or shellfish (i.e., shucking oysters).

Work at specific stations under one of the chefs de partie. They are responsible for the tools at their station. Also described as a kind of apprentice who is usually a recent graduate of culinary school.

Agency Staff:
As an employer, you can hire temporary staff through agencies.
This means:
- you pay the agency, including the employee's National Insurance contributions (NICs) and Statutory Sick Pay (SSP)
- it's the agency's responsibility to make sure workers get their rights under working time regulations
- after 12 weeks' continuous employment in the same role, agency workers get the same terms and conditions as permanent employees, including pay, working time, rest periods, night work, breaks and annual leave
- you must provide the agency with information about the relevant terms and conditions in your business so that they can ensure the worker gets equal treatment after 12 weeks in the same job
- you must allow agency workers to use any shared facilities (e.g. a staff canteen or childcare) and give them information about job vacancies from the first day they work there
- you are still responsible for their health and safety

Casual/Seasonal

Casual workers are hired on an irregular basis for a short period of time (no more than 12 weeks). There is no continuing commitment from the employer to offer work, and no obligation on the part of the casual worker to do the work offered.

Staff can earn extra money if they are given tips because the service and food they have delivered has been good. It is sometimes considered rude not too tip. More expensive restaurants automatically add 10-12.5% extra to a bill to cover tips

Factors affecting success

Food costs are large **percentage** of costs for most **hospitality businesses.** When planning menus chefs must **calculate** how much dishes will **cost per portion** to be able to **justify** keeping it on the menu. **Expensive** dishes that are not ordered often may lead to **wasted ingredients** that are unused, which result in **less profit.** Chef's must design dishes that generate a profit to stay operational.

Benefits of portion control

- Keeps the food costs down
- Keep losses in food preparation and serving to a minimum
- Offer a consistent portion to customers
- Minimise waste eg leftovers
- To make a profit which is constant

Legislation that protects workers

- Disabled Discrimination Act 1995
- Equal Pay Regulations 1970
- Health and Safety At Work 1974
- National minimum wage
- Working Times Regulations 1998
- Part-time workers Regulations 2000

Cost per portion x 100

40

Independent shops may supply some establishments

Catering equipment

Specialist large scale catering and kitchen equipment from specialist companies

Specialist markets

Advantages	Disadvantages
• Large choice of commodities • Several suppliers at the market means costs are kept down by competition • Supplies are always at their freshest • New supplies in every day	• May not be easy to get to eg London • Work through the night and close early in the morning • Costs of transport back may be expensive • Purchaser has to judge quality for themselves before they buy

Type of staff	Benefits for employer	Benefits for employees	Disadvantages for employer	Disadvantages for the employees
Full-time 36 hours plus 28 days holiday	Reliable Permanent staff Staff have a good knowledge of services provided	Regular income Job security Permanent contract with holiday benefits. Regular hours of work Will receive sick pay	Bound by contract terms Has to pay sick pay, maternity leave and holidays. Expensive to employ Require lunch breaks unlike part time staff	Usually have to work shifts Less flexibility
Part-time 4-16 hours 28 days holiday	Can be employed at busier times of the day such as lunch or dinner service	Can be more cost effective with less wages needed	Will need to pay for training of more staff rather then small amount of full time staff	Need to work basic requirement of hours before they are entitled to holidays and sick pay
Casual	Can be employed for functions or busy times of the year	Can choose when they want to work	Can be unreliable Have to pay agency fees Don't know the routines Casual staff haven't been trained Unfamiliar with services provided	Called at short notice to work Not a regular income No sick pay Often don't know where they will be working until the week before

Specialist markets

Local suppliers

Advantages	Disadvantages
• Local deliveries, less environmental impact • May use local farms and companies for commodities • Smaller firms, personal business relationship • May be able to change order at short notice	• May not have a wide selection • Smaller companies buy in smaller quantities so costs more • May not be able to supply large orders

Large Wholesalers

Advantages	Disadvantages
• Very large range of commodities and sundries • Can have in house butchery department • Pre made and pre portioned food • Large bulk packaging of ingredients	• May be expensive for pre made foods • Have to order well in advance • Set delivery days • Have to order large quantities to get a discount

It's important to remember that local sourcing can encompass much more than just using locally supplied and seasonal food. **Local sourcing can also include toiletries for guest rooms and flowers for reception**

Hospitality & Catering - LO2.1

Kitchen workflow

Workflow in the kitchen should follow a logical process by using different areas so that the clean stages in food production never come into contact with the "dirty" stages

1. Delivery
2. Storage
3. Food preparation
4. Cooking
5. Holding
6. Food service area
7. Wash up
8. Waste disposal

Workflow

Organising the kitchen into separate areas for separate jobs is the heart of hygienic kitchen design. The e layout will depend upon the size of the kitchen as well as on the type of meals it prepares.

LO2 Understand how hospitality and catering provisions operate

Delivery
Goods vehicles should have adequate access to premises, providing direct deliveries to catering areas. This limits the length of time chilled foods may be in the danger zone. Have adequate space to check orders before they enter the catering area. Check temperature of van and visually examine goods.

Storage
Storage should be near to the delivery area to limit delivery staff entering the catering area. This also reduces the need to move heavy items of stock that may cause injury to staff. Make sure adequate room is available for stock.

Food Prep
Separate hand wash, pot wash and food wash areas/sinks need to be provided as well as separate areas for potential allergen containing food prep. Where premises are small, systems should be in place to ensure utensils are kept separate.

Cooking
Cooking equipment should be selected based on the menu being produced and the ability of the staff using it. State-of-the-art equipment such as water baths, programmable Rational ovens and computerised deep-fat fryers would be desirable, however, if they are not necessary they are a waste of money. Most importantly, the equipment layout should be safe and manageable to work around to prevent accidents.

First In, First Out (FIFO) is a system for storing and rotating food. In FIFO, the food that has been in storage longest ("first in") should be the next food used ("first out"). This method helps restaurants and homes keep their food storage organized and use food before it goes bad. First In, First Out is an effective system that should be standard operating procedure for every food service establishment.

Cooking
A 900mm corridor should be allowed for around the front of cooking equipment, ideally 1200mm. You may be limited by the energy supply available, gas may not be permissible in the building or the incoming electrical supply may be limited. Large scale equipment, whilst can be energy efficient and have energy saving features such as thermostats and auto switch-off, often requires a large electrical supply to run in the first place.

Holding
The food holding area should be near the food service area in order to keep the food at the right temperature (above 63°c). Some kitchens may require separate refrigerator areas to keep desserts chilled and away from raw foods.

Food Service Area
In an à la carte restaurant adequate space needs to be considered to allow plating up.

Food Service Area
In a buffet or canteen system, multiple food collection points can limit queuing. Large service areas may need stock replenished frequently, such as all you can eat buffets, therefore the food service area should be located near the kitchen area.

Wash Up Area
An integral part of the kitchen. If the dish washing area does not function, neither does the kitchen. Ample space should be given to both the size of dish washing area needed for the number of dishes, pots, pans etc. are used in one night as well as adequate space to store and sort washing up. As hot water produces steam, adequate ventilation is required.

Waste Disposal
Dirty plates and waste food needs to be kept separate from food prep and storage areas to prevent cross contamination. Ideally a separate refuse bay should be made available well away from the kitchen entrance (so customers do not see this side of the business)! Adequate changing rooms/facilities should also be provided for staff to change at the start and end of shifts and also easily accessible staff toilets nearby.

Hygienic kitchen design

Work surfaces
Must be strong, hard wearing and easily cleaned. Stainless steel with wheels that can be moved out of the way while cleaning

Floor
Hard wearing, easy to clean , non absorbent and non slip
Coving with the walls prevents dirt and food particles from accumulating

Walls
Smooth, can be tiled or lined with stainless steel as splashback light colour to show dirt easily

Hygienic kitchen design

Ventilation
Effective ventilation system to remove the heat, steam and condensation from the kitchen. Bacterial growth in moist conditions

Sinks
For washing food and utensils. Hot and cold water, stainless sinks are the best

Waste disposal
Waste disposal unit or separate waste bin with a lid that can be foot opened

Kitchen Layout

Importance of documentation

Why must they be completed?

1. Maintaining organisational procedures
2. Safety of staff and customers
3. Legal requirements
4. Complying with food safety legislation
5. Complying with accounting and taxation practices
6. Ensuring accurate payment of bills
7. Ensuring profitability of kitchen

Chef's uniform

- Chef's jacket
- Chef's pants
- Hat
- Neckerchief
- Apron
- Hand towel
- Slip-resistant shoes

Some establishments have staff wear the same uniform; this makes them easily identifiable for staff and customers. The uniform may change depending on which area of the establishment they work in.

Protective clothing as part of a uniform must be paid for by the employer.

Documentation and Administration

Types of Kitchen Documents

- Temperature charts – fridge, freezer, display, point of sale. Taken at least twice per day.
- Time sheets – logging staff working hours
- Accident report forms – used to report any accidents and near misses
- Food safety information – blast chill records, food related incidents and cleaning rotas
- Equipment fault reports – What was the issue and how was it dealt with.
- Stock usage reports– order books, stock control sheets, requisition books, invoice, delivery notes

Documentation and Administration

Complete kitchen documents:

- They must be legible (readable)
- At correct interval (daily, hourly)
- Completed accurately
- They must be signed and date.

Where do you get kitchen documentation from?:

- Purchased from stationers
- Designed in-house
- Central purchasing

Advantages
Effective work flow systems, both in the kitchen and front of house staffing, will lead to:

- Good communication between sections/ departments
- More efficient working (time/labour saving)
- Improved quality of the finished product
- Reduce the risk of accidents
- Maintain high standards of hygiene and food safety

All of the above will lead to better customer service and therefore satisfied customers.

In Summary:
When planning a kitchen you must consider:

- The type of customers you wish to attract
- The type of menu (à la carte, table d'hôte, seasonal, ethnic, children's, rotating ...)
- The type of service (self service, plated, buffet, fast food, canteen ...)
- The kitchen brigade structure and number of staff required to make your menu
- Compliance with legislation

Stock control

Staple foods and supplies that are canned, bottled, dried or frozen
These have a longer shelf life and so do not need to be purchased as frequently. Larger amounts can be bought to get cheaper prices and can be stored .

- Condiments,
- Canned vegetables
- Frozen foods including meat, fish and deserts
- Sauces
- Flour, sugar, fat,oil
- FIRST IN FIRST OUT stock rotation

Perishable food and products that do not stay fresh for very long

- Fresh fruit, vegetables
- Dairy products
- Meat and fish
- Only buy enough to last a few days because they will not last
- FIRST IN FIRST OUT- stock rotation

Hospitality & Catering - LO2.2

Food Service Equipment

Food service equipment is equipment used to **serve food** in the catering industry

Service equipment can be anything which is **used by customers** or to **serve food to the customers.**

Hand Held Equipment

Hand equipment is non-powered equipment which is used to serve or consume food and drink.

Tableware:
Equipment usually used to 'set' a table
Includes crockery, glasses, cutlery etc

Serving equipment:
Equipment for serving food. This includes utensils for placing food onto tableware such as tongs and ladles.
It also includes items such as wine coolers, champagne buckets and bottle openers.

Care, Use and Maintenance of Hand Equipment

1. Equipment used by customers must be **cleaned at least once a day.**
2. Equipment must be cleaned according to the manufacturer's instructions.
3. Powered equipment **must be serviced** regularly.
4. Powered equipment should be switched off when not in use.
5. Equipment which requires training to use must not be available to customers.

Large Powered Equipment

Identify the name and use of each item.

Rotisserie: for cooking large joints and whole animals, such as chickens.

Deep-fat fryers: for deep-fat frying food in very hot oil.

Floor-standing mixers: for kneading, mixing or whisking large quantities of dough, cake or cream.

Other examples: Grills, Hotplates, Ovens, Potato chippers

Specialist Hand Equipment

Hand Equipment: Knives

Care, Safe Use and Cleaning

- If equipment has a blade always take care when using and cleaning: **keep fingers away from sharp edges.**
- **Clean items as soon after use as possible.** If food dries on they will be harder to clean effectively.
- **Choose correct cleaning utensils** which can reach all parts of the equipment – such as a brush for between the wires in a whisk.
- Store small utensils in a drawer or on hooks so they are not lost easily.
- **All equipment should be cleaned in hot water using detergent.**

Powered Equipment

Kettle
A jug for boiling water

Mincing machine
For mincing meat

Microwave
For defrosting, reheating and cooking

Food processor
For chopping, mixing and blending food

Blender
A jug with a rotating blade for blending foods to smooth texture

Powered Equipment: Care, Safe Use and Cleaning

Should be **serviced regularly** by an electrician. Usually at least once a year.

Should be cleaned according to a regular routine and a record kept of maintenance.

Staff must be trained in safe operation of larger equipment.

Manufacturers instructions for cleaning and use must be read, followed, and kept safely.

Equipment should be **switched off at the wall while not in use.**

Equipment must not be situated where it could create **a fire hazard.**

Safety notices should be placed on all large pieces of equipment.

Customer rights

- The right to be protected (against hazardous goods)
- The right to be informed (about quality, quantity, allergens etc)
- The right to have their complaints be heard
- The right to seek redressal (compensation.)
- The right to receive satisfactory goods that match their product description

How can you reduce the risks?

- **Reduce cash handling** by staff, have specific staff take responsibility for money.
- Train staff to **identify suspicious packages** and **individuals.**
- Use **security passes**, ask visitors to sign in.
- **Restrict** workmen or outside agencies to certain areas.
- **Security mark** all equipment.
- Use strict **stock control** procedures, have a **checking system** in place.
- Keep all areas **well-lit.**
- Use **CCTV** cameras.
- Check **guest identification** on check in with photo I.D.

Staff allocation

The restaurant manager coordinates all activities at the restaurant.

The restaurant manager must define the tasks that staff must perform Consider

- The size of the restaurant,
- Flow of customers, type of clientele and
- Menu offerings
- Different skills and personnel requirements related to changes of volume and customer preferences.

Customer trends

Customers are influenced by

- TV
- Magazines
- Health
- Travel abroad
- Technology
- Ratings and reviews

Safety and security

Health and safety, hygiene

- Fire certificate
- Staff training records
- Accident book
- Food hygiene checks
- Cleaning checks
- First aid records

Monitor stock levels for re-ordering
Decide frequency of stock check
First in First out for items with a shelf life
Stock level checks could be for

- Wines
- Spirits
- Coffee
- Order pads
- Garnishes
- Cutlery
- Crockery
- Drinks in bar area
- Nuts, breadsticks
- Other consumables

Food service

Food can be served in many ways. The type of service depends on the following factors:

- The type of establishment or where it is
- The type of food or menu being served
- The cost of the meal or food
- The time available for the meal
- The type of customer
- The number of customers expected
- The availability of skilled serving staff

Documentation

A senior staff member such as the head chef or kitchen manager is responsible for carrying out administrative tasks that ensure the efficient working of all equipment and machinery.

Other documentation such as HACCP checks and accident records are kept up to date to comply with legislation.

Temperature control charts
Reading temperature of refrigerators, freezers and store cupboards

Hygiene information
Hazard Analysis Critical Control Points (HACCP)

Time sheets
Staff shifts, rotas

Accident forms
It is the law to report all accidents that occur on the premises

Equipment faults
Any equipment not working properly must be recorded and reported to the appropriate person. Where equipment is under warranty it must be reported to the manufacturer for repair.

Bookings and reservations

- Electronic booking system
- Electronic reservations system
- Diary with bookings and reservations
- Feedback forms

The EPOS system is a computerised piece of technology that **records data.** In the hospitality industry it is used when customers **purchase** services or food. It can be set up to **record bookings**, therefore preventing double bookings as well as updating **food stock levels** as menu items are purchased.

It can be used for –

- Recording sales
- Updating stock levels
- Providing accurate pricing information
- Enable fast and efficient customer service
- Keeping track of sales and taxes

Hospitality & Catering - LO2.3

Types of customer

Leisure	Local residents	Business / corporate
Customers who visit the establishments in their leisure time e.g. a meal with friends, a family day out, tourists,	Customers who live in the local area who visit the establishment often eg regular Sunday lunch, or get togethers	e.g. business lunches. Use business facilities in establishment for meetings or presentations . Courses and conferences

Leisure customers requirements

Value for money
Good facilities
Families want child menus, play area, child friendly
Tourists want local food, easy to communicate
Older people may want more formal service
Good customer service
Varied choice of menu
Dietary needs eg allergies, intolerances, vegetarian catered for without having to ask for special foods
Facilities for physically impaired customers

Local customers requirements

Value for money
good standard of customer service so they return
Catering for local needs (culture, religion)
Consistent dishes served
Loyalty schemes
Recognised by staff- feel welcome
Menu specials
Theme nights
OAP discount day
Child friendly
Entertainment
Mailing list or email for special offers

Business customers requirements

Dedicated corporate (business) contact at establishment
Discounted rates
Meeting rooms
Water, juice on tables
Presentation equipment, projector, tv,
Office facilities- printer, phone, fax, internet, stationery
Tea and coffee for breaks
Lunch or other meals- buffet or restaurant
Accommodation if attendees are from a long distance
Quick service for lunch meetings

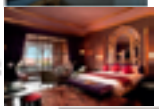
What is good customer service?

Types of Bedroom Accommodation

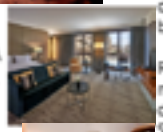
Youth hostel (YHA)
Accommodation is usually in comfortable bunk bedded rooms, sharing with people of the same sex.

Showers and toilets are shared. Bed linen, pillows, duvet and blankets are provided free of charge for you to make up your bed.

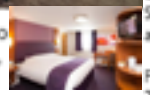
A full meal service is usually provided. Some locations also have self-catering kitchens. Most locations will have a sitting area, drying room and cycle store.

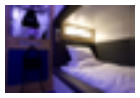


Hotel deluxe suite (Hilton)
Stylish suite with separate living room and large bathroom with free soap, shampoos and creams. A toweling bath robe and slippers are also provided.



Desk with high-speed Internet connection.
Also provided: Safe, iron, ironing board, clock, radio and radio alarm, hair-dryer, sofa bed, trouser press, TV with teletext, satellite channels and on-demand films, tea- and coffee-making facilities, bottled water and biscuits.





Cabin room at airports (Yotel)
Book from just a few hours, day or night, to 24 hours or more. Large single bed 2m x 1m (large enough for one or two people at a push) with full sitting height.
Bathroom with shower, revitalising all-in-one body wash, heated mirror and soft towels.
Fold-out work desk and stool (doubles for unpacking), overhead hand-luggage stowage, suit-bag hanging and storage areas for small pieces.
Complete range of power and connectivity including free Internet access and local lighting.
20-inch flat-screen TV with choice of films, radio, games and Internet. 'Cabin'-service menu on screen, and 24-hour 'galley' café service.

Boutique hotel
Designed with a sophisticated and modern slant on the Moroccan theme. Funky leather bed and "bellydancing" ornate bottles. Luxury room featuring a chameleon-floor seating area in the bay window.

New luxury Italian tiled en-suite shower and toilet, CD player (with shower-room speakers), flat screen TV with Free view, fridge, hair-dryer and hot beverage facility.

Motel (Premier/Travel Inn)
Comfortable king-sized beds. Good quality duvets and pillows. En-suite bathrooms with shower gel.

Remote control TVs. Tea- and coffee-making facilities. Hairdryers. Heater control.
Spacious desk area with Internet access.

Family rooms, with cots on request. 24-hour reception. Restaurant and licensed bar nearby. Hot breakfast available.

If you provide any sort of accommodation, serviced or self-catering, the Equality Act 2010 applies to you.

- The Act protects anyone who is disabled, is thought to be disabled or is associated with someone who is disabled.
- The Act gives these people rights of access to goods, facilities and services (including tourist accommodation) and ensures that they are treated no less favourably than other customers.
- You are also required to make reasonable adjustments to the way you deliver your services and to the physical features of your premises to make it easier for disabled guests to use them.

Why is customer service so important in the hospitality industry?

Customer service is what an establishment does in order to meet the **expectations** of their customers and generate customer satisfaction.

- **So customers return** - People will not return to a place where they were not satisfied with the service. Repeat business means a successful business.
- **Exceeding expectations**-This makes repeat business more likely
- **Growth of the business**- If customers receive a high standard of service and return, they will spend more money and also tell other people about the business

Instruction	Guidelines	Sign
Stop	Prohibition Sign • Round shape. • Black pictogram. • White background. • Red edging.	
Danger	Warning Sign • Triangular shape. • Black pictogram. • Yellow background. • Black edging.	

Obey	Mandatory Sign • Round shape. • White pictogram. • Blue background.	
Safety	Emergency Escape or First Aid Sign	
Fire	Fire Fighting Sign. • Rectangular or square. • White picture. • Red background.	

Risk and Security

Workers can be at risk from security hazards in the same way they are from safety hazards.
Security risks include

- Disagreements between customers
- Customers being intoxicated (alcohol)
- Customers who have used drugs
- Verbal abuse
- Physical assaults

Risk factors

- Handling large amounts of money in open areas
- Face to face contact with customers
- Opening late in the evening or early in the morning
- Dealing with customer complaints or disputes
- Selling high value items such as alcohol
- Establishment in an isolated area eg country pub
- Poor lighting
- Establishment in a high crime area

Staff (and customers) may feel threatened by physical assaults, threats and intimidation and verbal abuse
People at risk includes

- Young workers who have less experience
- Night shift workers where there are less people
- Lone workers e.g. people working early or late
- Customers in the establishment

Prevention

- Brightly lit areas
- CCTV
- Easy escape routes
- Area for handling larger sums of money
- Appoint more senior staff to deal with problems and complaints
- Train staff to diffuse angry customers
- Contact local police if necessary
- Make sure lone workers are aware of risks
- Keeping doors and windows secure and locked

Hospitality & Catering - LO3.1

LO3 Understand how hospitality and catering provision meets health and safety requirements

The Health and Safety at Work Act (HASAWA) 1974, regulates health and safety issues.

The act aims to:

- secure the health, safety and welfare of persons at work
- protect other people from health and safety risks caused by work activities
- control the use and storage of explosive and dangerous substances.

Under the Health and Safety at Work Act, employers have responsibilities to:

1. ensure the health, safety and welfare of employees
2. provide and maintain safe equipment and systems of work
3. make arrangements for safe use, handling, storage and transport of articles and substances
4. provide information, instruction, training and supervision
5. provide a safe place of work, safe entrance, exit, and work environment
6. provide adequate toilet, washing and changing facilities.

Under the Health and Safety at Work Act, employees have responsibilities to:

1. follow safety instructions and training received
2. co-operate with their employer
3. not to misuse or tamper with anything provided in the interests of health and safety
4. take reasonable care of their own and other people's health and safety
5. tell someone if you think the work or inadequate precautions are putting anyone's health and safety at serious risk.

PPER - Personal Protective Equipment

Employers have duties concerning the provision and use of personal protective equipment (PPE) at work.

PPE is equipment that will protect the user against health or safety risks at work. It can include items such as safety helmets, gloves, eye protection, high-visibility clothing, safety footwear and safety harnesses. It also includes respiratory protective equipment (RPE).

These prevent injuries to:

- the lungs, eg from breathing in contaminated air
- the head and feet, eg from falling materials
- the eyes, eg from flying particles or splashes of corrosive liquids
- the skin, eg from contact with corrosive materials
- the body, eg from extremes of heat or cold
- PPE is needed in these cases to reduce the risk.

RIDDOR - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.

What to report?

- Deaths and injuries
- Occupational Diseases
- Carcinogens, mutagens and biological agents
- Specified Injuries to Workers
- Dangerous Occurrences
- Gas Incidents

Who should report it?

If you are an employer
If you are an employer, you must report any work-related deaths, and certain work-related injuries, cases of disease, and near misses involving your employees wherever they are working.

If you are in control of premises
If you are in control of premises, you must report any work-related deaths, certain injuries to members of the public and self-employed people on your premises, and dangerous occurrences (some near miss incidents) that occur on your premises.

Agency Workers/Casual Staff
Agencies should ensure that responsibility for reporting under RIDDOR is clearly assigned to the appropriate person based on the particular facts of the employment relationship. Agencies should ensure that reporting responsibilities are clearly understood by host businesses and the workers.

Accidents are reported to the **HSE** Health and Safety Executive

Record other accidents resulting in injuries where a worker is absent from work or is incapacitated for more than 3 days.

H.S.E Health and Safety Executive.

- H.S.E stands for the **Health and Safety Executive.**
- The H.S.E will investigate any complaints and safety incidents.
- The H.S.E employ Health and Safety Enforcement Officers who will inspect safety procedures being used.
- They have the power to serve notice and/or issue legal proceedings over safety incidents.
- It is compulsory to contact the H.S.E if an operative has an absence of more than three days following an accident at work.

First Aid

- Employers have to provide first aid facilities at work
- As a minimum, there should be a fully stocked green first aid box and a person appointed to take charge in an emergency
- Some workplaces have qualified first aiders and first aid rooms
- Green and white notices should inform you where the first aid box is kept and who the first aider(s) or appointed person(s) is/are

Fire safety

- Employers must have arrangements in place
  - to prevent fires
  - To raise the alarm
  - To fight fires (fire extinguishers)
  - Emergency evacuation (including a pre-arranged meeting place for staff to assemble following evacuation)
- Notices showing the safe evacuation routes from buildings should be green and white

COSHH - Control of Substances Hazardous to Health Regulations 2002

COSHH covers substances that are hazardous to health.
Substances can take many forms and include:

- chemicals
- products containing chemicals
- fumes
- dusts
- vapours
- mists
- nanotechnology
- gases and asphyxiating gases and biological agents (germs). If the packaging has any of the hazard symbols then it is classed as a hazardous substance.
- germs that cause diseases such as leptospirosis or legionnaires disease and germs used in laboratories.

Employers must display health and safety posters in work areas where necessary, especially related to COSHH.

Every substance that is a hazard has a COSHH safety sheet

Employees responsibilities under COSHH

1. Use control measures and facilities provided by the employer
2. Ensure equipment is returned and stored properly
3. Report defects in control measures
4. Wear and store personal protective equipment (PPE)
5. Removing PPE that could cause contamination before eating or drinking
6. Proper use of washing, showering facilities when required
7. Maintaining a high level of personal hygiene
8. Complying with any information, instruction or training that is provided

PPE in catering situations

- You **must** wear the p.p.e. if it has been provided for you. You could be held personally liable if you had an accident which could have been prevented by you wearing your p.p.e.
- You must care for it, store it and clean it as necessary;
- You must report any defects.

What Is Manual Handling?

- Any transporting or supporting of a load by hand or bodily force
- Lifting, putting down, pushing, pulling, carrying or moving

The top 4 injury types in Hospitality and catering

- Cuts
- Burns
- Sprains & strains
- Slips, trips and falls

How Can Cuts Be Prevented?

- To prevent knife cuts:

Cut properly, using the bridge and claw grips


incorrect


correct

- Carry knives with point down and backwards
- Wear gloves that protect your hands from cuts.

- To prevent machine cuts:
  - Be sure moving parts are covered by guards.
  - Turn off power and unplug to clean.
  - Keep your hands, face and hair away from moving parts.


Meat Slicer

Teens under the age of 16 are prohibited from operating food slicers.

- Not wearing clothing or jewelry that could get caught in machines.

- Not using equipment that you have not been trained to use.

How Can Strains Be Prevented?

- Ask for help with heavy loads.
- Ask for training in safe lifting methods.
- Push loads rather than pull them.

- Don't lift and then twist.
- Don't lean out drive-through windows.

How Can Slips, Trips & Falls be Prevented?

To prevent trips, slips and falls:

- Make sure your path is clear, clean and dry before carrying a load.

- Move boxes and carts out of the way.
- Watch for mop and broom handles

- Use non-slip floor pads.


Slip-resistant shoes

Customer safety

- Warning signs when cleaning is taking place
- Do not allow customers in areas where maintenance work is happening
- Signs "mind your head" "watch the step" "hot water"

- Use ladders correctly

- Don't lean out
- Move it closer
- Have a helper

Causes of fires

- **Equipment** that is not serviced regularly can cause over heating and cause fires.
- **Human Error** many fires that happen in catering. Such as fat fryers.
- **Electrical** smouldering wires can develop unseer overnight and be the cause of major incidents,
- **Arson** rare occurrence. grudge between employee and employer, or insurance fraud.
- **Chemical** not very common now due to the COSHH regulations.

Action on Discovering a Fire.

- Raise the alarm. *Break the glass of the nearest alarm point.*
- Call the fire services.

- If safe to do so tackle the fire, if in doubt get out.
- Leave the building via the nearest exit calmly. DO NOT run or use lifts.
- Evacuate the premises and report to your designated assembly point.

How Can Burns Be Prevented?

- To prevent other oil and grease burns:
  - Watch out for spatters and spills.
  - Use protective apron and mitt.
  - Clean up spills as soon as they happen.


Protective Mitt

- To prevent burns from open flames:
  - Keep hair and clothes away from flames.
  - Keep flammable materials away from flames.

To prevent steam burns:

- Watch out for steam cloud when you open dishwasher, steam table or other places where steam occurs.
- Wear protective gloves whenever you open something filled with steam.

Hospitality & Catering - LO4

BACTERIA

Bacteria are microscopic organisms which are commonly referred to as **'GERMS'**. They found everywhere including on and in people, on food, in water, soil and air. Some are **good** for us, and some are **bad!**

LO4 Know how food can cause ill health

MICROBES (or BACTERIA) are found in:

- Soil and Water
- Plant and Plant Products
- Air and Dust
- Animal Fur
- Gut of animals and humans
- Food handlers
- Food prep and serving utensils

Metals like lead and mercury stay in our body for a long time and make us ill. Foods may taste or smell funny.

Mercury is a naturally occurring element found in air, water and soil. A highly toxic form (methylmercury) builds up in **fish, shellfish** and animals that eat fish. Fish and **shellfish** are the main sources of methylmercury exposure to humans. Fish that typically have higher levels of mercury include **king mackerel, marlin, shark, swordfish, tilefish**, and tuna.

Many of these types of fish are used in sushi.

SIGNS AND SYMPTOMS

- Impairment of peripheral vision
- Disturbances in sensations 'pins and needles'
- Lack of coordination
- Impairment of speech, hearing, walking
- Muscle weakness

AT RISK GROUPS

COMMON CAUSES OF FOOD SPOILAGE

- Inadequate temperature storage
- Prolonged storage times
- Inadequate ventilation
- Cross contamination
- Delays between delivery and storage
- Delays between preparation and cooking

WHAT FOOD SPOILAGE LOOKS LIKE

MOULDS

- Tiny fungi which grow from spores found in the air
- Settle on food products and multiply
- When visible, food is described as 'mouldy'
- Causes food spoilage

PARASITES

Parasites are organisms that derive nourishment and protection from other living organisms known as hosts. The most common foodborne parasites are protozoa, roundworms, and tapeworms.

Causes food poisoning when humans ingest undercooked meat products in which the parasite has often survived.

CHEMICALS

- Remnants of cleaning chemicals
- Pesticides
- Insecticides
- Paint (wall surfaces)

PHYSICAL

Physical Contaminants Include:

- Hair
- Finger nails
- Broken utensils
- Pests

POISONOUS PLANTS

Some plants naturally produce poisonous chemicals. If these are eaten they may cause death. Other foods may contain chemicals that give rise to allergies in some people.

Other poisonous plants: some fungi, rhubarb leaves, parts of potatoes which are exposed to the sun while growing.

PESTICIDES AND HERBICIDES

Some of the chemicals used in farming may remain on or in the food we eat. These may cause us harm.

Farmers spray pesticides on crops to kill the insects that may reduce crop yield. They also spray herbicides to kill weeds that may compete with the crops. Some of these chemicals may remain on the surface of, for example, fruit. Others may be absorbed by the plant and therefore be present in the crop.

The European Union has strict laws that determine how much of these chemical residues are permitted in foods.

If you suspect someone of going into anaphylaxis you must:

- Call an ambulance
- Check for the casualty's Epi-Pen and help them use it. You may have to do this for them, all pens have instructions on the side.
- Lie the casualty down with their legs elevated to treat for shock
- Stay with the casualty and reassure them while you wait for the ambulance

Intolerance	Allergy	Poisoning
Hours to days to see effect	Can occur within minutes of exposure to food	From 30 min for toxins 12-48 hours bacterial
Digestive system cant process the food	Immune response to allergen	Bacteria poison or disrupt digestive system
Possible to eat a small amount without effect	Body reacts to tiny amounts of food	Toxins- few bacteria Large amounts colonise gut
Stop eating the food and it goes away	May need adrenaline or anti histamines	Runs its course of illness then ends
Easier to detect the food	Allergens may be small amount in ingredients	No smell, no taste, no sign
Symptoms if you eat a lot or frequently	Symptoms every time even tiny amounts	Symptoms if the food is contaminated
Moderate to serious illness	Can be fatal	Serious illness to fatal

Food intolerance

Mouth ,may be sore, bad breath

Skin rash, redness, itching swelling eczema

Gut abdominal pain, bloating, heartburn, cramping, vomiting, diarrhoea or constipation

Lungs chronic cough, wheezing

Head headache, brain fogginess, migraines

Perception irritable, moody, panic, depression

ALLERGENS

Some people may develop an allergy to peanuts or to the gluten in wheat. If they eat foods containing these, they may become very ill, and possibly die.

The 8 most common food allergies include:

- Cow's milk
- Eggs
- Tree Nuts
- Peanuts
- Shellfish
- Wheat
- Soy
- Fish

Symptoms can occur anywhere from a few minutes after exposure to a few hours later, and they may include some of the following:

- Swelling of the tongue, mouth or face
- Difficulty breathing
- Low blood pressure
- Vomiting
- Diarrhea
- Hives
- Itchy rash

COW'S MILK

Milk, Milk powder, Cheese, Butter, Margarine, Yogurt, Cream, Ice cream

TREE NUTS

Brazil nuts
Almonds
Cashews
Macadamia nuts
Pistachios
Pine nuts
Walnuts

SHELLFISH

Shrimp, Prawns, Crayfish, Lobster, Squid, Scallops

In more severe cases, a food allergy can cause anaphylaxis. Symptoms, which can come on very quickly, include an itchy rash, swelling of the throat or tongue, shortness of breath and low blood pressure. Some cases can be fatal.

Hospitality & Catering - LO4.2

INTOLERANCES: LACTOSE INTOLERANCE

What is the issue?

Can't digest lactose.

What are the problem ingredients?

Lactose can be found in dairy products.

What food products cannot be eaten by coeliac disease sufferers?

Milk, Milk powder, Cheese, Butter, Margarine, Yogurt, Cream, Ice cream

INTOLERANCES: COELIAC DISEASE/GLUTEN INTOLERANCE

What is the issue?

Can't digest gluten.

What are the problem ingredients?

Gluten can be found in wheat and other grains.

What food products cannot be eaten by coeliac disease sufferers?

Flours, Pasta, Bread, Cereal, Certain alcoholic drinks

What is an Environmental Health Officer?

EHOs are personnel qualified in Environmental Health laws, enforcement and inspection methods. They have a 3 year degree in Environmental Health

Many organisations employ EHOs including

- Local councils
- Private companies
- NHS
- Military
- Food Standards agency

EHO roles in the Hospitality and Catering industry

Legislation enforced by EHOs

The Food Safety Act.
Food safety from the manufacturer or producer to the point of sale. Might involve different companies or premises e.g. suppliers, manufacturers or kitchens, shops or restaurants.

The Food Safety Act (General Food Hygiene) Regulations.
Ensures food producers **HANDLE** all food hygienically.

Legislation enforced by EHOs

The Food Safety Act (Temperature Control) Regulations.
Temperatures at which to store or hold food.

- Freezers from –18°C
- Chillers from 3°C to 8°C
- Fridges from 0°C to 5°C
- Cooked core temperature at 75°C or above
- Hot holding above 63°C

The Food Composition Regulations.
Specifies what ingredients **CAN** or **CANNOT** be used in the manufacture of foods e.g. bread, breakfast cereals and use of additives

Inspecting businesses for food safety standards

- Powers of entry at any reasonable time
- Inspect food and premises
- Power to seize and detain food
- Serve notices
- Power to close
- Prosecute

Why do we have Food Hygiene Regulations?

- We have food hygiene regulations to prevent outbreaks of food poisoning.
- Customers need to know that food is safe to eat.
- Food safety regulations are constantly changing and establishments should follow the latest guidelines.
- Food safety and hygiene regulations are enforced by Environmental Health Officers (EHO) who regularly check all food premises.

The Environmental Health Officer's (EHO) role is to inspect premises in order to ensure the food a establishment produces is safe to eat.

At the end of their visit, in England, Wales, and Northern Ireland, they will present the establishment with a score from the
Food Hygiene Rating scheme of 0 - 5. The scheme is standardised across England and Wales to maintain a consistent assessment of safety standards. Any business should be able to achieve a "5 - very good" rating.

These regulations cover three main areas:

- Food premises
- Personal hygiene of staff
- Hygienic practices

Food premises must:

- Be well maintained.
- Be regularly cleaned.
- Have lockers for employees.
- Have hand-wash facilities provided.
- Have clean cloakroom and toilet facilities.
- Have first aid available.
- Have clean storage areas.
- Have temperature-control fridges and freezers.
- Have equipment that is clean and in good working order.
- Be free from pets, pests, etc.

Food handlers must:

- Have a **certificate/regular training in food safety.**
- Be dressed in **clean** 'whites' or other uniform.
- Have **hair tied back** (and ideally wear a hat or hair/beard net).
- Have **short, clean nails** - no nail varnish or jewellery.
- Be in **good health** (they cannot work with upset stomachs).
- Have **'good' habits**, e.g. no coughing or sneezing over food.
- **Wash their hands** after handling raw meat, after blowing nose, after going to the toilet, etc.
- Cuts should be covered with coloured waterproof plasters.

Examples of good hygiene practices include:

- Food deliveries should be checked thoroughly.
- Food should be labelled and stored correctly (in freezers, chillers, fridges and dry stores).
- Food should be 'rotated' (first in, first out).
- Care should be taken with temperature control in the kitchen (i.e. food kept out of the danger zone of 5°-63°C).
- Food should be prepared quickly and as close to cooking time as possible.
- Hot food should be maintained at above 63°C.
- The core temperature of cooked food needs to be at least 75°C.
- Chilled food should be stored below 5°C
- Washing up should be done in hot soapy water if there is no dishwasher available.
- Waste should be disposed of safely.

Hospitality & Catering - LO4.3

HACCP (2006)

What does it stand for?

Hazard

Analysis

Critical

Control

Points

What does it mean?

- Legal requirement
- Identify the most critical (dangerous in terms of bacteria) areas of their business to make sure they are under control

HACCP System

Food companies need to:

- Analyse the hazards to food safety
- Assess the level of risk from each hazard
- Decide the most critical points that require controls
- Implement appropriate controls
- Establish a monitoring system
- Set up procedures to correct problems (corrective action)
- Review the system when operations change

Hazard **A**nalysis

A hazard is something that has the potential to cause harm.....

Type of hazard	Example
Biological	Salmonella in chicken
Chemical	Contamination from cleaning materials e.g. bleach
Physical	Damaged packaging, glass found in food

Critical **C**ontrol **P**oints

A critical control point is a step which eliminates or reduces the hazard

Control is essential to reduce the risk of food poisoning.

If a caterer gets it wrong they could be breaking the law

all stages from purchasing through to preparation and serving is controlled.

The Consumer Protection Act 1987

This protects the public by:

- prohibiting the manufacture and supply of unsafe goods
- making the manufacturer or seller of a defective product responsible for damage it causes
- allowing local councils to seize unsafe goods and suspend the sale of suspected unsafe goods
- prohibiting misleading price indications

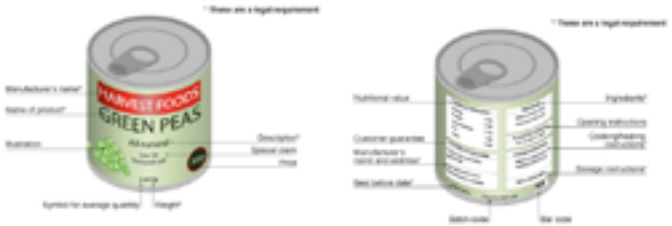
The Trade Descriptions Act 1968

The Trade Descriptions Act makes it an offence for a trader to make false or misleading statements about goods or services.

It carries criminal penalties and is enforced by Trading Standards Officers, making it an offence for a trader to:

- apply a false trade description to any goods
- supply or offer to supply any goods to which a false trade description has been applied
- make certain kinds of false statement about the provision of any services, facilities or accommodation

Food Labelling Regulations (1996)



Examples of CCP's (Critical Control Points) are:

- Inspection of goods on delivery
- Storage & handling of ingredients & finished product
- Temperature of fridges, freezers & ovens
- Cleaning procedures for equipment
- Cross-contamination
- Personal hygiene & health standards
- Proficiency of use and cleaning of equipment

Record Keeping

Legal requirement that certain records are kept as part of the HACCP-based food safety management system, eg:

- Fridge/freezer records
- Cooking/hot-holding temperatures
- Cleaning records
- Training records
- Pest control checks

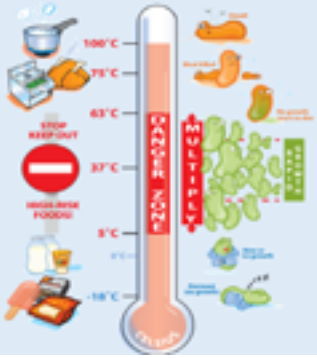
The Food Hygiene regulations 2006

- Applies to high-risk foods
- Cold foods- store below 8°C
- Hot foods – store above 63°C

During service :-

- Cold food max 4hrs at room temperature then discard or refrigerate
- Hot food maximum 2 hrs
- Buffet food 90mins at room temperature

Influence of temperature



Dead!.

Destroys most pathogens

Too hot (start to die 63°C)

Multiply rapidly

Spoilage slow growth, most pathogens no growth (<5°C)

Dormant (no growth – spoilage or pathogens).

Defence of Due Diligence

- The principal of defence under The Food Safety Act 1990
- A business must be able to demonstrate that it has done everything within its power to safeguard consumer health
- Accurate records are useful in proving this defence; these may include:
  - Temperature control records delivery/storage/cooking
  - Microbiological records
  - Hygiene training for staff
  - Use of HACCP system
  - Pest control records
  - Hygiene manuals, cleaning schedules
  - Hygiene policy

Food poisoning

Mouth increase in saliva

Head headache

Skin fever, shivering

Gut abdominal pain, nausea vomiting, diarrhoea

Circulation, low blood pressure, weak pulse, fatigue

The Food Safety Act 1990

Food businesses:

- Must ensure that the food served or sold is of the nature, substance or quality which consumers would expect, e.g. :
  - Nature - pollock rather than cod;
  - Substance - contains foreign material including glass or packaging;
  - Quality – mouldy bread or stale cake.
- Ensure that the food is labelled, advertised and presented in a way that is not false or misleading, e.g. photos on menus that do not look like the dishes served to customers.

Hospitality and Catering Businesses can be fined up to £20,000 or owners can face up to 2 years in prison for failing to comply with food laws.

1. Keep yourself clean.
2. Keep the workplace clean.
3. Wear suitable clothing.
4. Protect food from contamination.
5. Store, prepare & serve food at the correct temperature.
6. Inform a manager if you are ill.
7. Do not work with food if you have symptoms of food poisoning.

PREVENTION: Personal Hygiene

- Tie hair back
- Remove jewellery
- Roll up sleeves
- Wear an apron
- WASH HANDS THOROUGHLY

Campylobacter

Friend suggestions:
Salmonella
E-coli
Clostridium Perfringens
Listeria
Bacillus Cereus
Staphylococcus Aureus

Found in: raw meat and poultry

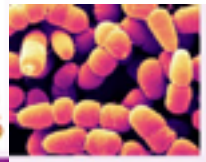
Contract Me!

Symptoms: Can last for 10 days

Fever
Headache
Abdominal pain
Diarrhoea

Illness caused by small numbers.

Most common form!



Clostridium Perfringens

Friend suggestions:
Campylobacter
Listeria
Bacillus Cereus
Staphylococcus Aureus
Salmonella
E-coli

Found in: animal poo, soil, manure, sewage, raw meat, and poultry

Contract Me!

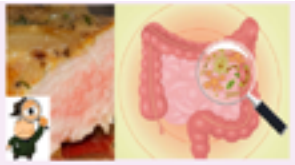
Symptoms: Can last for 3 weeks!

Can take 8-18hrs for symptoms to show:
Nausea
Abdominal pain
Diarrhoea
Can be fatal!

Produces spores which may not be killed by cooking!

E-coli

Friend suggestions:
Campylobacter
Clostridium Perfringens
Listeria
Bacillus Cereus
Staphylococcus Aureus
Salmonella



Found in: the gut of animals and humans

E Coli 0157 found in raw and undercooked meats and raw vegetables

Symptoms:

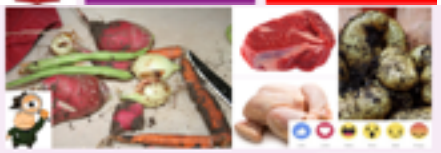
Can take up to 5 days for symptoms to show:
Diarrhoea
Can be fatal!

Can survive refrigeration and freezing

Illness caused by small numbers.

Salmonella

Friend suggestions:
Campylobacter
E-coli
Clostridium Perfringens
Listeria
Bacillus Cereus
Staphylococcus Aureus



Found in: raw meat, poultry and unwashed vegetables

Contract Me!

Symptoms: Can last for 3 weeks!

Can take 48hrs for symptoms to show:
Fever
Vomiting
Abdominal pain
Diarrhoea
Can be fatal!

2nd most common form of food poisoning!

Caused by large numbers

High Risk Foods

- Foods high in protein
- Foods high in moisture
- Stocks, sauces, gravies and soups
- Eggs
- Meat, poultry and other meat products
- Milk and dairy products
- Fish and Shellfish
- Cooked rice
- Foods which are handled and those which are reheated
- However, preserved foods, or those with high concentrations of vinegar, salt or sugar, are low-risk.

Listeria

Friend suggestions:
Campylobacter
E-coli
Clostridium Perfringens
Salmonella
Bacillus Cereus
Staphylococcus Aureus

Found in: soil, vegetation, meat, poultry, soft cheese and salad vegetables

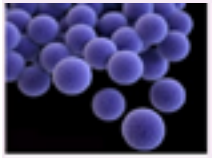
Contract Me!

Symptoms: Can last for 3 weeks!

Can range from:
Flu like symptoms
Meningitis
- Pregnant women
- Elderly
- Very Young

at greater risk!

Can grow at low temperatures



Staphylococcus Aureus

Friend suggestions:
Campylobacter
E-coli
Clostridium Perfringens
Salmonella
Listeria
Bacillus Cereus

Found in: on the skin, cuts and boils and up the nose!

Contract Me!

Symptoms: Onset within 6hrs

Two types:
Severe vomiting
Diarrhoea
Abdominal pain
Can last 6 days!

Transferred to food from hands, nose or mouth

Survives refrigeration

Caused by large numbers

Produces a toxin which may survive cooking

INFECTIVE POISONING
Result of eating contaminated food with bacteria itself;
Examples: Salmonella, Listeria

TOXIC POISONING
Some bacteria produce toxins, these toxins cannot be destroyed with cooking. Examples: Staphylococcus Aureus, Clostridium Perfringens

Bacillus Cereus

Friend suggestions:
Campylobacter
E-coli
Clostridium Perfringens
Salmonella
Listeria
Staphylococcus Aureus

Found in: soil and dust

Contract Me!

Frequently found in: rice dishes

Symptoms: Usually lasts less than 24hrs

Two types:
After 1-5hrs
Vomiting
After 8-18hrs
Diarrhoea and Abdominal pain

Forms spores that are resistant to heat

Illness can be caused by a small number of bacteria

Maths A - Algebra

SIMPLIFY EXPRESSIONS v24

6 — constant

x, y, z — variable

+ - x ÷ — algebraic operation

4x + 9y + z — algebraic expression

$$a + a + a = 3a$$
$$2e - f + e - 3f = 3e - 4f$$
$$4 \times d = 4d$$
$$p \times p = p^2$$
$$y \times y \times y = y^3$$
$$7 \times e \times f = 7ef$$

Simplifying expressions (adding/subtracting)

- Can only simplify like terms.
- Be sure to include the sign before the term

e.g $2a + 3b - a + 4b + a + 7b$

$2a - a = a$ $\quad + 3b + 4b = +7b$

Simplifying expressions (multiplying)

- Multiply the numbers and terms separately
- Remember your rules of indices

e.g $5p \times 3q \times 4p = 60p^2q$

$5 \times 3 \times 4 \times p \times p \times q$

$60 \times p^2q = 60p^2q$

ALGEBRAIC EXPESSIONS v16

	Word Phrases	Expression
+	• a number plus 5 • add 5 to a number • sum of a number and 5 • 5 more than a number • a number increased by 5	$n + 5$
−	• a number minus 11 • subtract 11 from a number • difference of a number and 11 • 11 less than a number • a number decreased by 11	$x - 11$
×	• 3 times a number • 3 multiplied by a number • product of 3 and a number	$3m$
÷	• a number divided by 7 • 7 divided into a number • quotient of a number and 7	$\frac{a}{7}$ or $a \div 7$

a number increased by twelve	x + 12
the sum of twice a number and six	2x + 6
eighty less than a number	x − 80
twenty-eight split in half	28 ÷ 2
the product of a number and seven	7x
the quotient of a number and four	x ÷ 4
five greater than three times a number	3x + 5
a number distributed evenly among six	x ÷ 6
the total of forty and a number	40 + x
three times the total of a number and five	3(x + 5)

SUBSTITUTION v 20

("Evaluate" means work out the number answer)

The steps for evaluating are as follows:

- Write down the Algebraic Expression
- Replace the letter with the number value
- Work out the final number answer.

Evaluate the expression h + 5, for h = 3

The expression is: h + 5

We need to replace the "h" with 3

This makes: 3 + 5

which equals: 8

e.g Evaluate (find the value of) the expressions, given that:

$a = 2 \quad b = 3, \quad c = -5$

1. $4b = 4 \times 2 = 8$
2. $7b - 3c = (7 \times 3) - (3 \times -5) = 21 - -15 = 21 + 15 = 36$
3. $5b^2 + 1 = 5 \times (3)^2 + 1 = 5 \times 9 + 1 = 45 + 1 = 46$
4. $2c^3 = 2 \times (-5)^3 = 2 \times -125 = -250$
5. $\frac{3ac}{2b} = \frac{3 \times 2 \times -5}{2 \times 3} = \frac{-30}{6} = -5$

FORMULA v299

EQUATIONS	In an equation the letters stand for one or more particular numbers (the solutions of the equation). For example: 2x + 1 = x − 2
EXPRESSIONS	In an expression there is no equals sign. For example: $3x^2 + 2x - 1$
IDENTITIES	In an identity there is an equals sign, but the equality holds for all values of the unknown. For example: 2(x + 1) = 2x + 2
FORMULAE	In a formula, letters stand for defined quantities or variables. For example: d = s · t (d is distance, s is speed and t is time)

EXPAND SINGLE BRACKET v13

$4(x + 3) = 4x + 12$ — $4 \times x = 4x$, $4 \times 3 = 12$

$5(2x + 4) = 10x + 20$ — $5 \times 2x = 10x$, $5 \times 4 = 20$

Watch out!

Be really careful with negatives!

$3(x - 3) = 3x - 9$

Remember: − × − = +

$-3(x - 4) = -3x + 12$

EXPAND DOUBLE BRACKETS v14

FOIL Method

F	First terms	x^2
O	Outside terms	$11x$
I	Inside terms	$4x$
L	Last terms	44

$(x + 4)(x + 11)$

Then simplify

$x^2 + 15x + 44$

Multiply each term in first bracket by each term in second

Grid Method

$(x + 4)(x - 3)$ — Split brackets up around grid

Multiply each term in the grid

	x	$+4$
x	x^2	$4x$
-3	$-3x$	-12

Then simplify

$x^2 + x - 12$

FACTORISING v117, 118

Factorise $10x + 15$.

Find the HCF of the numbers. HCF = 5

$10x + 15 = 5(2x + 3)$

Divide each term by the HCF and close the bracket.

Factorise $x^2 + 11x + 24$

$x^2 + 11x + 24$ — +24, +11

+3	+8

Find two numbers that multiply to get +24 and add to get +11

Final answer: (x + 8)(x + 3)

REARRANGE FORMULAE v110

Rearrange the formula to make a the subject

This means we want to rearrange the formula so it says a =

$b = 5a + 21$

$-21 \quad -21$

$b - 21 = 5a$

$+5 \quad +5$

$\frac{b - 21}{5} = a$

Our answer should say ... $a = \frac{b - 21}{5}$

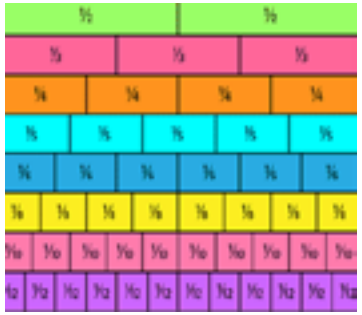
Maths A - Fractions

WORKING WITH FRACTIONS v135,143,144

$\frac{x}{y}$ → Numerator / Denominator

Equivalent fractions have the same value as one another.

Eg. $\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$



Compare Fractions

Using Cross Multiplication

Example:

$5 \times 4 = 20$ $\frac{4}{7}$ $\frac{3}{5}$ $7 \times 3 = 21$

$\frac{20}{35}$ 20 < 21 $\frac{21}{35}$

$7 \times 2 = 14$ $\frac{2}{3}$ $\frac{4}{7}$ $3 \times 4 = 12$

$\frac{14}{21}$ 14 > 12 $\frac{12}{21}$

$5 \times 4 = 20$ $\frac{4}{10}$ $\frac{2}{5}$ $10 \times 2 = 20$

$\frac{20}{50}$ 20 = 20 $\frac{20}{50}$

Order these fractions in ascending order:

$\frac{2}{5}$ ×6 $\frac{12}{30}$ (1)

$\frac{1}{2}$ ×15 $\frac{15}{30}$ (3)

$\frac{5}{6}$ ×5 $\frac{25}{30}$ (4)

$\frac{7}{15}$ ×2 $\frac{14}{30}$ (2)

To be able to compare fractions we must have a **common denominator**

ADD & SUBTRACT FRACTIONS v132, 133

To add...

$\frac{1}{5} + \frac{2}{5}$

Just add up the numerators

$\frac{1}{5} + \frac{2}{5} = \frac{1+2}{5} = \frac{3}{5}$

To subtract...

$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$

Adding/Subtracting Fractions with Different Denominators

1. Rewrite using a common denominator
2. Add/Subtract the fractions
3. Simplify if needed.

$\frac{1}{6} + \frac{2}{9}$

$\frac{1}{6} \cdot 3 \cdot 2$, $\frac{2}{9} \cdot 2 \cdot 2$ — Rewrite with a common denominator. Multiples of 6: 6, 12, 18, 24 . . . Multiples of 9: 9, 18 . . .

$\frac{3}{18} + \frac{4}{18}$ — Add the fractions (add the numerators, the denominator stays the same)

$\frac{7}{18}$

FRACTION OF AMOUNT v137

To find a fraction of a number you divide by the bottom and multiply by the top.

Example 1

Find $\frac{2}{5}$ of 40

First we find $\frac{1}{5}$ of 40 = 8 (by dividing by 5)

Then we find $\frac{2}{5}$ of 40 = 8 x 2 = 16 (by multiplying by 2)

Example 2

Find $\frac{4}{7}$ of 42

First we find $\frac{1}{7}$ of 42 = 6 (by dividing by 7)

Then we find $\frac{4}{7}$ of 42 = 6 x 4 = 16 (by multiplying by 4)

EXPRESSING AS A FRACTION v136

To write 4 as a fraction of 12:

We want 4 parts ~ the numerator

4 out of 12 is $\frac{4}{12}$ ÷4 This simplifies to $\frac{1}{3}$

If you scored 45 out of 60 on a test, your mark as a fraction would be:

$\frac{45}{60}$ ÷5 $\frac{9}{12}$ ÷3 $\frac{3}{4}$

This means you got $\frac{3}{4}$ of the questions on the test correct.

Top Tip

The numerator tells you how many parts you need. The denominator tells you the whole amount.

FRACTIONS TO DECIMAL v123, 127

Fractions → (Divide numerator by denominator) → Decimals: $\frac{1}{4}$ → 0.75

Fractions → (Write as fraction and simplify) → Decimals: $\frac{2}{5}$ → 0.4

FRACTION TO PERCENTAGE v122, 126

Fractions → (Divide numerator by denominator) → Decimals: 0.75 → (Multiply by 100) → Percents: 75%

Fractions: $\frac{2}{5}$ → (Write as fraction and simplify) → Decimals: 0.4 → (Divide by 100) → Percents: 40%

MULTIPLY & DIVIDE FRACTIONS v134,142

Multiply the numerators: $\frac{2}{5} \times \frac{3}{4} = \frac{6}{}$

Multiply the denominators: $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$

Reduce the fraction if necessary: $\frac{6}{20} = \frac{3}{10}$

Invert the fraction that you are dividing by: $\frac{4}{5} \div \frac{2}{3} = \frac{4}{5} \times \frac{3}{2}$

Multiply the numerators and denominators: $\frac{4}{5} \times \frac{3}{2} = \frac{12}{10}$

Simplify the fraction if necessary: $\frac{12}{10} = 1\frac{1}{5}$

PERCENTAGE OF ANOTHER v237

Writing one number as a percentage of another

1. Form a fraction with the two numbers
2. Convert the fraction into a decimal
3. Convert the decimal in a percentage

Example 1. Write 24 as a percentage of 32

24 as a fraction of 32 = $\frac{24}{32}$

24 as a decimal of 32 = 24 ÷ 32 = 0.75

24 as a percentage of 32 = 0.75 × 100 = 75%

Write 7 out of 10 as a percentage.

$\frac{7}{10} = \frac{70}{100} = 70\%$ (×10)

$\frac{7}{20} = \frac{35}{100} = 35\%$ (×5)

PERCENTAGE OF A QUANTITY v234, 235

Find 30% of 70. 21

30% = $\frac{3}{10}$ So we can find 30% by dividing by 10, then multiplying by 3. 70 ÷ 10 = 7, 7 × 3 = 21

Find 40% of 90. 36

40% = $\frac{4}{10}$ 90 ÷ 10 = 9, 9 × 4 = 36

To find a percentage of an amount using decimals:

Step 1 - Convert the given percentage to a decimal

Step 2 - Multiply the decimal from Step 1 by the Amount

80% of 5 = (80 ÷ 100) x 5 = 0.80 x 5 = 4 ✓

25% of 60 = (25 ÷ 100) x 60 = 0.25 x 60 = 15 ✓

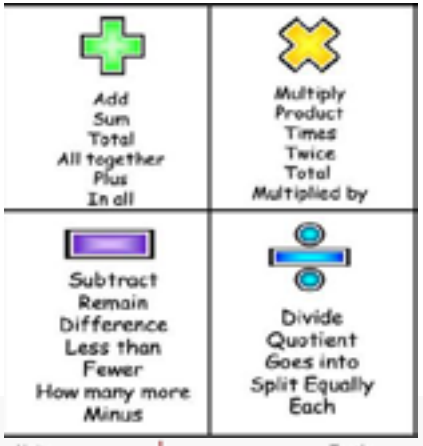
12.5% of 300 = (12.5 ÷ 100) x 300 = 0.125 x 300 = 37.5 ✓

Maths A- Number

OPERATIONS

Operation	Inverse
+	−
−	+
×	÷
÷	×
x^2	$\sqrt{x}$

B	Brackets	10 × (4 + 2) = 10 × 6 = 60
I	Indices	5 + 2^2 = 5 + 4 = 9
D	Division	10 + 6 ÷ 2 = 10 + 3 = 13
M	Multiplication	10 - 4 × 2 = 10 - 8 = 2
A	Addition	10 × 4 + 7 = 40 + 7 = 47
S	Subtraction	10 + 2 - 3 × 5 - 3 = 2



DECIMALS v90,91,92,93,94

Now, lets **Multiply** 1.2 x 0.3= ?

Step 1:

$$\begin{array}{r} 1\ 2 \\ \times\ 0\ 3 \\ \hline 3\ 6 \end{array}$$

Step 2: 1 . 2 has **1 decimal places.**
and 0 . 3 has **1 decimal places.**

So, answer will have **2 decimal places**

1.2 x 0.3= 0.36

To divide decimals

- Change the number you are dividing by into a whole number
  Do this by multiplying by 10, 100 or 1000.
- Do exactly the same to the number you are dividing.
- Divide to find the answer.

Example 4·5 ÷ 0·5 — Multiply each number by 10 → 45 ÷ 5 = 9
You need to change this into a whole number — so 4.5 ÷ 0.5 = 9

Example 2·64 ÷ 0·2 — Multiply each number by 10 → 26.4 ÷ 2 = 13.2
You need to change this into a whole number — so 2·64 ÷ 0·2 = 13.2

ROUNDING v278, 279a

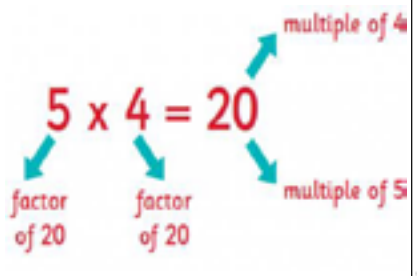
PLACE VALUE AND ESTIMATING v215

Work out an **ESTIMATE** for 38.2 x 12.2

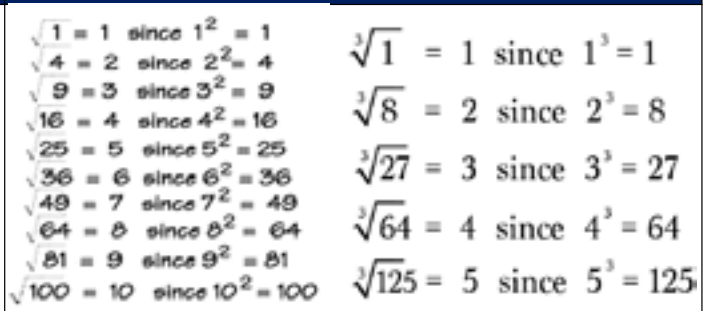
38.6 x 12.2
≈ 40 x 10
= 400

1. Round each number to 1 significant figure.
2. Calculate an approximate answer

FACTORS AND MULTIPLES v216, 220



SQUARE, CUBES AND ROOTS v226,228, ,212, 214



POWERS OF TEN

One	1	10^0
Ten	10	10^1
Hundred	100	10^2
Thousand	1,000	10^3
Ten Thousand	10,000	10^4
Hundred Thousand	100,000	10^5
Million	1,000,000	10^6
Ten Million	10,000,000	10^7
Hundred Million	100,000,000	10^8

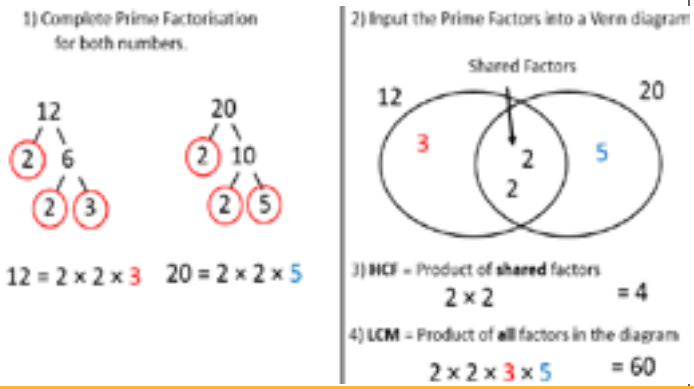
INDEX LAWS v174

Rule	Example
$a^m \times a^n = a^{m+n}$	$2^5 \times 2^3 = 2^8$
$a^m \div a^n = a^{m-n}$	$5^7 \div 5^3 = 5^4$
$(a^m)^n = a^{m \times n}$	$(10^3)^7 = 10^{21}$
$a^1 = a$	$17^1 = 17$
$a^0 = 1$	$34^0 = 1$
$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$	$\left(\frac{5}{6}\right)^2 = \frac{25}{36}$
$a^{-m} = \frac{1}{a^m}$	$9^{-2} = \frac{1}{81}$
$a^{\frac{x}{y}} = \sqrt[y]{a^x}$	$49^{\frac{1}{2}} = \sqrt{49} = 7$

HCF AND LCM VENN DIAGRAMS v224

Prime numbers ▶ 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31 ...

Find the **HCF** & **LCM** of 12 & 20.

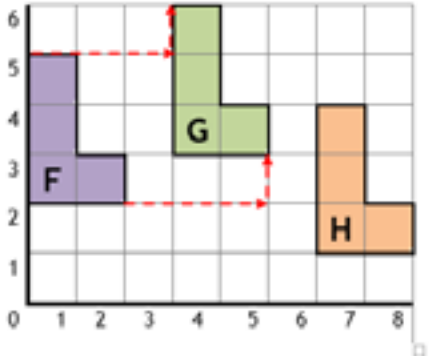


Maths A - Transformations

TRANSLATION v325, 326

Corresponding corners make the same movement

To describe a translation, state:
1. TRANSLATION
2. The MOVEMENT using a vector



F to G is a TRANSLATION $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$

F to H is a TRANSLATION $\begin{pmatrix} 6 \\ -1 \end{pmatrix}$

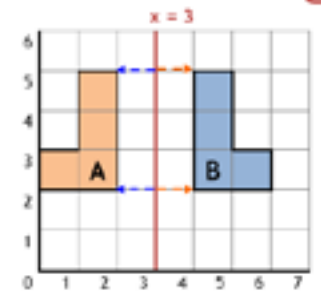
H to G is a TRANSLATION $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$

$\begin{pmatrix} a \\ b \end{pmatrix}$ — How far left or right you move; How far down or up you move

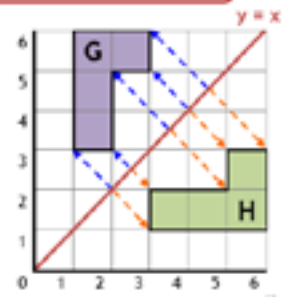
A negative number means moving left or down

REFLECTION v272, 273, 274

To describe a reflection, state:
1. REFLECTION
2. The equation of the MIRROR line



Distances are the same on both sides of the mirror

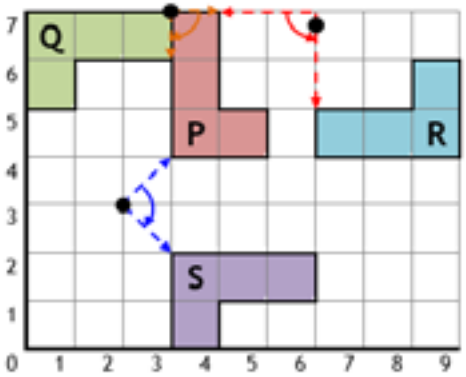


A to B is a REFLECTION in the line x = 3

G to H is a REFLECTION in the line y = x

ROTATION v275

To describe a rotation, state:
1. ROTATION 2. The ANGLE turned
3. The DIRECTION 4. The CENTRE of rotation



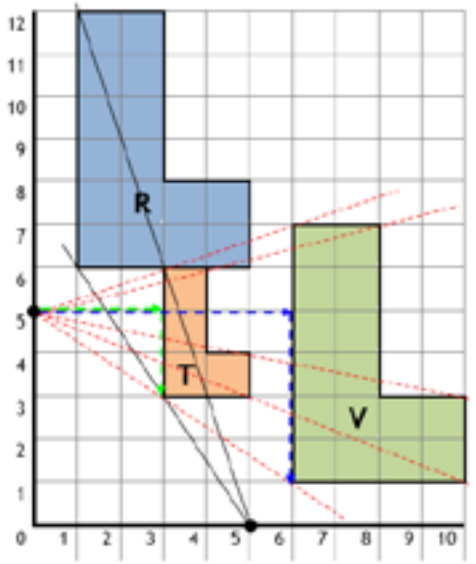
P to Q is a ROTATION 90° clockwise, centre (3,7)

P to R is a ROTATION 90° anticlockwise, centre (6,7)

P to S is a ROTATION 90° clockwise, centre (2,3)

ENLARGEMENTS v104,104a,105,106

To describe an enlargement, state:
1. ENLARGEMENT
2. The SCALE FACTOR
3. The CENTRE of enlargement



T to V is an ENLARGEMENT, scale factor 2, centre (0,5)

V to T would be an enlargement scale factor 0.5, centre (0,5)

T to R is an ENLARGEMENT, scale factor 2, centre (5,0)

R to T would be an enlargement scale factor 0.5, centre (5,0)

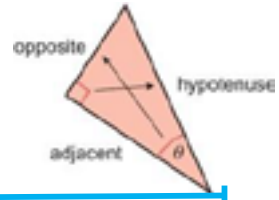
ALL distances are multiplied by the scale factor, including the distance away from the centre of enlargement. e.g. 3 right 2 down becomes 6 right 4 down

Changing the centre of enlargement puts the enlarged shape in a different position

Maths B/C - Trigonometry

Year 9 Higher Half term 2,
Topic 1: Trigonometry - SOHCAHTOA

V339, V330, V331

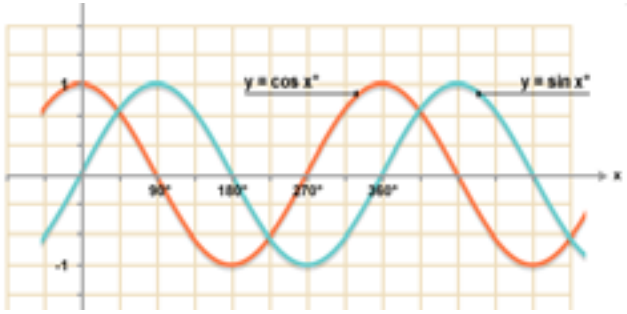


In a right-angled triangle, the longest side is called the hypotenuse and is opposite the right-angle.

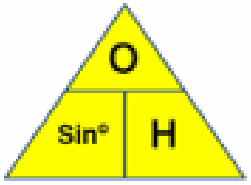
The side opposite the angle θ is called the **opposite.**

The side that is next to angle θ is the **adjacent**.

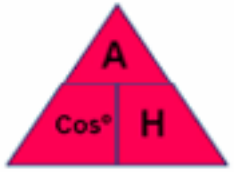
The graphs of sine x and cosine x



SOH CAH TOA

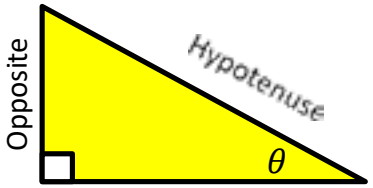


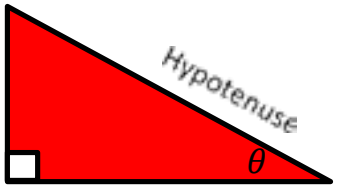
Sine Ratio

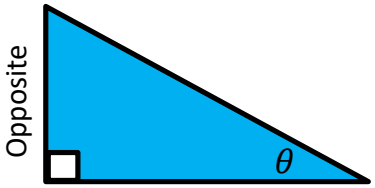


Cosine Ratio

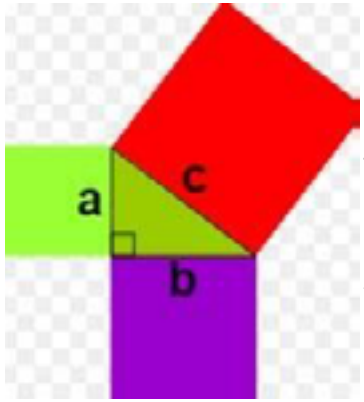
Tangent Ratio







To get $\sin^{-1}$, $\cos^{-1}$ and $\tan^{-1}$ press shift on the calculator and then the corresponding ratio.



V257

Pythagoras' Theorem

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

To find **hypotenuse**:
Square side a
Square side b
Add together
Square root

To find shorter side:
Square side c
Square side a or b
Subtract a or b from c
Square root

θ	0°	30°	45°	60°	90°
$\sin\theta$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
$\cos\theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
$\tan\theta$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	Not d

The exact **sine**, **cosine** and **tangent** of some angles are in this table.

V329
V330
V331

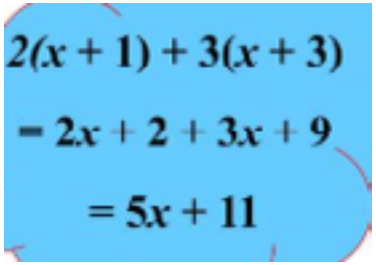
Maths B/C - Algebra

Year 9 Higher Half term 1,
Topic 2: Algebra

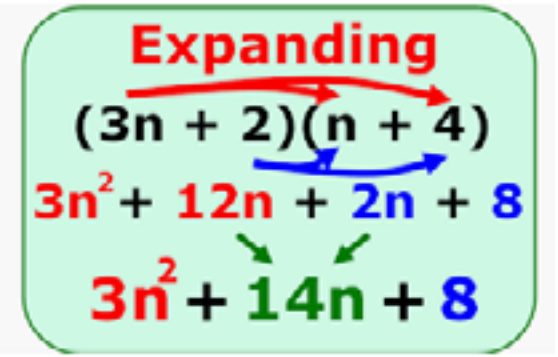
Expand and factorise

V13 V117

Expand and simplify

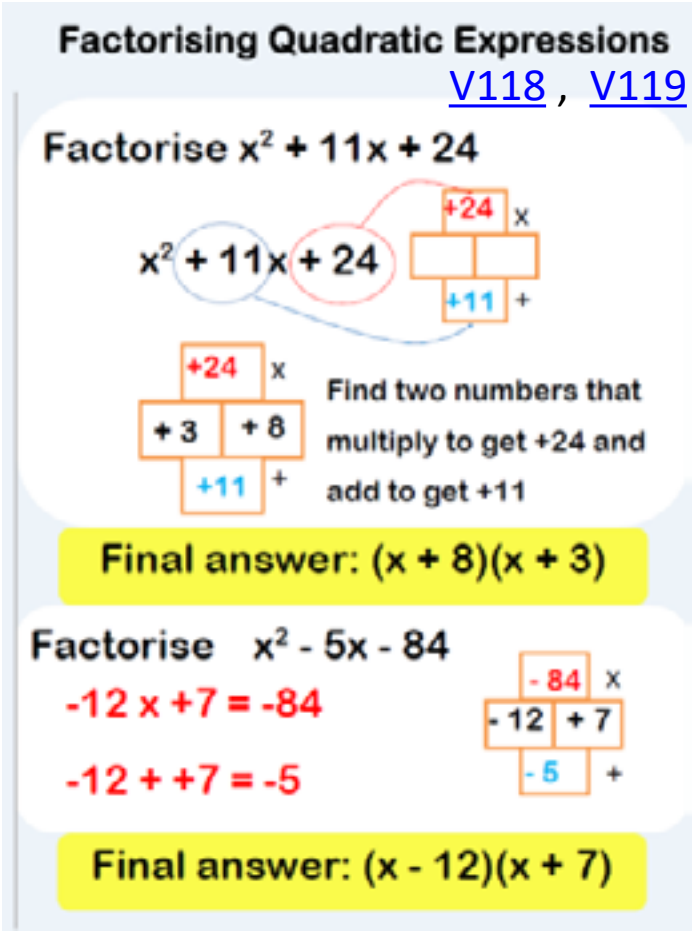


Expand double brackets V14

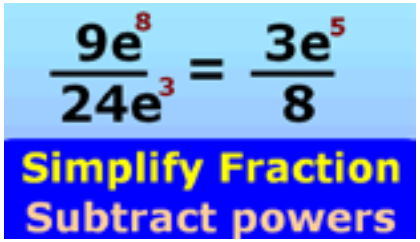


Factorising Quadratic Expressions

V118 , V119



Simplify algebraic fractions

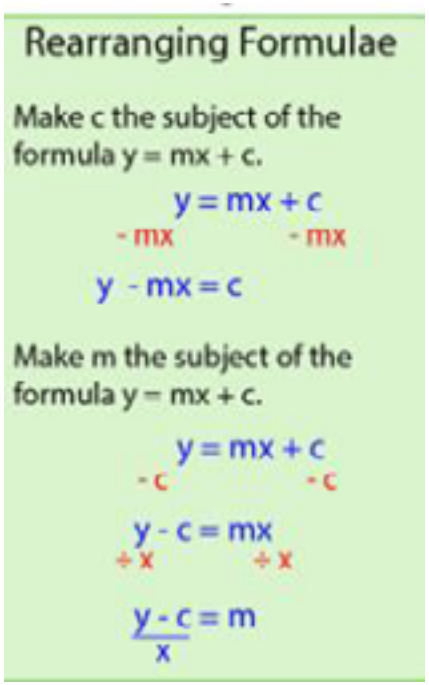


$$\frac{9w^4e^3}{24w^2e^8} = \frac{3w^2}{8e^5}$$

Rearranging formulae

V7 , V8

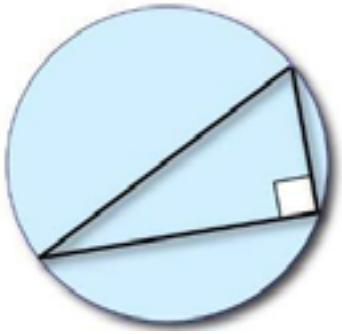
The subject of the formula has to equal everything else. Use the **balance method** and **inverse operations.**



Maths B/C - Circle Theorems

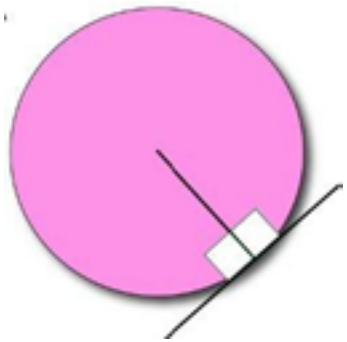
Year 9 Higher Half term 1,
Topic 3: Circle Theorems

V64 V65



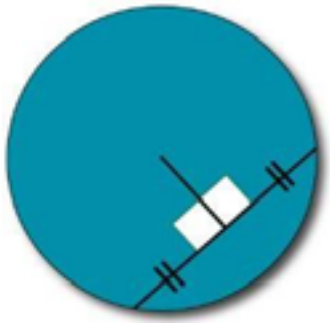
The angle in a semicircle is a right angle.

V65a



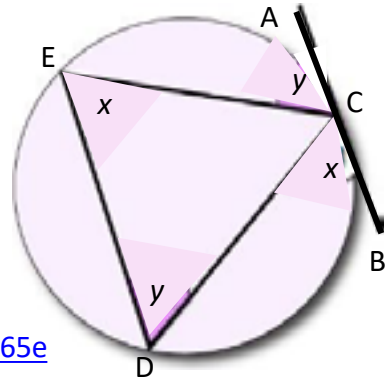
The angle between a **tangent** and **radius** is a right angle.

V65f



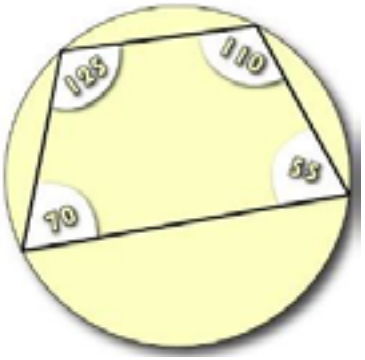
A **chord** is a straight line connecting two points on a circle.

The **perpendicular** from the centre of the circle to a chord **bisects** the chord and the line drawn from the centre of the circle to the **midpoint** of a chord is at right angles to the chord.



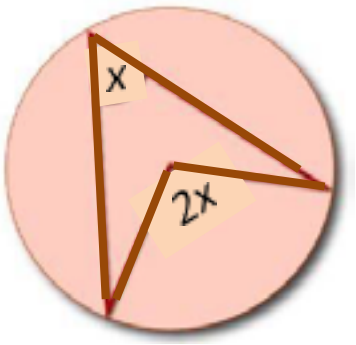
V65e

AB is a tangent to the circle. CD, DE and CE are **chords**. Angle ECA is the angle between the **tangent** and the chord in one segment. The other **segment** has angle CDE. This is the **alternate segment.** The angle between the chord and tangent is equal to the angle in the alternate segment.



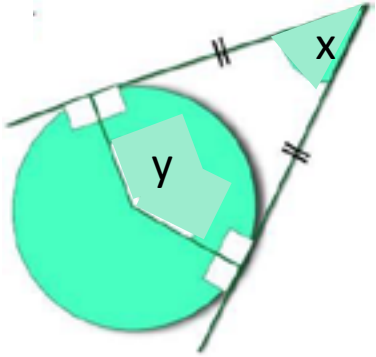
A cyclic quadrilateral with all four vertices on the circumference of the circle. Opposite angles add up to 180^{o}.

V65d



The angle at the centre of a circle is twice the angle at the circumference when both are subtended by the same arc.

V65b



Tangents drawn from a point outside the circle are equal in length.
x + y = 180

Angles in the same segment and standing on the same chord are always equal.

V65c

Maths B/C - Compound Measures

Year 9 Higher Half term 2, Topic 3: Compound Measures V299 V384 V385

Distance = Time X Speed

Speed = Distance ÷ Time

Time = Distance ÷ Speed

Mass = Density x Volume

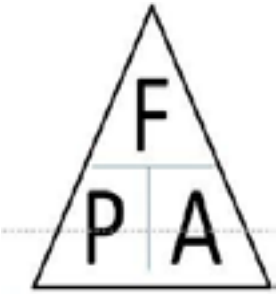
Density= Mass ÷ Volume

Volume = Density ÷ Mass

Force = Pressure x Area

Pressure = Force ÷ Area

Area = Force ÷Pressure



Speed is a compound measure, because it is calculated from two other measurements, *distance* and *time*.

$$\text{average speed} = \frac{\text{total distance travelled}}{\text{total time taken}}$$

The units of your answer will depend on the units of the question.

An athlete runs 100 metres in 20 seconds.

$$\text{average speed} = \frac{100\text{ m}}{20\text{ s}} = 0.5\text{ m/s}$$

Calculate the density of a piece of metal that has a mass of 2000 kg and a volume of 0.5 m³.

$$d = \frac{m}{v} \quad d = \frac{2000\text{ kg}}{0.5\text{ m}^3} \quad d = \frac{4000\text{ kg}}{1\text{m}^3} \quad d = 4000\text{ kg/m}^3$$

The density of gold is 9.3 g/cm³. Calculate the mass of a gold bar with a volume of 30 cm³

$m = d \times v$

$m = 9.3\text{ g/cm}^3 \times 30\text{ cm}^3$

$m = 279\text{ g}$

A crate is placed on the floor.

The crate exerts a force of 3500N on the floor.
The area of the crate in contact with the floor is 5m²

Find the pressure exerted by the crate on the floor.

$P = \frac{F}{A}$

$P = \frac{3500}{5} = 700\text{ n/m}^2$

These are three kinematics formulae:

$v = u + at$

$s = ut + \frac{1}{2}at^2$

$v^2 = u^2 + 2as$

where a is constant acceleration, u is initial velocity, v is final velocity, s is displacement from the position when $t = 0$ and t is time taken

You do not need to learn these but you do have to be able to put the right numbers in the right places!

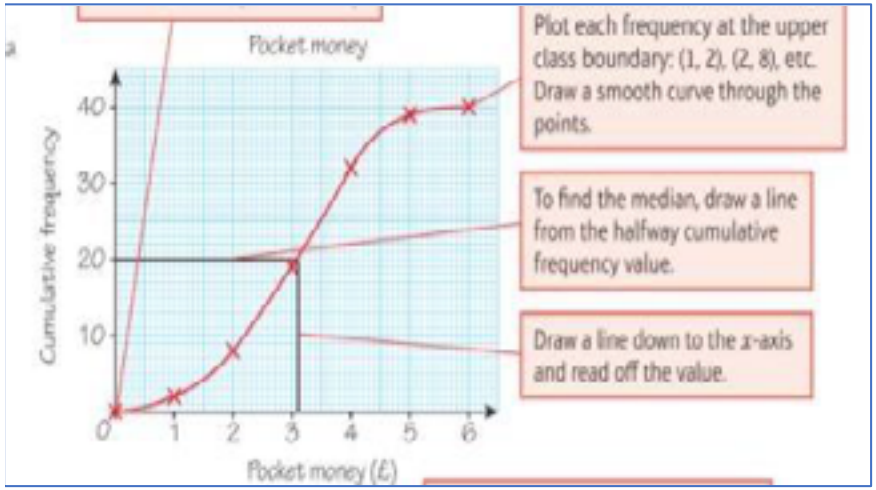
Maths B/C - Cumulative Frequency

Year 9 Higher Half term 2, Topic 2: Cumulative Frequency and Box Plots V153, V154, V149, V150

Pocket money, x (£)	Frequency	cf
0<x≤1	2	2
1<x≤2	6	8
2<x≤3	13	19
3<x≤4	13	32
4<x≤5	7	39
5<x≤6	3	40

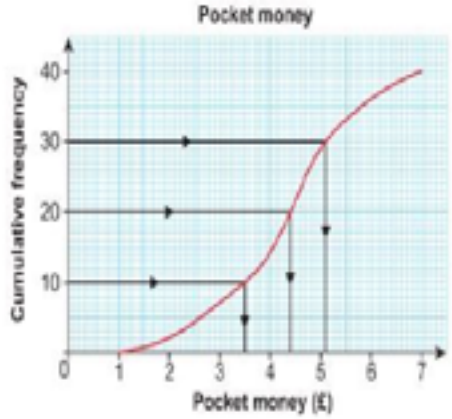
Add up as you go to get cumulative frequency

Pocket money, x (£)	Cumulative frequency
$0 < x \leq 1$	2
$0 < x \leq 2$	8
$0 < x \leq 3$	19
$0 < x \leq 4$	32
$0 < x \leq 5$	39
$0 < x \leq 6$	40



The **median** and **quartiles** can be estimated from the cumulative frequency diagram. For a set of n data values

- the estimate for the **median** is the $\frac{n}{2}$ th value
- the estimate for the **lower quartile** (LQ) is the $\frac{n}{4}$ th value
- the estimate for the **upper quartile** (UQ) is the $\frac{3n}{4}$ th value
- the **interquartile range** (IQR) = UQ − LQ

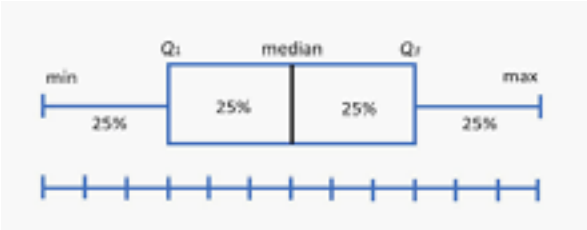


The test for outliers

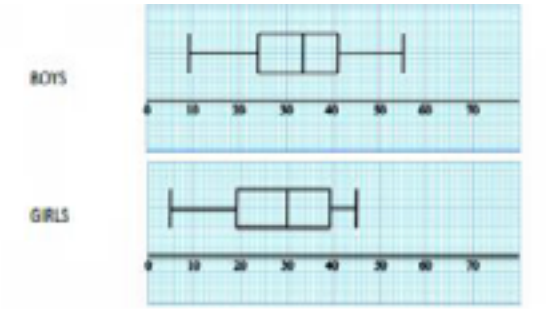
$$Q_1 - 1.5 \cdot IQR$$
$$Q_3 + 1.5 \cdot IQR$$

Box Plots

The data is split into 25% groups



Comparing box plots



You should compare the median and the range or inter-quartile range. You should relate your answer to the question.

1. The median time for the girls solving the puzzle is slower than the median time for the boys. On average the girls solved the puzzle faster than the boys.
2. The inter-quartile range for the girls is 20 (39-19) compared to the boys' IQR of 17 (41-24). The boys times are more consistent than the girls.

Maths B/C - Linear Graphs

Year 9 Higher Half term 1,
Topic 4: Linear Graphs

$Y = mx + c$

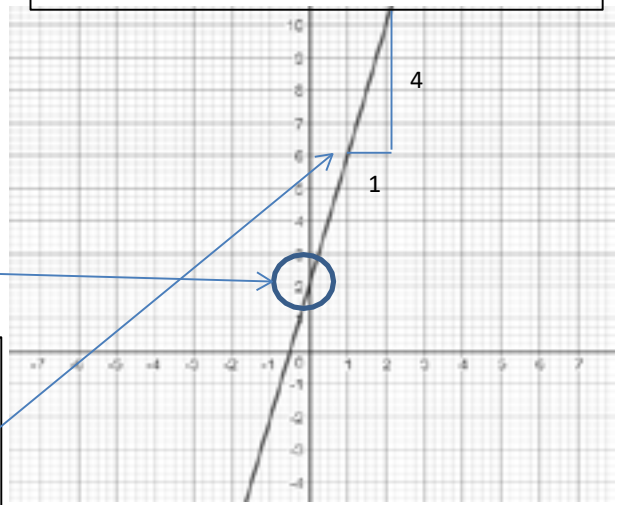
Gradient — Y intercept

Co-ordinates

These are given in the form (X,Y). We go along the x axis and up or down the y axis.

Y intercept

This is the point where the line crosses the y axis. On the example the y intercept = +2



Gradient and intercept calculations

The steepness of a graph is called the **GRADIENT.** You can find the gradient by :

$$\frac{\text{Change in y}}{\text{Change in x}}$$

$\frac{4}{1} = 4$

Gradient + 4

Gradient can be positive (/) or negative (\)

This can also be calculated from 2 points.

To get the intercept substitute in one point into y=mx + c e.g. (1, 6)

6 = 4 x 1 + c so c must be 2

This graph is y=4x +2

V189 , V190

Table of Values/ Plotting graphs

To find the coordinates of a straight line you can use a table of values. Firstly create a function machine. E.g. for y = 4x + 2

X → X4 → +2 → Y

Then input numbers from the x axis to find the y axis.

These create coordinates which you can then plot onto the graph and join up with a ruler.

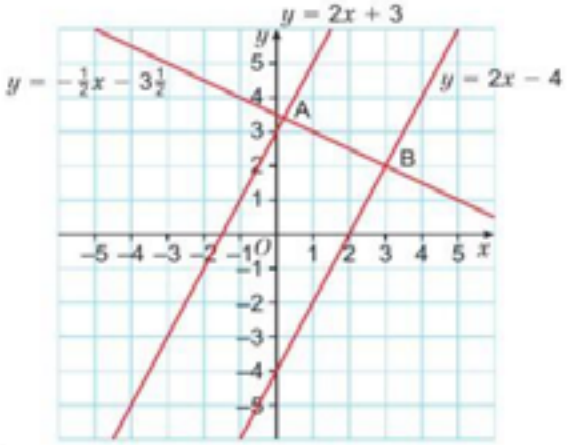
V186

V187

X	0	1	2	3
Y	2	6	10	14

Parallel Lines have the same gradient but a different y intercept. For example a parallel line for the above graph would be y = 4x – 3 V196

Perpendicular lines have gradients that multiply to give -1. When a graph has gradient m, the perpendicular line to that will have gradient $-\frac{1}{m}$ V197



Mid points is the point exactly in the middle. To find the coordinates add the x coordinates together and divide by 2 and do the same for the y coordinates. V198

Maths B/C - Number

Year 9 Higher Half term 1,
Topic 1: Number

HCF and LCM V219 V218

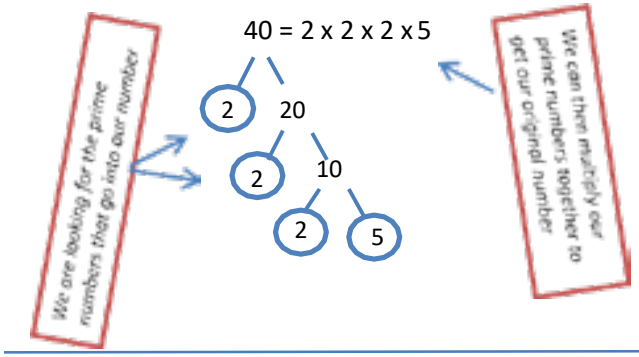
(Highest Common Factor and Lowest Common Multiple)

HCF - this is largest number that divides exactly into 2 or more numbers. E.g. HCF or 12 and 20 = 4
LCM - this is the smallest number that is in the times table of 2 or more numbers. E.g. LCM of 12 and 20 = 60

Product of Prime Factors V219

This is finding all the prime numbers that would multiply to give our number. It is often shown using a factor tree ('tree thingy').

Eg. 40 as a product of prime factors V223



Using product of prime factors to find our HCF and LCM

Example: Find the HCF and LCM of 24 and 60

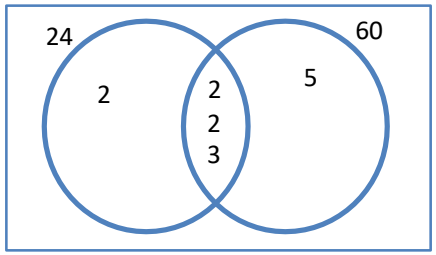
Step 1:

24 = 2 x 2 x 2 x 2
60 = 2 x 2 x 3 x 5

Write each number as a product of prime factors

V224

Step 2: Draw a Venn Diagram



Place you prime factors into your Venn diagram

The HCF of 24 and 60 = 2 x 2 x 3 = 12 ← *Multiply the common prime factors*

The LCM of 24 and 60 = 2 x 2 x 2 x 3 x 5 = 120 ← *Multiply all the prime factors*

Negative Number arithmetic rules

Adding and subtracting

The first number is the starting position

on a number line

+ means move right on the number line

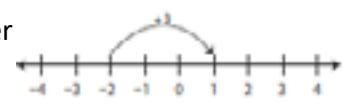
- means move left on the number

+ - is replaced by –

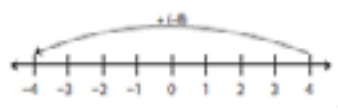
- - Is replaced by +

V205

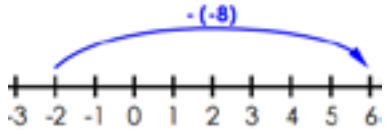
-2 + 3 = 1



4 + -8 = 4 – 8 = -4



-2 - - 8 = --2 + 8 = 6



Multiplying and Dividing

Ignore the signs and work out the answer.
Put the sign in afterwards

+ x + gives + answer

+ x - gives – answer

- x + gives – answer

- x – gives + answer

Same rules apply for division V206, V207

Estimation by Rounding

Estimation means all the numbers in the calculation must be rounded to make them easy to calculate an approximate answer.

V215

Usually numbers are rounded to 1sf.

$$\frac{647}{0.48 \times 0.18} = \frac{600}{0.5 \times 0.2} = \frac{600}{0.1} = 6000$$

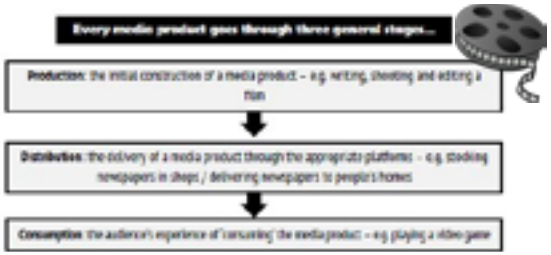
$$\frac{\sqrt{62.9}}{7.682} = \frac{\sqrt{64}}{8} = \frac{8}{8} = 1$$

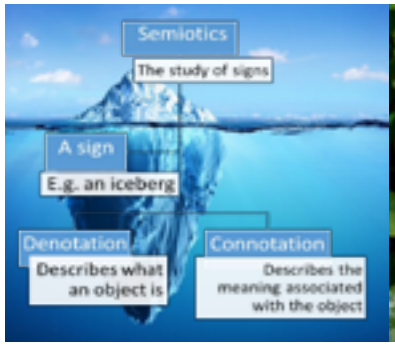
Media

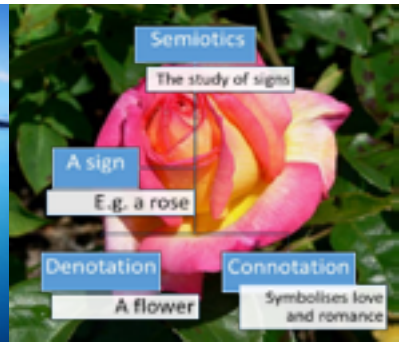
Dictionary

Media [**mee**-dee-*uh*]

The plural of **medium**, meaning in the middle of, or the intervening substance through which sensory impressions are conveyed or transmitted.







1895: Lumière Brothers, *Arrival of a train*

1895: Méliès *Le Voyage dans le Lune*

1915: The 1st Charlie Chaplin

1915: *The Birth of a Nation*: soundtrack

1927: *The Jazz Singer*: first talkie

1933: *King Kong*

1937: *Snow White*: first Disney feature length

1939: *The Wizard of Oz*

1952: *Singing in the Rain*

1967: *Bonnie and Clyde*

1975: *Jaws*

1977: *Star Wars*

The birth of film | **Silent film** | **Hollywood's Golden Era** | **New Wave** | **The Blockbuster Era**

Media Types & Genres

Print
- Poster
- Newspapers
- Books
- Magazines

Broadcast
- News
- Documentary
- Sport
- Reality
- Game shows
- Comedy sitcoms
- Drama
- Soap opera
- Crime

Video games
- First person
- Third person
- Action / Adventure
- Puzzle
- Role play
- Simulation
- Sports
- Idle gaming
- Shooter

Film
- Sci-Fi
- Fantasy
- Romance
- Horror
- Thriller
- Musicals
- Family friendly
- Animation
- Action

Technical codes

Camera angles, mise-en-scene and editing

Wide Shot or Extreme Long Shot	Used to establish the scene and the mood of the film.
long shot	It establishes the whole of the character within that setting.
mid shot	Normally focuses on a person from the waist up.
close up	Normally focuses on a person's face. This allows us to understand the character's thoughts and feelings.
extreme close up	Focuses on one object.
two shot	Shows characters relationship.
high angle	The camera is above the character, looking down at them.
low angle	The camera is below the character, looking up at them.
Point of View	Shows us the perspective of the character.

Mise-en-scène means "placing on stage"
Includes: placement of actors, lighting, décor, props, costume

Fast cutting
Slow cutting
Montage

Media conglomerate: A large media company that owns a number of smaller media companies

Vertical integration: The act of a media company owning most (if not all) of the chain of production for a media text

Horizontal integration: When a media company which is already established in creating a particular form of media text acquires another company operating within the same form. This may also be referred to as **diversification**.

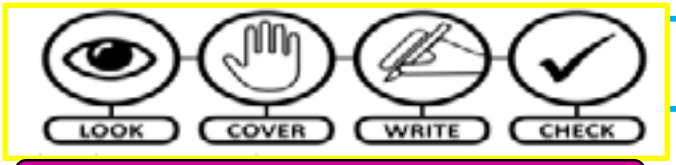
Synergy: Different parts of a media conglomerate combining to promote two separate products

Cross-platform marketing: Involves campaigns that span across different media platforms

Viral marketing: Exclusive to the internet (particularly on social media), its success is dependent on the success of, and awareness raised by, collective sharing and discussion of the product being marketed

Convergence: The act of media products that were previously perceived as being exclusively separate from one another coming together to enhance the media form in question or create a new one. Originally, mobile phones were used to make calls and text. Now, mobile phones can be used to enhance our lives in ways that were not considered possible before the creation of smartphones.

Music Theory

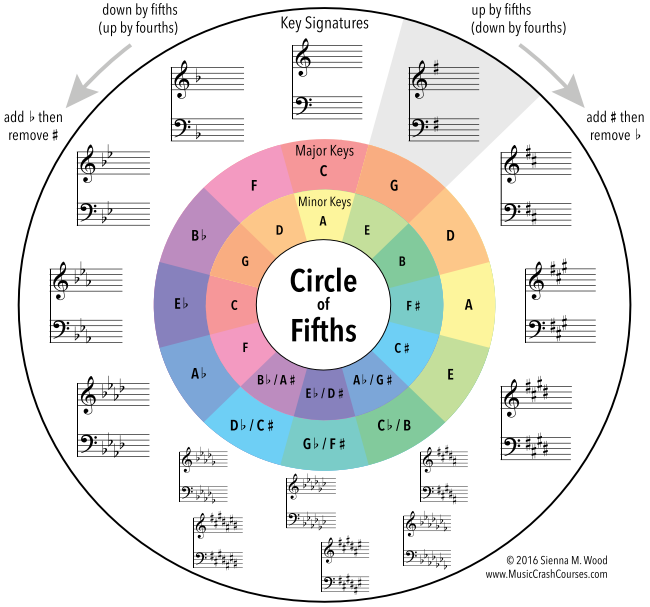


KNOWLEDGE ORGANISER – Year 9 – Theory

Tonality

Key Signature	The sharps or flats at the start of a piece of music, showing what key the music is in.
Tonal	In a Major or Minor key.
Atonal	No sense of key.
Diatonic	Music only uses notes that are found in the key signature of the piece.
Chromatic	Music uses the notes found in the key of the piece but also adds in extra accidentals (# / b).

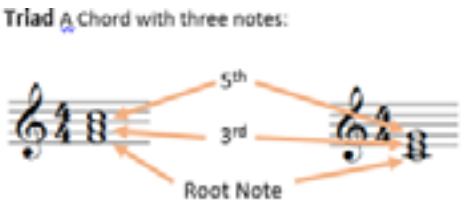
Major and Minor Key Signatures

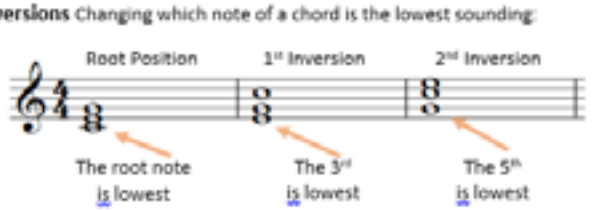


*When you write music in a minor key you also need to raise the 7th note (leading note) up one small step - e.g. A minor uses G#s, not Gs.

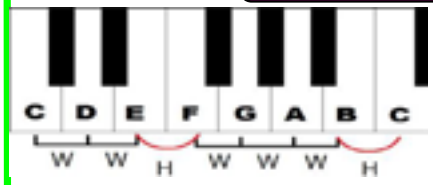
Harmony

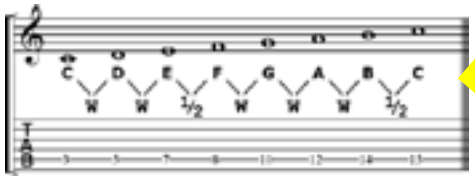
Triad	A chord with three notes.
Power Chord	Only playing the Root and Fifth of a triad.
Dissonance	Clashing notes played together.
Consonance	Notes that fit / sound nice together.
Primary Chords	The three most commonly used chords used in music: I, IV, V
Secondary Chords	The other chords: II, III, VI, VII
Tonic	First note or chord of the scale
Dominant	Fifth note or chord of the scale
Relative Minor	Using the circle of fifths - the key on the inside of the major key you are using. For example the relative minor of C is A minor.





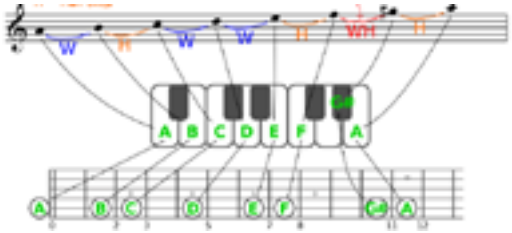
Constructing Major Scales (using C)

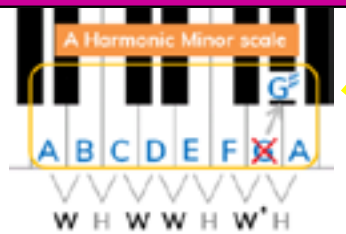




Every major scale follows the same pattern shown to the left. W = a whole tone (2 semitones) and H or ½ = a half tone (1 semitone).

Constructing Harmonic Minor Scales (using Am)





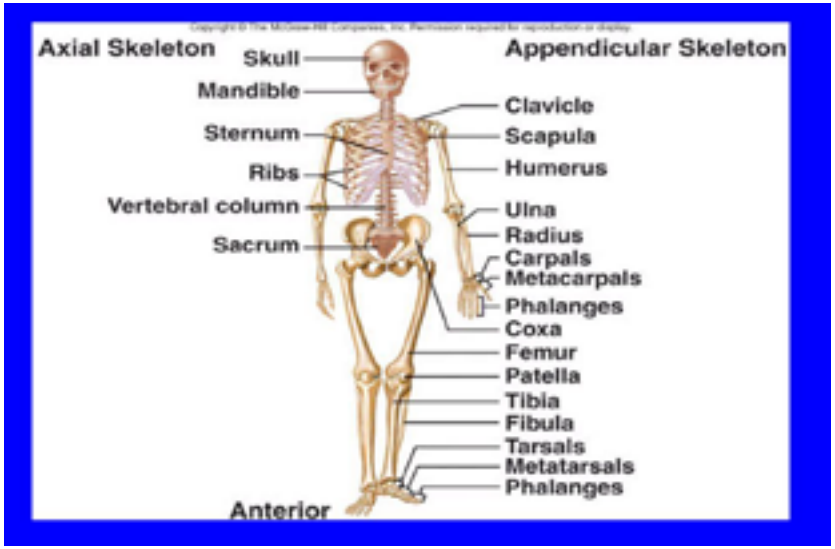
Every minor scale follows the same pattern shown to the left. W = a whole tone (2 semitones) and H or ½ = a half tone (1 semitone). Here the 7th is raised an extra half tone.

Skeletal System

The Skeletal System

Structure – The skeleton is divided into two sections and you should be able to locate the bones listed below:

- **Axial** – cranium, sternum, ribs and vertebrae
- **Appendicular** – clavicle, scapula, humerus, radius, ulna, carpals, tarsals, pelvis, femur, tibia, fibula and phalanges



- **Four Different Types of Bone**
- **Long bones,** such as the femur (your thigh bone) and the humerus (in your upper arm). These bones are usually connected with large movements of the body.
- **Short bones**, such as the carpals and tarsals (found in your hands and feet). These bones are linked to smaller movements of the body.
- **Flat (or plate) bones**. These bones protect the internal organs – for example, the skull, the ribs, the sternum and the scapula.
- **Irregular bones**. These bones are irregular in shape, such as the vertebrae (in your spine)

Joints

The skeletal system is made up of bones that join together to form **joints.** The skeletal system allows **movement** to happen when it is joined up with the muscular system. **Connective tissue** called **tendons** link the bones to the muscles and **ligaments** join up bones at the joints.

Three Types of Joints

- **Fixed joints** - There is no movement in these joints. Examples are the skull and the pelvis.
- **Slightly moveable joints** - These joints are linked by cartilage, which means that there is some movement but it is very slight/limited. Examples of these joints can be found in the spine, ribs and sternum.
- **Synovial joints** These are the joints that provide a great range of movement within the body

Types of Synovial Joints

Pivot joint – this type of joint is found in the neck/; it allows rotation of the head**.**
Condyloid joint – these joints are found in the wrist and ankle.
Saddle joint – this type of joint is found at the base of the thumb.
Gliding joint – this type of joint is found in the wrist and the clavicle.
Ball and socket joint – these joints are found in the shoulder and hip; this type of joint allows the greatest range of movement.
Hinge joint – these joints are found in the elbow and knee; they allow movement that is limited to one plane (similar to a door swinging on its hinge).

Joint Actions

- **Abduction**: this is movement away from the mid-line of the bod
- **Adduction:** this is movement towards the mid-line of the body.
- **Extension**: this is when we straighten the limbs (arms/legs) at a joint.
- **Flexion:** this is when we bend the limbs (arms/legs) at a joint
- **Rotation**: this is a circular movement around a fixed point, either inward or outward

The Main Functions of the Skeletal System

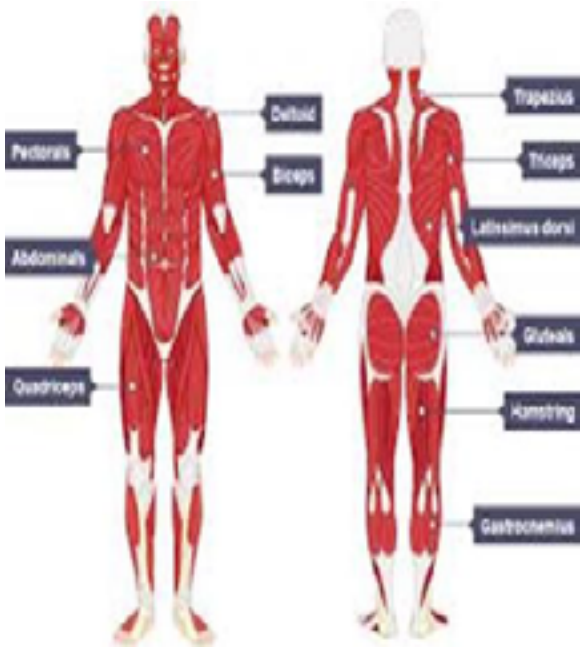
- Working with muscles to allow **movement** in joints
- Giving **support** to our muscles and organs
- **Protecting** vital organs (for example, our skull protects our brain)
- Maintaining our basic **body shape**
- **Producing red and white blood cells** (this is done in the bone marrow)
- **Storing minerals**, such as calcium

Muscular System

The Muscular System

Location and Movement Functions of Key Skeletal Muscles

- **Biceps** – Found in Upper front Arm and allow flexion of the elbow
- **Triceps** –Found in upper rear arm and allow extension of the elbow
- **Hip Flexor-** – Found in hip and allow flexion of the hip
- **Gluteus Maximus** – Found in rear of lower torso and allow extension of legs at hip
- **Abdominals** – Found in lower front torso and allow flexion of the spine
- **Quadriceps** – Found in upper front leg and allow extension of the knee
- **Hamstring** - Found in upper rear leg and allow flexion of the knee
- **Pectorals** – Found in upper torso and allow adduction of the arm
- **Deltoids** - Found in the neck and allow abduction of the deltoid



Antagonist Pairs

Each pair of muscles has an **agonist** (*the muscles that pull, produce the movement and shorten)* and **antagonist (** *the muscle that relaxes and lengthens*). An example of an **Antagonist Pair** is the biceps and triceps. When the elbow flexes the bicep is the **agonist** and triceps is the **antagonist .**

Types of Muscle

Cardiac:
- Found in the heart
- Oxygen dependent, involuntary
- Aids blood flow through the heart

Smooth
- Found in multiple locations including digestive tract, blood vessels and lungs; contracts in all directions
- Can work without oxygen, involuntary
- Aids digestion, helps the distribution of blood

Skeletal:
- Found around the body
- Can work with or without oxygen, works voluntarily
- Aids with movement

Cardiovascular System

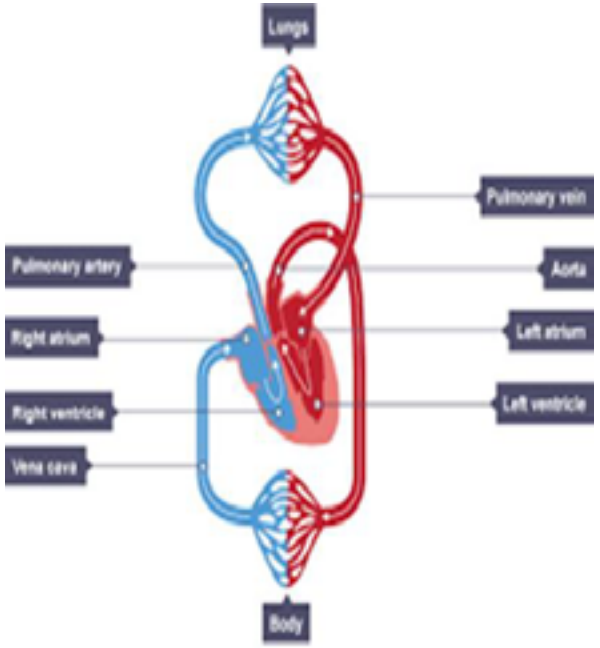
The Cardiovascular (CV) System

The main functions of the CV system during exercise are -

1. **Transport oxygen** and nutrients to fuel vital organs and muscles in the body.
2. **Transport carbon** dioxide and waste products away from organs & muscles.
3. **Regulate** body temperature.
4. Redistribution of Blood during Exercise (**Vascular Shunt)** during exercise .

The cardiovascular system comprises the **heart, blood** and **blood vessels.**

Cardiac Cycle



Deoxygenated Blood Pathway –

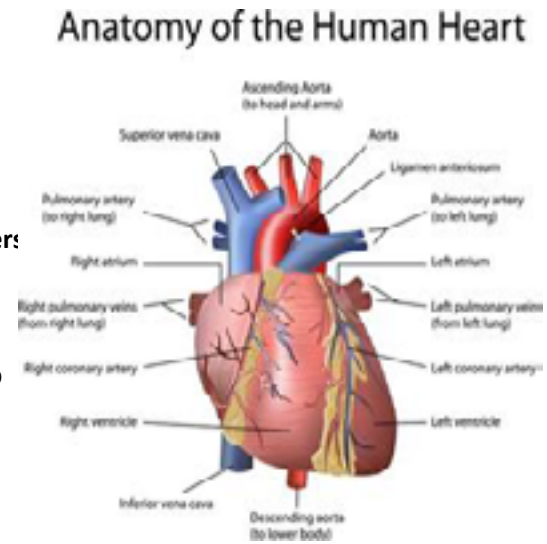
- from the body
- to vena cava,
- to right atrium,
- to right ventricle,
- to pulmonary artery,
- to the lungs to pick up oxygen and nutrients

Oxygenated Blood Pathway

- from the lungs to
- the pulmonary vein,
- to left atrium,
- to left ventricle,
- to aorta,
- to the body to drop off O2 and nutrients
- Also here the blood picks up waste products (CO2) and becomes deoxygenated

The Heart

This is a muscle which is continually contracting and relaxing, in order to pump blood through the blood vessels. Every time the heart contracts and relaxes is called a 'heartbeat'.



- The heart is made up of **four chambers**
- The **top two** are called the **atria**
- The **bottom two** are called the **ventricles**
- The heart also has **valves**, which stop the blood from flowing backwards

Blood Vessels

Veins

- Thin walls, contain valves to ensure blood flows in one direction
- Carry deoxygenated blood to the heart,
- carry blood under low pressure

Arteries

- Thick, muscular walls
- carry blood under high pressure
- Carry oxygenated blood away from the heart to the body

Capillaries

- The smallest blood vessels,
- with very thin walls
- Assist with gaseous exchange at the lungs

Vascular shunt – This is blood redistribution to the muscles with greater demand, while diverting away from areas of lower demand, through: *The widening of blood vessels (vasodilation). The narrowing is called (vasoconstriction)*

Respiratory System

Pathway of Air Through the Respiratory System

1. **Nose / Mouth –** The nose is the primary opening in the body's airway the mouth the secondary. Air is drawn into these and then passes to the -

1. **Pharynx -** This also known as the Throat . The air passes through this into the –

1. **Larynx** – This is also known as the Voice Box. The air passes through this into the
2. -
3. **Trachea –** This also known as the Windpipe and is the '*main trunk of the tree*' At this point there is the –

1. ***Epiglottis*** *– 'a small flap of cartilage that acts as a switch between the trachea and the oesophagus (the tube connecting the pharynx to the stomach). When breathing this covers the oesophagus and when eating it covers the trachea to stop choking.'*

6. **Bronchi** - Air then travels into either the left or right bronchi *(the two main branches of the tree)* and then into smaller Bronchi. Then air passes into the –

7. **Bronchioles –** These spread like *small branches* into the lungs

8 . **Alveoli -** Finally air passes into the Alveoli and you can think of these *as leaves of a tree.* Here oxygen is diffused into the blood. There are thousands upon thousands of these.

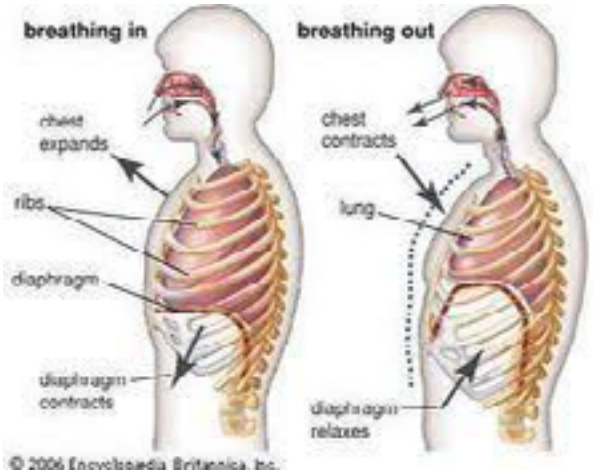
Mechanics of Breathing

1. Inspiration (Breathing In).

- The **external intercostal muscles** contract and lift up the ribcage (expanding it outwards and upwards).
- The **diaphragm** flattens, pulling downwards and contracting to **increase the volume** of the chest/lungs.
- **Pressure** inside the chest is **lowered** and air is taken into the lungs through the nose/mouth. *(remember gases move from a high to low pressure)*

2. Exhalation (Breathing Out)

- The **internal intercostal muscles** contract , lowering the ribcage (it drops inwards and outwards).
- The **diaphragm** becomes dome-shaped, relaxing and moving up
- The **volume** of the chest/lungs **decreases,**
- **Pressure** inside the chest **increases** and air is forced out of the lungs



PE - Effects of Exercise on the Body

Short Term Effects'*The immediate responses that your body makes when exercising*'

1. **Breathing rate** - During exercise, our muscles need more oxygen to provide fuel for the increased work they are doing . This increases the **rate and depth of breathing**

2. Heart rate, stroke volume and cardiac output - As your rate of exercise increases, your muscles need more oxygen for fuel. This causes an
•Increase in your **heart rate** and the f**orce/frequency** of its contractions, in order to pump enough oxygenated blood to the muscles that need it most.
•Your body may also **release adrenaline** before exercise begins, and this can also cause the heart rate to rise.
• The wall of the left ventricle expands to allow it to fill up with more blood. This increases the **stroke volume** and so pumps more blood out into the body.
•Increase in **cardiac output .**As cardiac output is determined by heart rate and stroke volume (CO = HR x SV), an increase in these increases cardiac output.

3. Blood Pressure - during and immediately after exercise your blood pressure. will increase. This is because the force of your heart's contractions has increased.

4. Body temperature (sweating) During exercise, the body's temperature will rise. When this happens-
•Messages are sent from the brain to the skin to make it sweat. Sweating is our way of losing heat from our body by the evaporation of sweat.
•Blood vessels near the surface of the skin open up, so that heat can be released.

5. **Hydration levels** As our body temperature increases during exercise, the skin produces sweat. The body can lose a lot of water and become dehydrated.

6 **Muscle fatigue** At some point during exercise, our muscles will experience a decline in their ability to generate force or power (this is known as muscle fatigue). This is because the muscles are contracting more often , therefore using up more energy.

7. **Delayed onset of muscular soreness (DOMS) -** This is when we experience sore muscles after exercise/fitness activities, and occurs 1 or 2 days after exercising. DOMS will usually occur when your muscles work harder than they are used to – for example, if you start a new exercise programme/training method, change exercise or increase intensity. This causes damage to the muscle fibres which results in muscles feeling sore

8. Vascular shunt – This will start. Remember this is the process of redirecting blood away from inactive organs to areas of the body that need more blood.

Long Term Effects .*'The changes to your body due to exercise over a period of time'*
*1***Cardiovascular endurance increases**

- The **ventricle walls get larger/thicken** and become able to contract more powerfully, **pumping out more blood (which increases stroke volume**). This increase in size and volume is known as **cardiac hypertrophy**. Examples of exercise that would produce this include any endurance sport, such as long-distance running, swimming or cycling.
- The **respiratory muscles** (diaphragm, intercostal muscles and lungs) **become stronger.** They are then able to make the chest cavity expand more which allows more oxygen to be inhaled and so more is able to be supplied to the muscles.

2. Efficiency to use oxygen(VO2 Max) increases.
VO2 max is *'maximum amount of oxygen that the body is able to use during exercise'*).

- Long-term exercise leads to an **increase in vital capacity.** This means more oxygen is able to enter the body and go to the working muscles so they can work harder and more diffusion can occur so there are less waste products such as carbon dioxide.
- The **number and diameter of the capillaries around the alveoli will increase** due to long-term exercise – this leads to an increased efficiency in gaseous exchange.

3. **Blood pressure decreases -** Regular exercise can result in a decrease of approximately 6 to 10mmHg in both resting systolic and resting diastolic BP.
4. Resting heart rate deceases . This is because the size of the left ventricle (stroke volume) increases due to regular exercise and gas exchange becomes more efficient.

5. Muscular endurance increases - Through regular training, our body can become more efficient at tolerating the lactic acid and getting rid of it. This will mean the muscles will not fatigue (get tired) as quickly

6. Muscle hypertrophy and strength increases The term '*hypertrophy' means an increase in size,* so muscle hypertrophy means that muscles get bigger.

- Muscle hypertrophy occurs when the muscle cells increase in size. When you overload the muscle, small tears in the muscle fibres occur. When these tears repair themselves, the muscle will increase in size. This means that the muscle becomes stronger and it can contract with greater force.

8 -Red blood cells increase. This increase means that the body becomes more efficient at transporting oxygen in the blood to the muscles that need it during exercise.

9. Flexibility increases. This is due to the ligaments and tendons being stretched and becoming stronger and more when we exercise.

Diet

Balanced Diet

It is important that you take into account that a Diet should contain-

Carbohydrate (50-60%) Most energy that your body needs comes from these. They are either **Simple** Sugars (sweets, biscuits, fruit) or **Complex** Starch (Pasta, rice, bread, potatoes).

Protein – (15-20%) This is broken down to **amino acids** by the body. These help the body with growth and repair. They are very important for building muscle in your client. Eg chicken, fish, eggs, meat, nuts, milk, tofu/ Quorn.

Fat – (15-20%) – Your need fat in your diet to help maintain skin, protection for vital organs, give body warmth and help absorb vitamins. Fats are either saturated (meat, butter, milk, cream and cheese), or unsaturated (oily fish, such as salmon and mackerel, nuts and seeds).

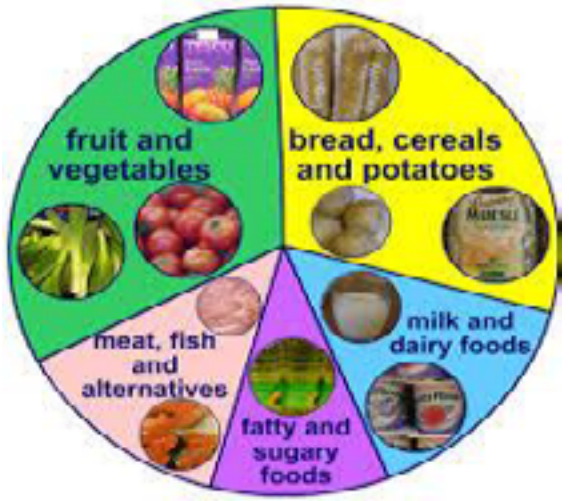
Fibre - This helps to keep the digestive system healthy, lower cholesterol levels and reduce the risk of bowel cancer eg Wholemeal bread rice , potato , nuts, baked beans , carrot

Water – (6-8 cups per day) – can also be fruit juices and other drinks. Your client will need this to cool their body, carry nutrients in the blood.

The Eatwell plate

This is one way to analyse a persons diet. It recommends

- five portions of a variety of fruit and vegetables a day
- Meals based on starchy foods, such as bread, rice, pasta and potatoes
- Some dairy foods (or alternatives), such as milk, cheese and yoghurt
- Sources of protein, such as fish, eggs, meat and pulses
- At least two portions of fish every week (one of which should be oily, such as salmon or mackerel)
- Only small amounts of foods that are high in fat, salt and sugar



Energy balance – If your client eats more than the recommended 2000 kcal per day and does limited/ no exercise they will gain weight. If your client is eating less than 2000kcal per day and or completing a lot of exercise they will lose weight and struggle to build muscle / repair the body after exercise. Remember exercise uses Kcal's.

Photography - Photoshop

Tool Bar

Move + Select

Move Tool (V) – to move things

Quick Select (W) – to make a quick selection of similar pixels

Crop

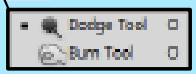
Crop Tool (C) – to trim your canvas

Retouching + Painting

Eraser Tool (E) – to delete pixels on a layer

Gradient Tool (G) – to create a colour blend. Use on a separate layer and apply a blending mode

Dodge / Burn tool (O) – hold click to alternate between



Dodge (lighten) – highlights @ <5%
Burn (darken) – shadows @ <5%

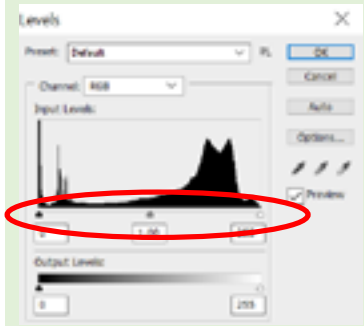
Drawing + Type

Navigation

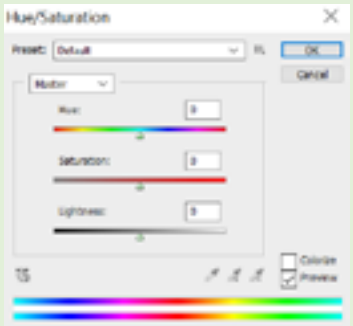
Zoom Tool (Z) – to zoom in/out

Colour

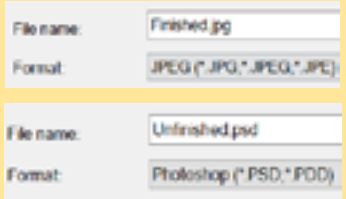
Foreground colour
Background colour



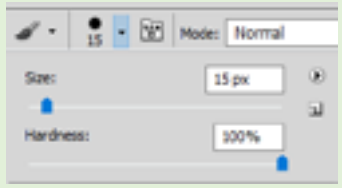
Levels (CTRL + L)
Adjust the exposure of your photograph using the black/grey/white arrows under the histogram. The histogram tells you where the majority of your light falls, from mostly shadow on the left to highlights on the right. This histogram says this image is quite bright.



Hue/ Saturation (CTRL + U)
To adjust the colours in your photograph/selection.
Hue is the colour in your image.
Saturation is the intensity, or richness of that colour/hue.
Lightness controls the brightness value, but to a poor effect- use levels instead to control light.



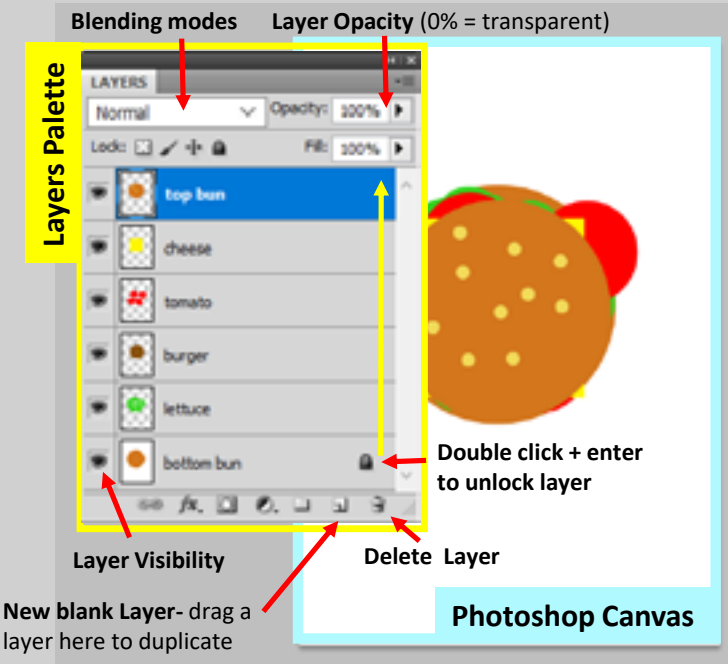
Saving Work
Finished work must be saved as a JPEG (not JPEG 2000).
Unfinished work needs to be saved as a Photoshop PSD file.



Brush settings (under file/edit)
Size is the diameter of the brush (this can also be changed using the square brackets).
Hardness controls the finish of the brush. A harder brush will have clear, sharp edges, whereas a softer brush will have blurred and less defined edges.

Useful Shortcuts

- **CTRL+T –** Transform Tool- use to resize elements. Hold down **shift** to keep your proportions
- **CTRL+D** – Deselects your selection
- **CTRL+ / CTRL __**– zoom in / out
- **[/] (square brackets** when using a brush based tool) will make your brush size smaller / bigger
- **CTRL+C** – copy a selected area
- **CTRL+V** – paste a copied area
- **Shift** (when using a brush based tool) – hold down shift to connect brush strokes to form a straight line
- **Space** – hold space to pan around your screen



Photography - Key Words

1. Photography Vocabulary

Connectives
However
Although
On the other hand
Whereas
Similarly
Furthermore
In addition
Additionally
It seems

Mood
Calm
Emotive
Exciting
Fearful
Humorous
Joyful
Peaceful
Provoking
Sad

Technique
Collaged
Digital
Edited
Layers
Mixed media
Stop frame
Sewn
Transfer

Colour
Bright
Contrasting
Dark
Dull
Highlight
Muted
Rich
Saturation
Shadow
Vibrant
Black & White

Light
Balanced
Bright
Dull
Harsh
Limited
Natural
Soft
Strong
Subtle

Composition
Background
Balanced
Blurred
Centred
Depth /of field
Foreground
Horizon
Juxtaposed
Rule of Thirds
Perspective
Strong

2. Photography Key Words

1. **Exposure**: How light or dark an image is. Can be described hen too much or too little light is in your photo
2. **Highlight/ shadow:** Light and shadow in your photo can be created and controlled with artificial light (lamps or flash) or natural light (sun)
3. **Contrast:** the difference between the darkest and lightest area in your photograph (high contrast = strong colours- punchy, Low contrast = grey/foggy)
4. **Focal Point:** The part of the photograph that the eye is immediately drawn to
5. **Composition:** To arrangement of the subject matter and how they relate to one another within the photograph
6. **Portraiture:** a photograph of a person or group of people that captures the personality of the subject by using effective lighting, backdrops, and poses
7. **Landscape:** shows spaces within the world. Landscape photographs typically capture nature but can also focus on the man-made features of the land
8. **Still Life:** focuses on inanimate objects; manmade (clothing, technology…) and natural (food, shells…) **Flay lay photography** is a modern take on still life
9. **Close up:** a photograph that shows a lot of detail because it is taken very near to the subject. **Macro** is where small items are photographed larger than life
10. **Crop:** To select an area of an image and remove surrounding area
11. **Perspective:** The position or angle of the shot in relation to object being photographed- this is usually done looking through the viewfinder before you take your photo but can also be adjusted after using the crop feature of Photoshop
12. **Forced Perspective**: A technique that employs optical illusion to make an object appear bigger/smaller/closer/further away than it actually is
13. **Focus:** Areas of an image may be in focus (clear and sharp) and some areas may be out of focus (blurry and difficult to see or make out)
14. **Depth of field:** How much of the image is in focus. It can be described using a scale of two terms- shallow/small and deep/large
15. **Rule of thirds:** A technique used to create a successful composition. The rule states that the focal point should not be dead centre in the image but either one third from the top, bottom or from one side of the image ie, in one of the intersecting points. In landscapes, the horizon line should fall on one of the horizontal grid lines

3. How to evaluate your work

1. How did you take your photograph? How did you set up your shot/ control your background/ lighting? Why?
2. Technical comments- depth of field? Rule of thirds? What can you tell me?
3. How did you edit your photograph? Why?
4. How does your work link to the photographer / theme?
5. What are your opinions of your work? Is your end result successful? Why?
6. How could you improve your work? *Bonus- do this!*
7. Did you enjoy your shoot? Why?

AO1: Develop

Artist research and how the artist fits the theme, explore, annotate, opinions.

AO2: Refine

Linking techniques to artists and themes, experimenting with a range of media and processes.

AO3: Record

Your ideas, plans, explanations, annotations, photographs linking together and to a theme and artists.

AO4: Present

Personal response, final pieces & body of work, presentation, technical ability.

Photography - Research

1. Tien-Min Liao

Tien-Min Liao was born and raised in Taipei, Taiwan. After graduating from National Chengchi University in Taiwan with a BA degree in advertising. In this experiment she drew shapes with ink onto her hands, manipulating her gestures into the corresponding shapes to signify the letters of the alphabet.

2. John Hilliard

John Hilliard is an English conceptual artist. Hilliard's ongoing body of work addresses the quality of photography: its uncertainty as a representational device and its status within the arts. Hilliard demonstrates how the way we understand a photographic image may be influenced and changed by the way it has been technically created, edited by the artist, and presented in the gallery.

3. Slinkachu

Slinkachu is a London-based street installation and photographic artist. His work involves remodelling and painting of miniature model train set characters, which are then placed on the street. The titles given aim to reflect the loneliness and melancholy of living in a big city but along side this there is always some humour in the work.

4. Zev Hoover

Zev Hoover (born 1999), from Natick, Massachusetts. Hoover creates work about a 'miniature world'. In his fantastical photos people (usually himself) are digitally shrunken. The process involves capturing the background image first, shrinking photos of people in similar lighting, manipulating the images in Photoshop and editing the colour scheme so that it all matches.

5. Sandy Skoglund

Sandy Skoglund is an American photographer and installation artist. Skoglund creates surrealist images by building elaborate sets, furnishing them with carefully selected coloured furniture and other objects. The works are characterized by an overwhelming amount of one object and either bright, contrasting colours or a monochromatic colour scheme.

6. Yulia Yakushova

Yulia Yakushova is a Russian creative director living and working in New York. **'Face your pockets'** is a body of work featuring a scanned image of part of the owners face alongside the objects from their pockets or handbags. The odds and ends that people possess often show what is important to them as a person.

7. Tom Hussey

Tom Hussey is an American photographer specialising in commercial advertising and lifestyle photography. **'Reflections of the Past'** was used by a healthcare company in a marketing campaign for the treatment of Alzheimer's disease. The work features elderly models staring at reflections of their former selves.

8. Research prompts

1. Brief background (who, what, where- no Google copy and paste)
2. Describe the composition of the photo
3. Describe the lighting
4. What technical elements can you tell me?
   (rule of thirds / depth of field)
5. How do you think the photograph was taken? Make some guesses
6. What do you like most about the photo? Why?
7. How does the work fit with your current topic?
8. What ideas does the work give you?

Year 9 Knowledge Organizer Autumn Term

Key Words;

Roles; are the position of a person as well as the characteristics expected of them. e.g. police officer should be honest.

Responsibilities; **the actions and duties you are expected to carry out such as looking after family members.**

Nature and purpose of marriage

Marriage ceremonies celebrate the importance of marriage and contain rituals and symbols that reflect the nature and purpose of marriage. Partners show in public their commitment to each other by their vows and the rings.

Issues of Relationships

Christianity:

- **Family is where nurturing takes place**
- **Worship can be together as a family**
- **Festivals such as Christmas and Easter are celebrated as a family**
- **Baptism and confirmation mark special times.**
- **Mothers and fathers are supposed to play an equally important role in family life.**
- **Children are a gift from God**
- **Decalogue 'honour thy father and *mother'*.**

Islam

- **Mothers and fathers should play equally important role although their roles may be different.**
- **Family often includes extended family.**
- **Halal diet can be kept together**
- **Children expected to care for older members.**
- **Role of family honour important**
- **Festivals such as Eid al Fitr kept as a family**

In a pluralistic society two people from different religions or cultures can marry which can raise issues.

- ***Dietary rules? e.g. halal kitchen***
- ***Festivals? What to celebrate? Christmas/Eid both?***
- ***Faith of any children born?***
- ***Death and the after-life. Funerals?***
- ***Moral issues? Abortion for RC?***
- ***Recognition of the marriage?***
- ***Gender roles? Women working?***
- ***Others?***

Christianity;

- **Marriage is a sacrament for Catholics and are performed by a priest or vicar.**
- **Marriage is God's intention (NT)**
- **The vows show commitment ('in sickness and in health')**
- **The rings represent eternal love as they are a continuous band.**

Islam;

- **Marriage is a gift from Allah as the Qur'an states God creates a soulmate for everyone.**
- **The basis for family life.**
- **Nikkah takes place in the mosque to show it is under Islamic law and the contract is signed by witnesses.**
- **The need to have a companion. The Wali (bride's guardian) offers the bride to the groom to symbolise the groom's responsibility to his wife.**

Year 9 Knowledge Organizer
Autumn Term

Key Words;

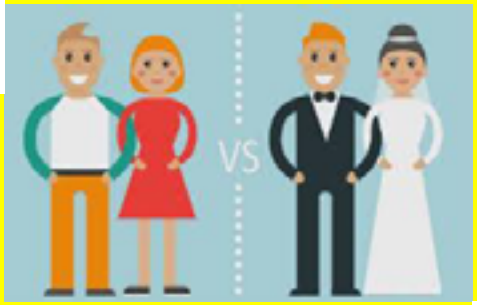
Cohabitation; to live together and have sex but without being married.

Adultery; having sex with someone other than your husband or wife (against the Decalogue and every religion forbids it)

Cohabitation

Christianity;

- Sexual relationships are considered sacred so traditionally cohabitation and adultery were prohibited.
- Some Anglicans (Protestants) allow cohabitation in committed relationships as long as marriage is going to happen at some point.
- The Catholic Church doesn't allow cohabitation at all.
- Some Baptist churches will refuse to marry couples who are cohabiting.



Islam;

- Sexual relationships should take place within marriage.
- Cohabitation is considered wrong.
- In the UK and other Western countries it is likely to occur.

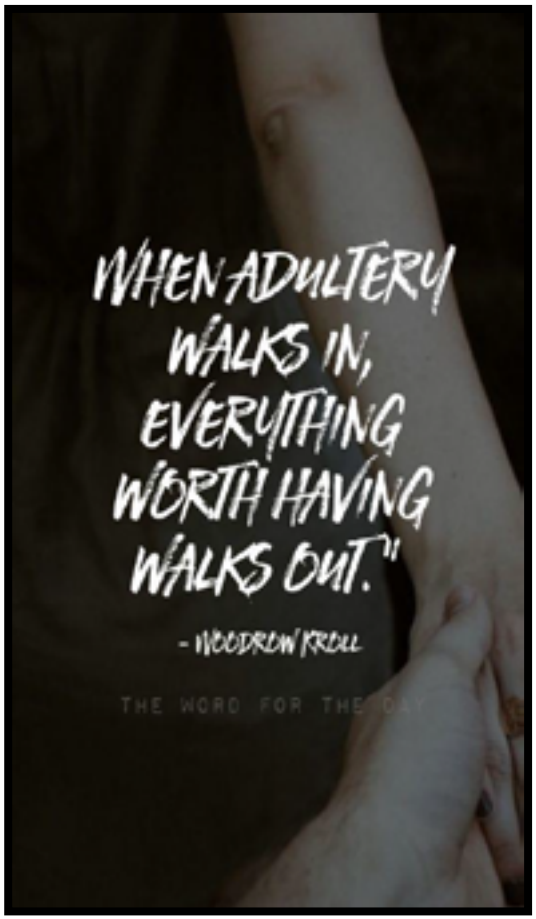
Adultery

Christianity;

- Marriage is sexually exclusive and a sacrament (RC) so adultery is unacceptable.
- Breaks the wedding vows
- Decalogue forbids it
- Adultery spoils the special relationship between the couple.
- It harms the family unit.

Islam;

- Sex outside marriage is not approved.
- Vows during marriage explicitly state being faithful
- Harms the family and ummah
- Surah states it is shameful opening onto other evils.



Year 9 Knowledge Organizer Autumn Term

Key Words;

Divorce; the legal ending of a marriage.

Separation; a couple deciding to live separately

Annulment; the cancelling of a marriage in the Catholic Church

Remarriage; When a person who was married wants to marry someone else

Divorce and Remarriage

Christianity

- Divorce is accepted as a legal ending of marriage but it is not preferred (Mark 10:9)
- Every effort at reconciliation must be made.
- Ministers are free to decide whether to conduct a remarriage service or not.
- JC said remarriage after anything other than unfaithfulness was adultery.

Catholic Church

- Marriage only ends at death
- Marriage is a sacrament and cannot be dissolved
- An annulment is available where there is a complete breakdown, however, if an annulment takes place remarriage is possible

Islam

- Divorce is allowed as a last resort. Before they divorce the couple should have counselling to reconcile
- A period of 3 months (iddah) of trying to reconcile must be tried
- If they divorce, the wife gets the final part of dowry
- Remarriage is allowed
- It is not wrong to separate if they both agree; says this in the Qur'an

Same Sex Relationships

Christianity

- Many Christians oppose same sex relationships and marriages on Biblical grounds. Marriage is regarded as something between men and women 'a man who lies with another man is detestable' Leviticus
- Anglicans don't allow same sex marriage in church although some clergy allow a blessing
- Quakers have welcomed same sex marriages for several years.
- Catholics prohibit same sex marriage and disallow it in church.

Islam

- Sex should only take place between a husband and wife and as Islam doesn't allow same sex relationships or marriage this will not be allowed.
- Qur'an forbids it

Year 9 Knowledge Organizer
Autumn Term

Key Word;
Contraception; methods of avoiding pregnancy whilst having sex

Christianity (attitudes to sex)	Catholics (attitudes to sex)	Islam (attitudes to sex)
Sex should take place within a committed relationship such as marriage	Artificial methods of contraception are not allowed as they are against Natural Law theory (Aquinas)	Sex should only take place within marriage. Unlawful sexual intercourse is immoral and in most Muslim countries, illegal.
Sex is holy and sacred and a gift from God	Sex should always allow the possibility of new life (Aquinas' 2nd primary precept)	Sex is considered an act of worship
Sexual relationships are special and unique and a commitment between husband and wife	Natural methods of contraception such as rhythm method or temperature check	Sex is one of the ways of meeting a partner's needs
Casual sex devalues people and the act	Priests are expected to be celibate	Use of contraceptives is acceptable if both partners agree
Sex outside of marriage is harmful to the relationship of marriage		Contraceptives which harm the body are not acceptable e.g. sterilization
Contraceptives are acceptable to many Christians as long as they are in a committed relationship.		

Barrier	Abortifacients	Hormonal	Natural
Condoms Cap	Coil Morning after pill	The pill Injection	Rhythm method Temperature

Year 9 Knowledge Organizer Autumn Term

Key Words;

Gender Equality; people of all genders enjoying the same rights and opportunities in all aspects of their lives

Prejudice; pre-judging someone and having thoughts about them e.g. *'I hate X'* based on race/religion/ethnicity etc.

Discrimination; acting upon those thoughts *'I hate X so won't give them a job'*

Gender Prejudice and Discrimination

Christianity

- The original disciples were all men
- JC had women followers
- *'There is no longer Jew or Greek, there is no longer slave or free, there is no longer male and female; for all of you are one in Christ Jesus'* (supports equality)
- *'let the women learn in silence with subjection'* (promotes inequality)
- Roles of men and women are taught as equally important but may be different
- Anglican have female vicars and bishops

Catholics

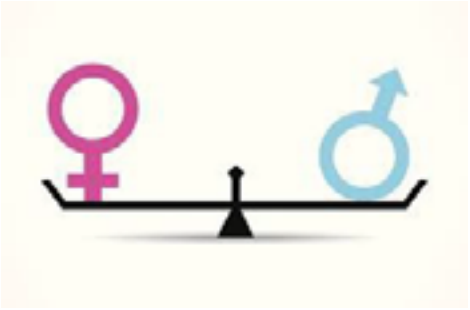
- Women can have an active role (nuns) helping people
- Women cannot be ordained
- Pope Francis has emphasized the important role women play in the church.

Orthodox

- Women cannot enter priesthood
- Different roles of men and women can be seen in the Bible. The different roles of Mary and Martha (

Islam

- Teachings in the Qur'an show Allah created all people from the same soul
- Qur'an says anyone who is a true believer can be male or female
- The Qur'an says men should have authority over women in divorce
- Usually men are imams who lead the prayers
- Men and women separate for worship
- Some Sunni groups have women lead prayers for other women but they must stand within the congregation
- Roles of men and women are taught as equal but may be different



Year 9 Knowledge Organizer Autumn Term

Creation Story; Christianity

There are two stories found in Genesis

The 1st Creation Story

1. God created the world for a purpose and it was fundamentally good
2. God created human and animal life
3. Human beings were expected by God to be stewards of the world
4. On the 7th day God rested

The 2nd Creation Story

1. Adam was created first
2. Adam was formed from the dust of the earth and the breath of God
3. He was created before the animals
4. He was placed in the Garden of Eden, to live in paradise
5. Eve was created to be his partner.

Differences in attitude

- Some believe that God must have caused the Big Bang that is seen as the start of the universe
- Some believe there is sufficient evidence to show life has evolved over millions of years
- Some believe the Creation story is literally true
- Some believe the Creation story can be interpreted and although might contain real meaning, might not be historically true.

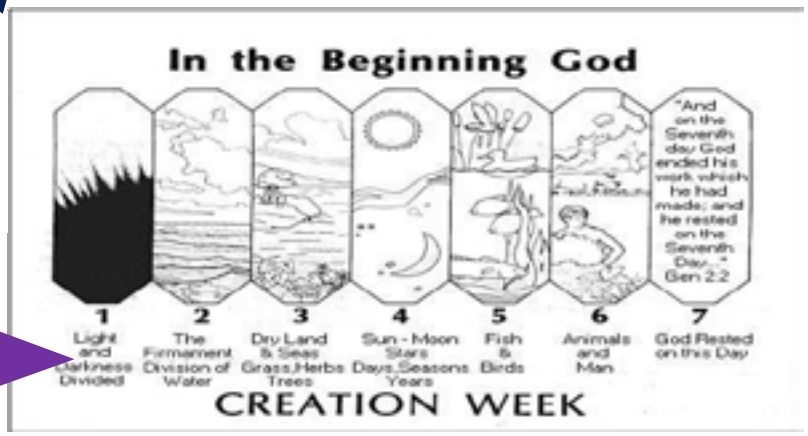
Compare with any similarities

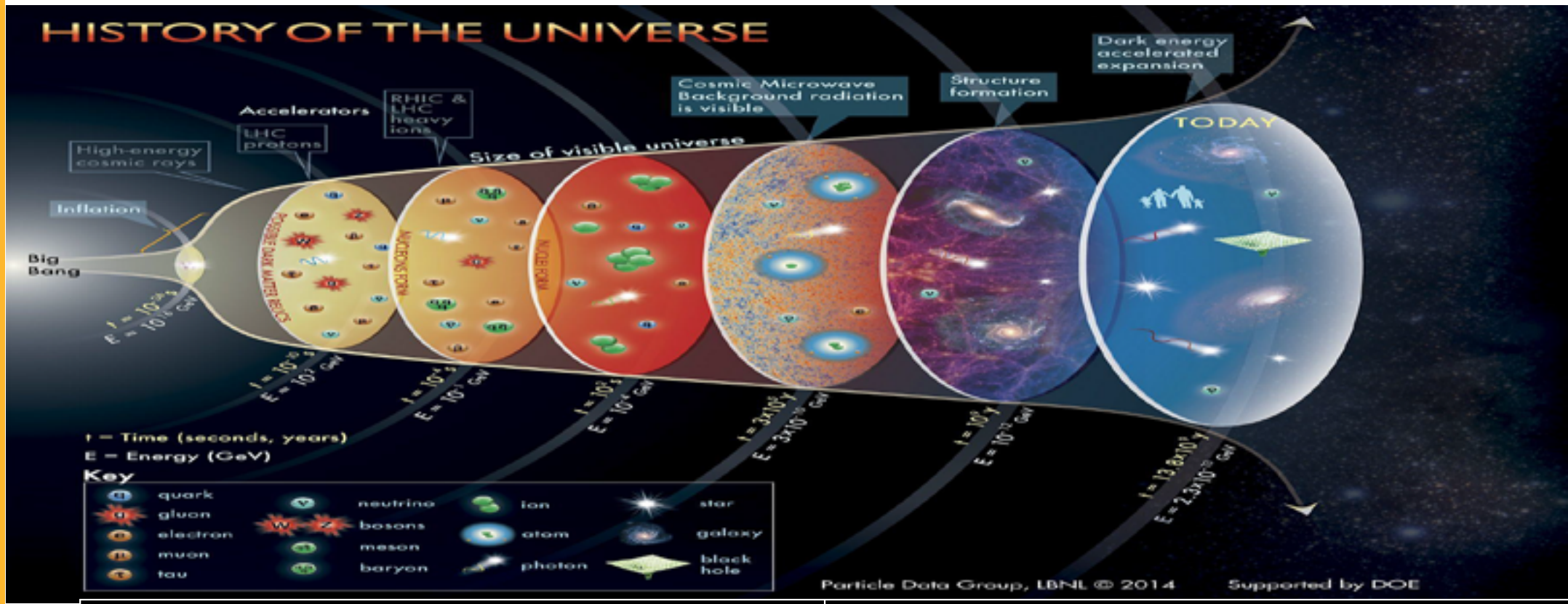
Islam

1. Allah made the world and everything in it
2. Allah created heavens and earth over six long periods
3. Adam was made out of clay and had live breathed into him
4. A wife was made (Hahweh)
5. Humans were given role of 'khalifah' (stewards)
6. On the Day of Judgement all Muslims will be called to account for how they have looked after Allah's creation

Religious and Non Religious Views

- Some people believe in literalist reading of sacred texts
- The importance is having faith. God will lead people to know what to believe.
- some people take an interpretive approach to sacred texts
- Some religious traditions have more than one creation story
- Beliefs are not static
- Translations of scripture can have differences in interpretation





Year 9 Knowledge Organizer Autumn Term

Evolution	The Big Bang Theory
Charles Darwin's research showed how creatures have evolved over a period of time	The study of the universe is known as cosmology
Creatures develop characteristics that allow them to survive and breed	In 1965 cosmologists produced evidence to argue that the universe did have an origin about 15 billion years ago
This became known as 'survival of the fittest' and is a natural process	Stephen Hawking's research showed the universe began from a 'singularity' – a tiny point that then expanded.
The biologist Richard Dawkins agrees that evolution is the best explanation of the origin of the universe	From this expansion came the formation of stars and planets
	The universe is continuing to expand but can be traced back to the initial event. The Big Bang.

Year 9 Knowledge Organizer
Autumn Term

Key Phrase:

Environmental Sustainability; is ensuring that natural resources are used but protected so that all people, animals and plant life can live well now and in the future

Humanism

- Humans should exercise their moral duty to care for the earth
- Care for the environment based on reason rather than a belief in a supreme being or God
- Create networks to campaign on issues such as global justice, climate change etc.

Christianity

- Humans should live in partnership with God and creation
- Exercise responsibility to look after the world given by God (stewardship)
- Preserve and conserve the resources of the world and the environment
- Give thanks to God for his provision
- Be responsible global citizens by using the earth's resources carefully
- Evangelicals; have dominion rather than live in harmony

Islam

- Muslims should exercise their Allah given responsibility to be khalifs of the world. Humans should love and respect the world as the Qur'an teaches Allah is the 'creator of all'
- Use their skills to preserve the fitrah or balance of the natural world
- Avoid waste, respect the earth and be kind to animals (Crying Camel)
- Some Muslims stress that they should care for the world as they will be judged by Allah on the way they have carried out their duties.

Year 9 Knowledge Organizer
Autumn Term

Key Phrase/Words;

Sanctity of Life; the belief that all life is precious or sacred. For many religious believers this is only human life.

Quality of life; the extent to which a life is meaningful and pleasurable

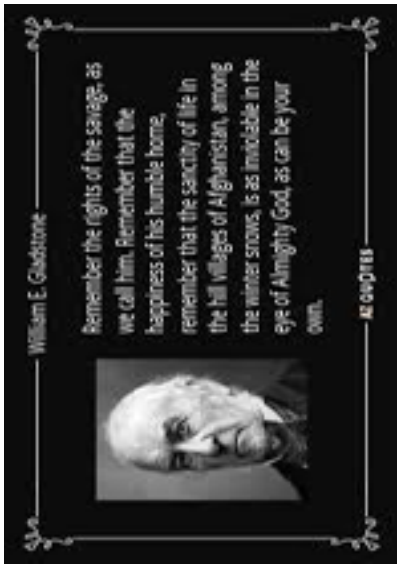
Christianity

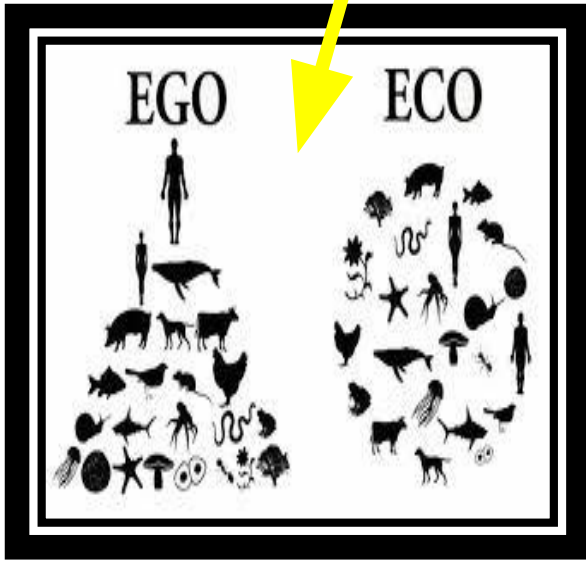
- The first book of the Bible teaches that God created human and animal life
- All life is special as it is created by God and should be protected
- Each life is unique and valuable beyond measure. *'Before I formed you in the womb I knew you, I set you up to be a prophet to the nations'*
- God is interested and involved in every human life
- Only God can take life
- JC showed in his teaching and practices that all life should be valued e.g. parable of the good Samaritan

Islam

- All life is special as it is created by Allah and should be protected
- Each life is unique and valuable beyond measure
- Every soul has been created by Allah
- Allah has a plan for each life which was written before each person is conceived
- No one has the right to take their own or anyone else's life *'…and do not kill the soul which Allah has forbidden to be killed, except by legal right…'*

Quality of Life is regarded by Peter Singer (atheist philosopher) as more important than sanctity of life. To count as a '***personhood***' he believes people must have the ability to think and be able to relate to others. He also believes that if there is little quality of life then a person should be allowed, under certain conditions , to tend their life. He uses the term '***speciesism***' to argue that it is wrong to give human beings greater rights than other animals. He believes humans and animals should be treated with equal consideration.





Year 9 Knowledge Organizer Autumn Term

Key Word;

Abortion; the ending of a pregnancy before it can result in the birth of a child (no use of 'baby', 'human', 'person' etc. until AFTER the birth)

Christianity

Christians have concerns about abortion because;

- Decalogue 'thou shalt not kill'
- God is the creator; only he can take life
- All life is sacred and precious
- JC taught compassion
- Humans are created by God and in the image of God.
- 'before I formed you in the womb, I knew you, I set you apart as a prophet to the nation'

Catholic and Orthodox

- Against abortion in ALL circumstances; including rape/incest/death of foetus/death of mother
- Believe at the moment of conception ensoulment happens

Anglicans

- Accept that certain situations might allow abortion; rape/incest/death of mother.
- These situations don't include social reasons.

Islam

- Abortion is usually considered 'haram'
- Only Allah can take life
- Abortion for economic reasons is forbidden
- Some Muslims allow abortion up to 16 weeks (time of personhood)

The mother's rights are more important than the foetus' up until ensoulment (120 days after conception)

- Abortion to save the mother's life is acceptable to some Muslims
- Allah takes a person's niyyah into account at Day of Judgement

Humanists

- Abortion depends upon the situation
- Consideration of the rights and wishes of everyone involved
- Humanists believe in free choice and have campaigned for legal abortion
- Generally believe it's a personal choice

Year 9 Knowledge Organizer Autumn Term

Key Word;
Euthanasia; the act of killing or permitting the death of a person who is suffering from a serious illness.

Christianity

Variety of views but general considerations are;

- Life is a gift from God
- Suffering and death are not the end but a doorway to the next life
- The Bible has no clear teaching on euthanasia
- Guidance might be sought through prayer
- The importance of the doctors' views
- The importance of the patients' views
- Aim should be to ease suffering e.g. hospices
- 'Thou shalt not kill'
- It is wrong for humans to play God and take life

Catholic

- Teachings of the Catechism stem from Aquinas' natural law and euthanasia breaks the first primary precept
- Only in exceptional circumstances can medical procedures be withheld.
- Switching off life support is generally supported by Catholics as technically the body is dead and a machine is breathing for the patient.

Islam

- Euthanasia is haram
- Allah created life and chooses how long each person will live
- Euthanasia is not included in the reasons for killing in the Qur'an
- Allah created all life and will take all life
- Doctors' views must be considered
- A living will can give an idea as to the patient's wishes.

Humanist

- The Dignity in Dying movement lobby for choice regarding issues of death and dying
- Provide assistance to anyone thinking about assisted dying
- They want people to have access to expert information on end-of-life options and care

Year 9 Knowledge Organizer Autumn Term

Key Words;

Afterlife; the life you have after death and the believe that existence continues after physical death through the soul.

Soul; the non physical immortal part of you which moves on after death according to religious people

Christianity

- Humans have a soul which is the spiritual part of being
- There is eternal life after death, which is received through faith
- There is a heaven and entry to it depends on a person's response to JC and to those in need on earth.
- There is a hell, the opposite of heaven, a place of separation from God
- There is a judgement which will determine the soul's future
- There is a resurrection from the dead as spiritual bodies '*I am the resurrection and the life. The one who believes in me will live, even though they die; and whoever lives by believing in me will never die*'

Catholic

- Souls of very good believers go directly to heaven
- Most other believers will go through purgatory, a place of cleansing that is between heaven and earth and is temporary
- Prayers can be said for those in purgatory to shorten their stay there and intercessions can be made through indulgences and penances

Islam

- There is akhirah (life after death) which is determined by one's deeds on earth
- There is a soul (ruh) which is released straight after death
- There is a heaven (Janna) and a hell (Jahannam)
- Entry to heaven is determined by the deeds of one's life as recorded in the book '*and everything they did is in written records*'
- Hell is for those whose good deeds are outweighed by their bad '*and the evil consequences of what they did will appear to them*'
- All this will be decided on the Day of Judgement and only Allah knows what he answer will be.

Humanist

- No soul = no afterlife

Similarities

Heaven	Hell	Purgatory (RC only)
permanent	permanent	temporary

Same order as table…

Year 9 Knowledge Organizer
Autumn Term

How Funeral Rites Reflect Beliefs About the Afterlife

Funeral Rite Practice	Belief Shown By This Practice
Prayers are said for the dying person and they can ask God for forgiveness	Shows the importance of the relationship with God
Catholics have 'last rites' as a sacrament	Shows the importance of the sacraments and the forgiveness of sins
In the funeral service the words 'I am the resurrection and the life' are often read	Shows that those who believe in JC will be resurrected to be with God
Candles may be lit	Shows that JC is 'the light of the world'
Some Christians consider it important to be buried not cremated	Shows belief about Dof J and the body for resurrection

Funeral Rite Practice	Belief Shown By This Practice
When close to death the kalimah is whispered into the ears	Shows the belief that death returns you to your creator
A simple white shroud is wrapped around the dead body	Shows the belief that all are equal before God in death
The body is normally buried	Shows the belief the body should remain whole for resurrection and DofJ
Site of the grave is often a raised mound without a headstone	Shows that everyone is equal in death
As the body is lowered into the grave the following is read '*we shall bring you forth once more*'	Shows that God will bring everyone back to life

Funeral Rite Practice	Belief Shown By This Practice
The funeral can be held in many different places	Shows there is no importance in the places of worship
Readings and songs are chosen which reflect the life of the deceased	Shows that this life is important and there is n afterlife
The life of the person is remembered with no mention of God or religion	Shows Humanists don't believe in God

Science - Biology - Cells

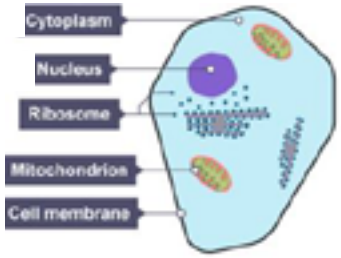
Y9 Cell Biology

Section 1 – Eukaryotes and Prokaryotes

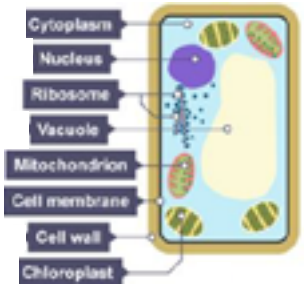
Eukaryotic – complex cell structure with a nucleus around genetic information
Prokaryotic – simple cell structure with no nucleus surrounding genetic information, single-celled

Section 2 – Cell Structure

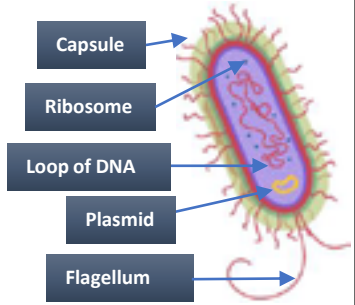
Animal



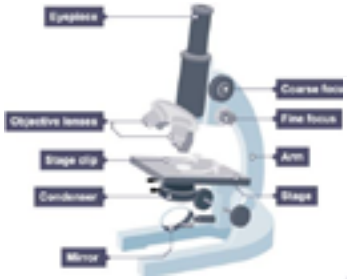
Plant



Bacteria



Section 3 - Microscopes



Calculating magnification of an image

Light microscope	Electron microscope
Uses Light	Uses beam of electrons
Low magnification	High magnification
Low resolution	High resolution

Section 4 – Microscopes Practical

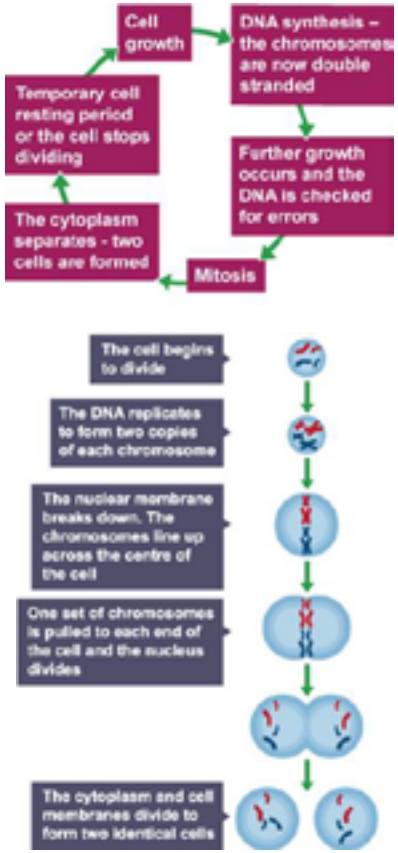
Cheek Slides

1. Take a clean cotton bud and swab the inside of your cheek.
2. Rub on a clean slide
3. Stain with a drop of methyl blue and place a cover slip over slide carefully to avoid bubbles

Onion Slides

1. Peel the epidermal layer from an onion
2. Place flat on a clean slide using tweezers
3. Stain with iodine and place a cover slip over slide carefully to avoid bubbles

Section 5 – Cell Cycle & Mitosis



- Mitosis is used for growth and to replace damaged cells
- One parent cell makes two genetically identical daughter cells

Section 6 – Diffusion

Happens randomly, movement of particles from an area of high concentration to low concentration

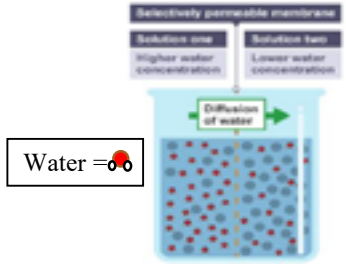
Occurs only in gases and liquids

Does not need energy

Examples include respiration, digestion

Section 7 – Osmosis & Required Practical

- Movement of water from an area of high concentration to an area of low concentration
- Requires a partially permeable membrane
- Does not need energy

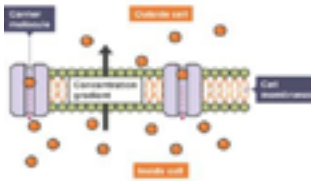


Investigating osmosis

1. Cut potatoes into cylinders ensuring they have the same width and length. Measure their mass
2. Place 1 each in boiling tubes of pure water and varying concentrations of sugar solution, ensuring the potato cylinder is completely immersed and leave for 30 minutes
3. Take out the potato cylinders and dry carefully with paper towel
4. Measure mass again
5. If mass has increased then water has moved into potato, if mass has decreased water has moved out of the potato

Section 8 – Active Transport

- Movement of molecules into or out of a cell through a cell membrane.
- Molecules move against the concentration gradient – from an area of low to an area of high concentration.
- Requires energy released during the process of respiration



Science - Biology - Respiration

Y9 Respiration

Section 3 - Stem Cells

A stem cell is an **undifferentiated** cell of an organism which is capable of giving rise to many more cells of the same type, and from which certain other cells can arise from differentiation. Stem cells are found in bone marrow (makes different blood cells), embryos (most types of animal cell) and in plant meristems (all types of plant cell)

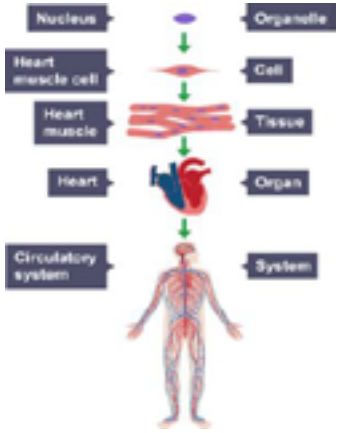
Section 1- Levels of Organisation

Cell – building block of all living organisms

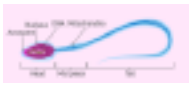
Tissue – a group of similar cells working together to perform a shared function

Organ – a group of different tissues working together to perform a function

Organ system – a group of organs working together to perform a function

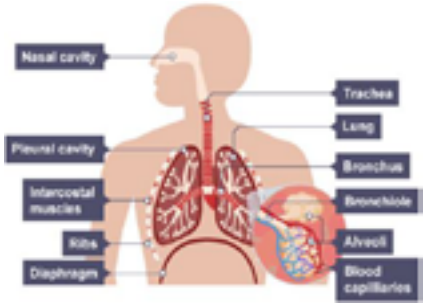


Section 2 – Specialised Cells

Sperm cells 	Takes male DNA to the egg. Has a tail to help it swim Large amounts of mitochondria for energy. Head (acrosome) contains enzymes to penetrate the egg
Nerve cells 	Carries electrical signals around the body . Long to carry signals over large distances, Branches to connect to other cells. Fatty sheath which insulates the cell and helps speed up impulses
Muscle cells 	Contain filaments of protein which slide over each other for muscle contraction Contain lots of mitochondria for energy
Root hair Cell 	Large surface area to absorb more water Thin walls to allow movement of water into cell
Phloem cells 	Transports sugars and amino acids up and down plant Long tubes joined end to end Companion cells provide energy for active transport
Xylem cells 	Transports water up the plant Continuous column Hollow so water can flow through

Section 5 - Respiratory System

Air enters through the nose and down the trachea, which splits into two bronchi (one to each lung) Air is pulled in by the contraction/flattening of the diaphragm and forced out when it relaxes



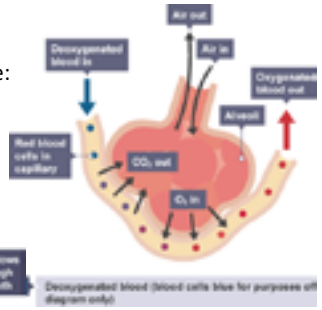
Section 6 – Gas Exchange

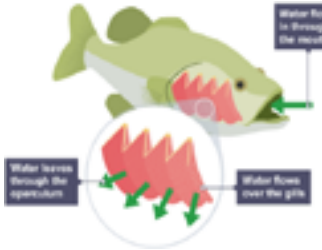
Effective exchange surfaces have:

Large surface area: volume ratio

Good blood supply

Walls one cell thick





Gas exchange is more difficult for fish; oxygen concentration is much lower in water than in air (1% compared to 21%). This means gills have to be very efficient

Section 8 – Effect of exercise

When exercising there is an increased demand for energy.

Heart rate, breathing rate and breath volume increase during exercise to supply the muscles with more oxygenated blood.

If insufficient oxygen is supplied anaerobic respiration takes place in muscles to supply energy.

Build up of lactic acid leads to **oxygen debt** – the amount of extra oxygen needed to recover post exercise.

Section 7 – Respiration

Respiration occurs in your cells. It is an exothermic reaction and releases energy.

The first stages of respiration occur in the cytoplasm of cells, but most of the energy released is in the mitochondria

Aerobic Respiration (with oxygen)

Glucose + Oxygen → Carbon dioxide + Water + Energy

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$ + **Energy**

Produces large amounts of energy

Anaerobic Respiration (without oxygen)

In animals:

Glucose → Lactic acid + energy

Provides smaller amounts of energy

Lactic acid is toxic – needs to be broken down.

In plants & fungi:

Glucose → Ethanol + Carbon Dioxide + energy

Useful for production of alcohol (ethanol) and bread (carbon dioxide gas to help it rise)

Section 9 – Metabolism

- **Metabolism** is the term used for all the chemical reactions that go on inside an organism's body.
- These reactions build up molecules, and break them down. They are controlled by enzymes

Science - Chemistry -Atoms

Y9 Introduction to atoms

Section 1 – Development of the Periodic Table

The early periodic tables were incomplete and some elements were placed in inappropriate groups if the strict order of atomic weights was followed.

Mendeleev

Left gaps for elements he thought had not been discovered.

Made slight changes to order of elements with regards to atomic weight and lined up elements in groups with similar chemical properties. Predicted properties of undiscovered elements, which proved to be correct.

Modern Periodic Table

Changed Mendeleev's table by ordering elements by their atomic number instead of their atomic mass. Also arranged elements in rows called periods

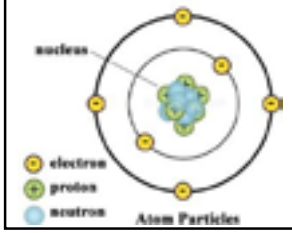
Order of discovery of Sub-atomic particles

Electron – 1897 by JJ Thompson

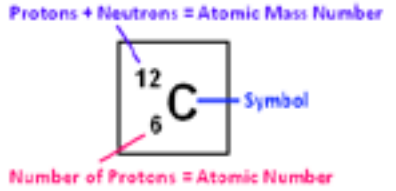
Proton – 1917 by Ernest Rutherford

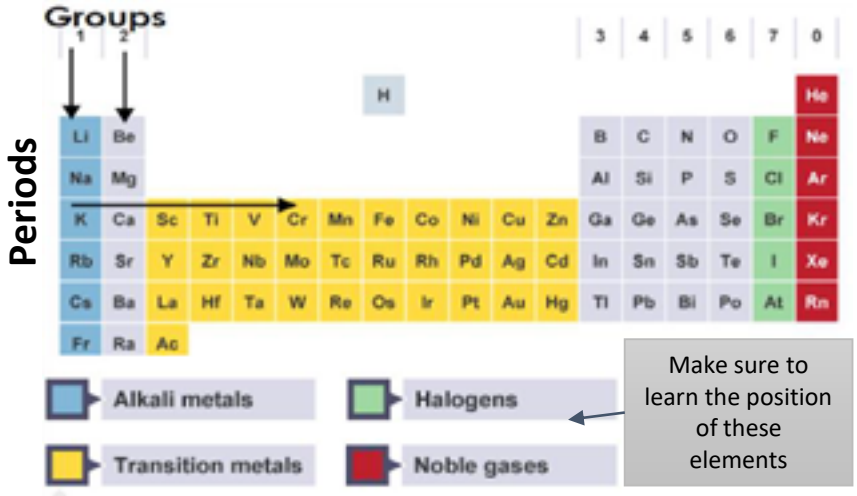
Neutron – 1932 by James Chadwick

Section 2 – Sub-atomic particles



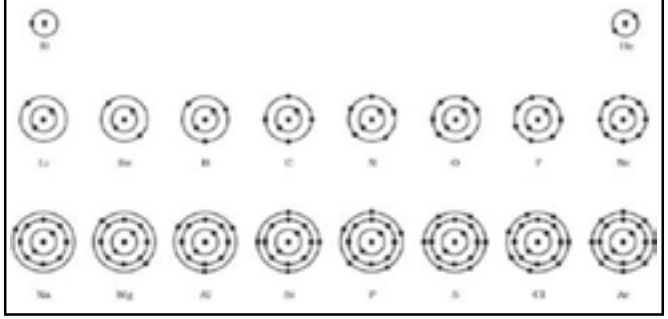
	Charge	Mass	Location
Proton	+1	1	Nucleus
Neutron	0	1	Nucleus
Electron	-1	1/2000 (very small)	Shells orbiting nucleus





Section 3 – Electron Configuration

Electrons are arranged in shells orbiting the outside of the nucleus. The first shell can take 2 electrons, the second shell 8 electrons and the third shell 8 electrons(2, 8, 8) . Electrons always occupy the lowest available energy level.



Section 4 – Group 1 Alkali Metals

One electron in outer shell.

Form ionic compounds with non-metals.

React with water to produce a metal hydroxide + hydrogen gas.

React with halogens to produce a salt

React with oxygen to form a metal oxide.

Trend down the group:

- Increase in reactivity as electron gets further away from nucleus
- Lower melting & boiling point

Section 5 – Noble Gases

Eight electrons in outer shell.

Not very reactive because of their stable outer shell.

Monatomic gases – single atoms not bonded to each other.

All colourless gases at room temperature.

Non-flammable.

Trend down the group:

- Higher boiling point
- Higher density

Section 6 - Halogens

Seven electrons in outer shell.

Form diatomic molecules

Form ionic bonds with metals.

More reactive halogens will displace less reactive ones.

	Colour	State at room temperature
Fluorine	pale yellow	gas
Chlorine	pale green	gas
Bromine	red brown	liquid
Iodine	dark grey	solid

Trend down the group:

- Decrease in reactivity
- Higher melting & boiling point

Section 7 – Transition Metals

Good conductors of electricity and heat

Shiny

Hard and strong

High density

High melting and boiling points

Malleable

Ductile

Sonorous

Form coloured compounds

Science - Physics - Matter

Y9 Matter

Section 1 – Internal Energy

The internal energy is the **total amount of kinetic energy and potential energy** of all the particles in the system.

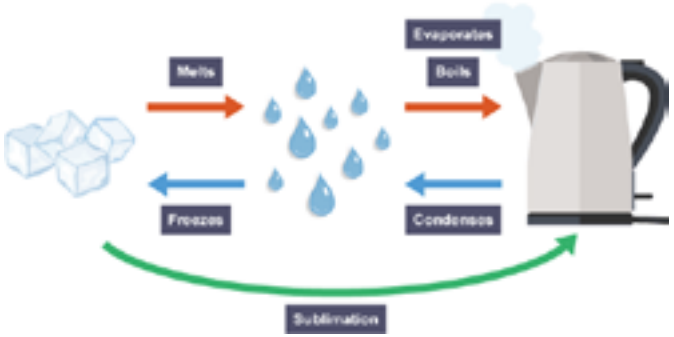
When energy is given to raise temperature, particles speed up and gain **kinetic energy**.

When a substance melts or boils, energy is put in to breaking the bonds that are holding particles together, which increases the **potential energy**.

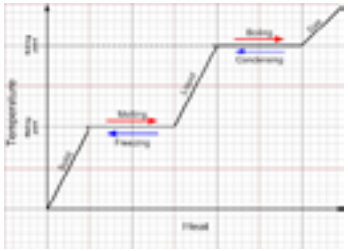
Gases have the most internal energy.

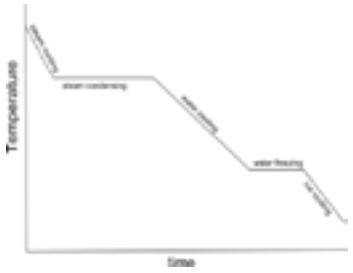
Section 2 – States of Matter

State	Diagram	Properties
Solid		Regular arrangement Incompressible Fixed shape Particles vibrate
Liquid		Irregular arrangement Incompressible Fill shape of container Particles can flow
Gas		Irregular arrangement Compressible Can change size/shape Particles move around



Heating and cooling curves show clearly where substances change state (graph is flat as the temperature remains the same while state changes)





Section 3 – Specific Latent Heat

Amount of energy required to change the state of 1 kilogram (kg) of a material without changing its temperature.

Latent heat of fusion - the amount of energy needed to freeze or melt the material at its melting point

Latent heat of vaporisation - the amount of energy needed to evaporate or condense the material at its boiling point

Latent heat of vaporisation is a larger value than latent heat of fusion as it takes more energy to change state from liquid to gas

Substance	Specific latent heat of fusion (kJ/kg)	Specific latent heat of vaporisation (kJ/kg)
Water	334	2,260

Equation:

Δ thermal energy = mass × specific latent heat

Section 4 – Specific Heat Capacity

Amount of energy required to raise the temperature of 1kg of substance by 1°C

The amount of thermal energy stored or released as the temperature of a system changes can be calculated using the **equation**:

Δ thermal energy = mass × specific heat capacity × Δ temperature

Different substances have different specific heat capacities.

Material	Specific heat capacity (J/kg/°C)
Brick	840
Lead	129

Lead will heat up quicker than brick as it has a lower specific heat capacity

Section 4 – Density and Required Practical

Density is amount of mass per unit volume and is measured in kg/m³. It is calculated by:

$$Density = \frac{Mass}{Volume}$$

To find density:

Regular Object (Cube)

Find its mass using a balance

Find its volume by measuring height, width and length (volume = h x w x l) using a ruler

Calculate mass/volume

Irregular Object

Find its mass using a balance

Find its volume by measuring the displacement of water in a measuring cylinder (new height-original height of water)or using a eureka can

Calculate mass/volume

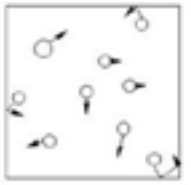
Section 5 – Gas Pressure

Pressure caused by a gas can be calculated by:

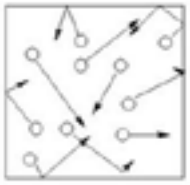
$$Pressure = \frac{Force}{Area}$$

Movement of gas particles is random

If volume is kept constant, increasing temperature of a gas will increase pressure



Cool gas, fewer and less energetic collisions



Hot gas, more and more energetic collision

Spanish - Desconéctate 1

Spanish Y9 – Desconéctate (1)

¿Qué haces en verano?		What do you do in summer?	
En verano	In summer	Monto a caballo	I ride a horse
En invierno	In Winter	Nado en el mar	I swim in the sea
Chateo en la red	I chat online	Salgo con mis amigos	I go out with my friends
Cocina para mi familia	I cook for my family	Toco la guitarra	I play the guitar
Descargo canciones	I download songs	Trabajo como voluntario	I work as a volunteer
Escribo correos	I write emails	Veo la tele	I watch TV
Hago natación	I go swimming	Voy al polideportivo	I go to the soprts centre
Hago esquí	I go skiing	Voy al parque	I go to the park
Hago windsurf	I go windsurfing	Voy al centro comercial	I go to the shopping centre
Hago una barbacoa	I do a BBQ	Voy de paseo	I go for a walk
Juego al baloncesto	I play basketball	Voy de vacaciones	I go on holiday
Juego al fútbol	I play football	Monto en bici	I ride my bike
Voy de compras	I go shopping	Voy al cine	I go to the cinema
Veo películas	I watch films	Mando SMS	I send texts

¿Con qué frecuencia?	How often?
Siempre	Always
A menudo	Often
Todos los días	Every day
A veces	Sometimes
De vez en cuando	From time to time
Una vez a la semana	Once a week
Dos o tres veces al año	2 or 3 times a week
(Casi) nunca	(almost) never
Cada semana	Every week

¿Dónde vives?	Where do you live?
Vivo en…	I live in
Norte	North
Noreste	Northeast
Noroeste	Northwest
Sur	South
Sureste	Southeast
Suroeste	Southwest
Este	East
Oeste	West
Centro	Centre
En la costa	On the coast

¿Qué tiempo hace?		What's the weather?	
Hace buen tiempo	It is good weal	El tiempo es variable	The weather is variable
Hace mal tiempo	It is bad weather	El clima es caluroso	The climate is hot
Hace calor	It is hot	Llueve	It is raining
Hace frío	It is cold	Nieva	It is snowing
Hace sol	It is sunny	Hay tormentas	It is stormy
Hace viento	It is windy	Hay chubascos	There are showed
Hay niebla	It is snowy	El clima es soleado	The climate is sunny

Spanish Y9 – Desconéctate (2)

¿Adónde fuiste de vacaciones?	Where did you go on holiday?
Hace una semana/un mes/un año	A week ago/a month ago/a year ago
Fui de vacaciones a…	I went on holidays to
Fui…	I went
Fui con…	I went with
Mi mejor amigo	My best friend
Mi clase	My class
Mi familia	My family
Viajé	I travelled
Viajé en…	I travelled by
Autocar	Coach
Autobús	Bus
Coche	Car
Barco	Boat
Avión	Plane
Fui a…	I went to

¿Qué hiciste?	What did you do?
Primero	First
Luego	Then
Más tarde	Later
Después	Afterwards
Finalmente	Finally
Aprendí a hacer vela	I learned to sail
Compré recuerdos	I bough souvenirs
Descansé	I relaxed
Tomé el sol	I sunbathed
Hice turismo	I was a tourist
Saqué fotos	I took photos
Vi un partido	I watched a match
Perdí mi móvil	I lost my phone
Nadé en el mar	I swam in the sea
Visité monumentos	I visited monuments
El peor fue cuando	The worst was when
Lo mejor fue cuando	The best was when

¿Qué tal lo pasaste?		¿Qué tal lo pasaste? How was it?	
Me gustó	I liked	Increíble	Incredible
Me encantó	I loved	Flipante	Awesome
Lo pasé bomba	It was great	Horrorroso	Horrendous
Lo pasé mal	It was bad	Un desastre	A disater
Fue…	It was	Gracioso	Funny
Inolvidable	Unfogetable	impresionante	Impressive

Mis vacaciones desastrosos		My disasterous holidays	
Por desgracia	Sadly	Esperar mucho tiempo	Wait a long time
Tuve	I had	Ir al hospital	To go to the hospital
Un accidente	An accident	Ir a la comisaría	To go to the police station
Un retraso	Delay	Perdí	I lost
Una avería	Puncture	El equipaje	Luggage
Tuve que…	I had to	La cartera	Wallet

Spanish Y9 – Desconéctate (3)

¿Cómo era el hotel?	What was the hotel like?
Me alojé	I stayed (accomodation)
Me quedé	I stayed (at home)
En un albergue juvenil	Youth hostel
En un apartamento	Aparetment
En un camping	Campsite
En un hotel de cinco estrellas	5 star hotel
En un parador	Inn
En una casa rural	Rural house
En una pensión	Hostel
Tenía	It had
Había	It was
Era	It was
Acogedor	Friendly
Barato	Cheap
Caro	Expensive
Lujoso	Luxurious

¿Cómo era el pueblo?	What was the town like?
Lo bueno	The good
Lo malo	The bad
De la ciudad	Of the city
Era que era	Was that it was
Demasiado	Too
Bastante	Quite
Animado	Animated
Pintoresco	Picturesque
Turístico	Touristic
Tenía	It had
Mucho ambiente	A lot of atmosphere
Mucho que hacer	Lots to do
Mucha contaminación	Lots of pollution
Muchos espacios verdes	Lots of Green spaces
Muchos lugares de interés	Lots of places of interest
Mucho tráfico	Lots of traffic
Muchos monumentos	Lots of monuments

Quisiera reservar		I would like to book	
¿Hay…?	Is there?	Con vistas al mar	With views of the sea
Una piscina	A pool	¿para cuántas noches?	For how many nights?
Ascensor	A lift	Para … noches	For … nights
Ducha	A shower	Del… al…	From… to…
¿Cuánto cuesta?	How much?	¿puede repetir por favor?	Can you repeat please?
Una habitación individual	single room	Quiero hablar con el director	I want to talk to the manager
Una habitación doble/ matrimonial	Double room	Quiero cambiar de habitación	I want to change bedroom
Con/sin balcón	With/without balcony	Lo siento	I am sorry
Con desayuno	With breakfast	Necesito…	I need…
Con media pensión	With half board	Jabón/champú	Soap/shampoo
Con pensión completa	With full board	Papel higiénico	Toilet paper

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