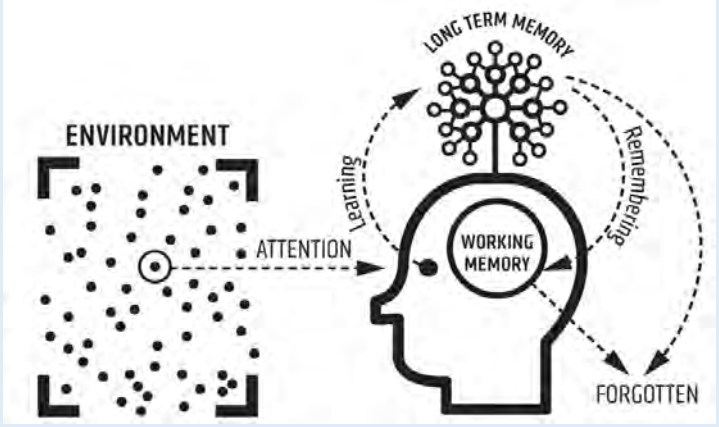
Knowledge Organiser Booklet Year 10 Term 3 Non Core

Our working memories can only store a limited amount of information, whereas our long term memories can store limitless information. To learn successfully, we need to store core knowledge into our long term memories, so we can retrieve it when we need it.

For instance, if you are at work or in the shops and need to work out a 25% discount, you can't memorise 25% of every number, so you need to be able to quickly recall the method for calculating a percentage. Committing core knowledge to our long-term memories is a life-hack. It makes thinking about difficult things easier.

Using a knowledge organiser with regular retrieval activities is a way for you to store core knowledge & subject specific words, into your long term memory so it is there when you need it.

Click here to be taken to the knowledge organiser part of the school website.



Contents

Clicking on the subjects below will take you directly to the knowledge organisers for each subject. These are to support learning that has taken place this past term. Use these to help reinforce the key knowledge. Use some of the strategies explained in the introduction to help you retain this important information.

Blended Learning Expectations

Make sure you have **access to a computer at home** (If you don't please make pastoral staff aware or email langley.homelearning@taw.org.uk)

Download Microsoft Teams on both your phone and computer. (If you don't know how to do this please ask a member of staff or do this in your next computing lesson)

Spend at least 2 hours a week using teams EVERY WEEK. (Engagement in teams can be tracked and monitored). You need to be accessing each of your class teams and recapping on the previous learning or completing additional tasks set by your class teacher.

If you have any issues with teams (e.g. login problems or missing classes etc then please email langley.homelearning@taw.org.uk)

Teams is a tool to support ongoing learning and should **only be used for educational purposes.**

How to complete homework your teacher has set

	LOOK, COVER, WRITE, CHECK	DEFINITIONS TO KEY WORDS	FLASHCARDS	DUAL CODING
STAGE 1	Look at & study an area of your knowledge organiser 	Write down the key words & definitions 	Write key words, dates/formulae, equations/quotes on one side & answers on the other	Draw pictures/diagrams/ cartoon strips 
STAGE 2	Cover up your knowledge organiser and write everything you remember 	Cover up the definitions. How many can you remember? Repeat. 	Include pictures or diagrams if it helps. Read through them. 	Label your pictures/diagrams/ cartoon strips 
STAGE 3	Check. Correct mistakes in green and add anything you missed. Repeat 	Check. Correct mistakes in green pen. Which ones do you find hard to remember? 	Test yourself and get someone to test you. 	Explain out loud to yourself or family/friend what your images show 

	SELF QUIZZING	MINDMAPS	PAIRED RETRIEVAL	SPEAK, COVER, WRITE, CHECK
STAGE 1	Use your knowledge organiser to create quiz questions. 	Create a mindmap of everything you can remember from your knowledge organiser 	Give a family member/friend the knowledge organiser to hold 	Read out loud the information from the knowledge organiser several times. 
STAGE 2	Write down the answers to your quiz 	Check your knowledge organiser & use a green pen to make any corrections. 	Get them to test you using the knowledge organiser 	Cover up your knowledge organiser and write everything you remember 
STAGE 3	Keep self-quizzing until you get all the answers correct 	Add additional information to your mindmap or make connections to other knowledge 	Write down your answers to their questions 	Check. Correct mistakes in green and add anything you missed. Repear. 

Retrieval Placemat

Look at your knowledge organiser. Now cover it up and write down Key vocabulary & definitons from memory:

First time: Look. Cover. State 3 facts

Second time: Look. Cover. State 3 facts

Third time: Look. Cover. State 3 facts

Look at the knowledge organiser again. Now cover it up and without looking, explain a concept or idea in your own words

Re-read your answer above. Look at the knowledge organiser again. Now cover it up and improve on your previous explanation in green pen.

Retrieval Relay

Look at your knowledge organiser. Now cover it up.

First time: Write down everything you can remember

Second time: Look. Cover. Write down everything you can remember

Third time: Look. Cover. Write down everything you can remember

Write down everything here that you didn't remember:

Vocabulary focus 1

Look at your knowledge organiser. Select a key word and write it here:

Write a definition of the key word in your own words - not the same as the one on the knowledge organiser:

Write a sentence with the key word in it:

Create a question where the key word is the answer:

What other words are connected to this key word?

Draw a picture or diagram to help you remember this key word:

Vocabulary focus 2

Definition:

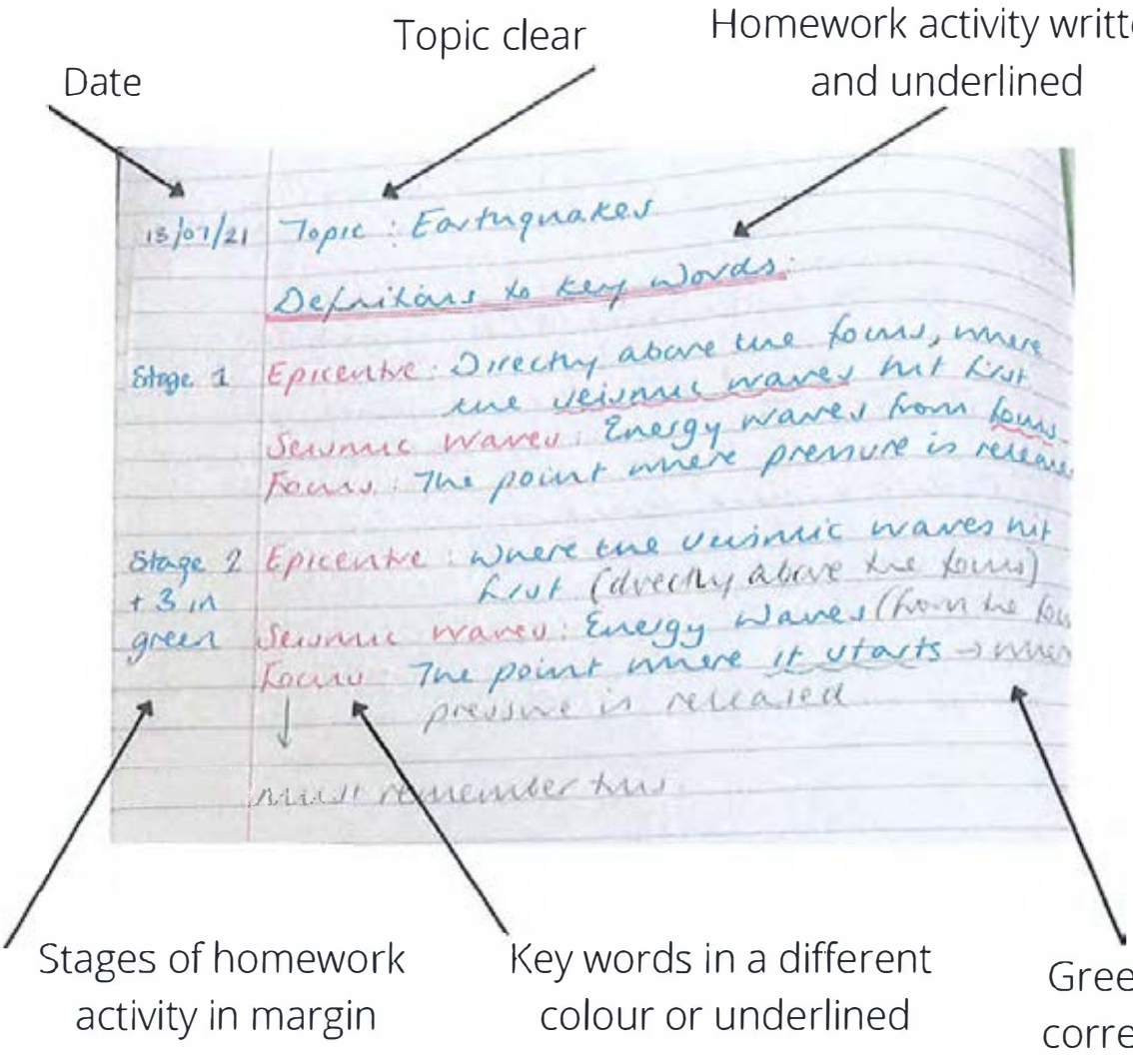
Characteristics:

Key word:

Examples:

Non-examples:

What should my knowledge organiser homework look like?

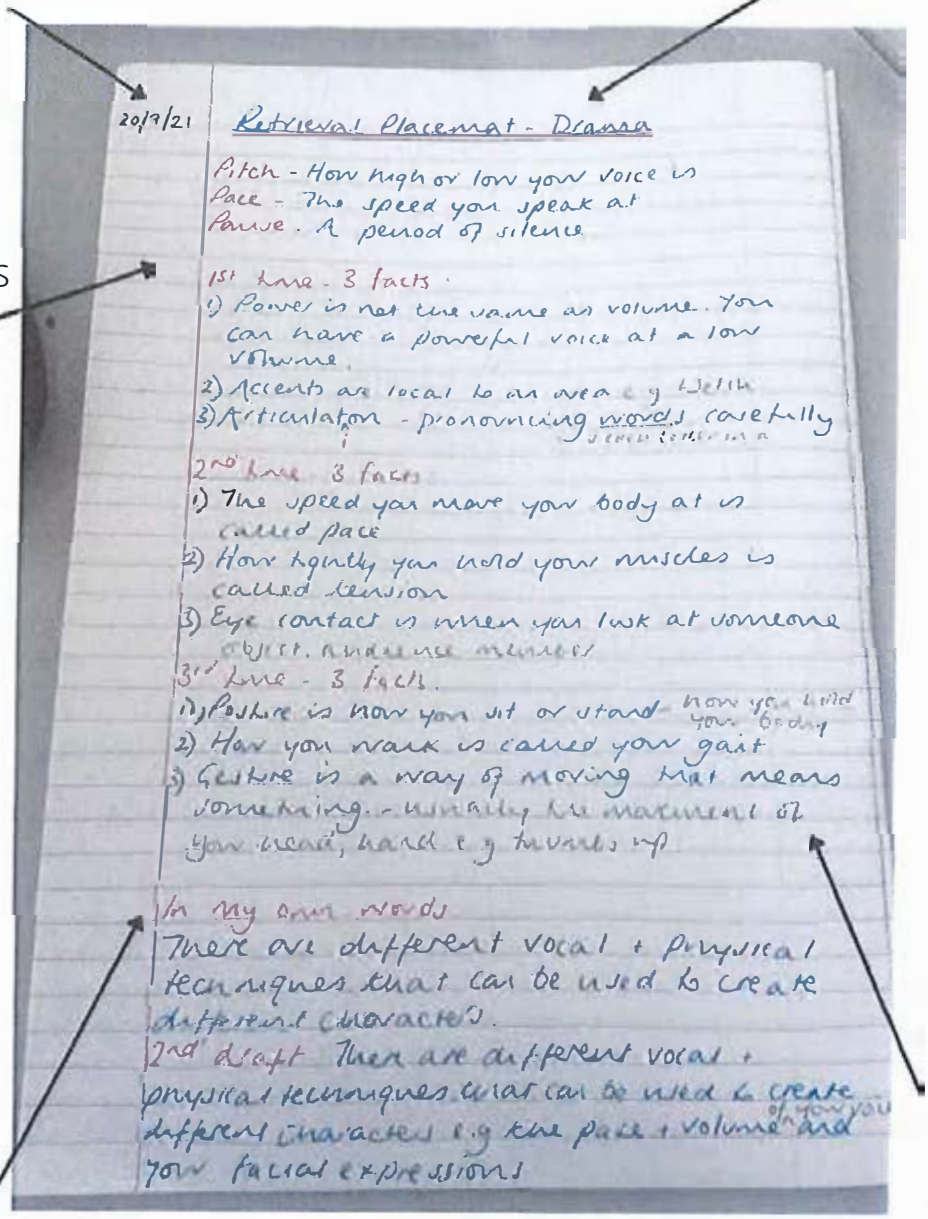


What should my knowledge organiser homework look like?

Homework activity written and underlined

Date

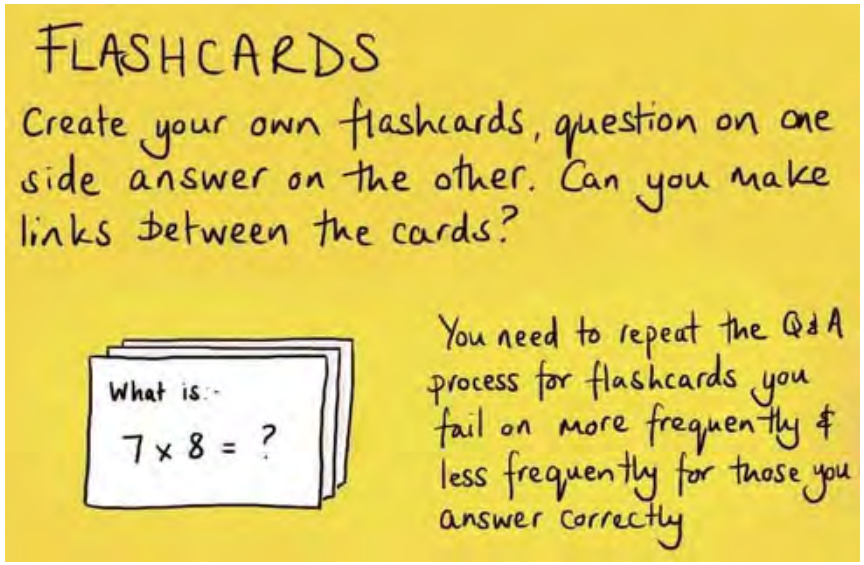
Key words in a different colour



Green pen corrections

Stages of homework activity as subtitles

Art & Design



Create a flash card with all the key facts you want to learn (this can be drawn in your book). On the next page try writing down as many facts or as much of the knowledge as you can. If you find you are getting certain facts wrong then these are where you need to focus and relearn.

Year 10: Unit 5

Unit 5

Threshold Concept (TC1) - Understand the elements of art and how these can be used to create a piece of artwork.
Threshold Concept (TC14) - Understand how symmetry, simple geometric shapes, measuring techniques and the grid method can help with accuracy when drawing.
Threshold Concept (TC51) - Understand how to create a range of tonal values with pencil.
Threshold Concept (TC55) - Understand that a piece of artwork can take many layers.
Threshold Concept (TC56) - Understand that art has to go through a period of transition before a desired outcome is realised.

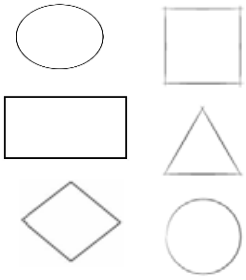
Keywords
Grid method, Basic shapes, Rule of Thirds, Graphite, Formal elements Tonal scale, Hatching Cross hatching, Ellipse, Symmetrical Mark making, Geometric shapes, Parallel, collage

Bronze

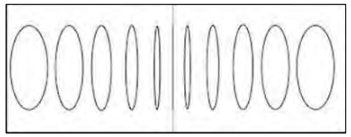
Hand / Mobile Phone Composition
… remember the seven elements of art.
… understand how to draw simple geometric shapes to help plan a piece of work.
… understand simple drawing techniques to help plan a drawing.
… understand the techniques of using graphite to create a range of tonal values.

Mapwork
… understand what a 'collage' is.

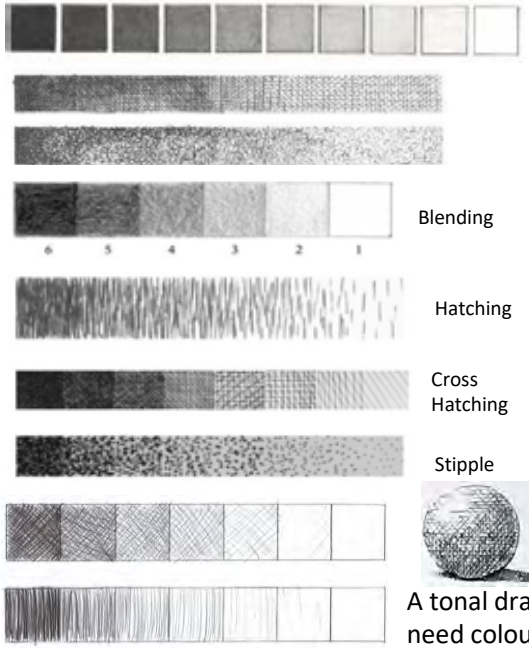
Basic **Shapes**



Ellipses



Formal Elements of Art
Colour – what you see when light reflects off something.
Line – a mark made which can be long, short, scribbled, straight etc.
Shape – a 2D area which is enclosed by a line.
Form – a shape which has 3 dimensions.
Tone – how light or dark something is.
Texture – how something looks or feels (visual or actual) rough etc.
Pattern – a symbol or shape that can be random or repeated.



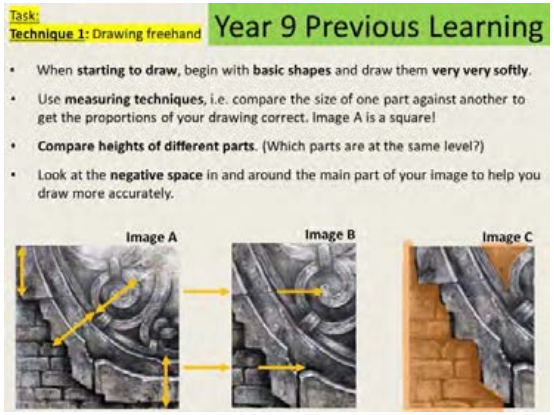
Mark making
To make drawings look more realistic, try to use different marks to show textures and surfaces. You can do this by changing the direction, pressure and length of your marks.

Texture
Visual texture is accomplished by carefully using a combination of tonal shading and the different shading techniques.

Pencils come in different grades,
the softer the pencil, the darker the tone.
H = Hard B = Black
The most useful pencils for shading are 2B and 4B.
If your pencil has no grade it is most likely HB which is 'hard black'.

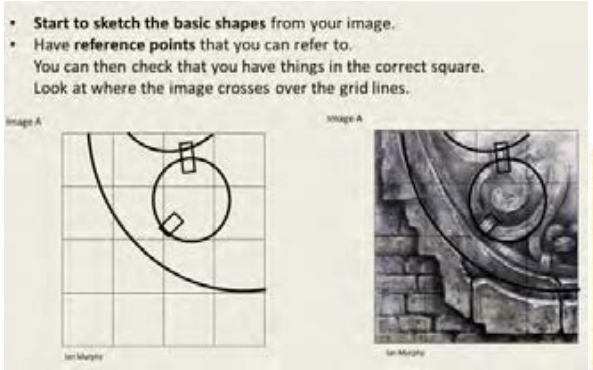
Working out the measurements and drawing the outline first is crucial before adding tone and texture. If drawn softly, the outline can then be gradually erased or built up using tonal values.

SCAN ME
Measuring with a pencil



A tonal drawing does not need colour to be added.

Draw edges not outlines!



SCAN ME
Grid Method

Year 10: Unit 5

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Mapwork
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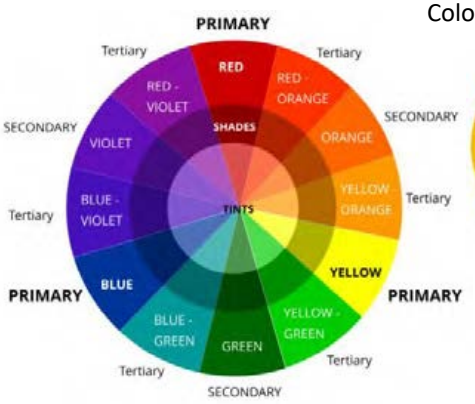
SCAN ME

Colour Theory



During the construction of a piece of artwork, there is a transition process where the artwork gradually changes from one state to another. Progress and improvement in a piece of artwork can happen slowly, so give your work a chance to improve.

The greatest skill can be stepping away and knowing that you are finished and not overworking it. Artists can sometimes feel that their painting is never finished and needs to be improved. If you are self-critical of your work you may not see the positive or how improving it might help.

Never put any of your artwork in the bin! Your work will show a progression in the way you draw and also a progression in your ideas.

Primary colours are the 3 main colours. They cannot be made but are used to make all other colours.

Secondary colours are made by mixing 2 primary colours.

Tertiary colours are made by mixing a primary and a secondary colour together.

Complementary colours are opposite on the colour wheel (**red** and **green**, **blue** and **orange**, **yellow** and **purple**).

Harmonious colours are next to each other on the colour wheel and are similar.

Tint – when you add white to a colour to make it lighter.

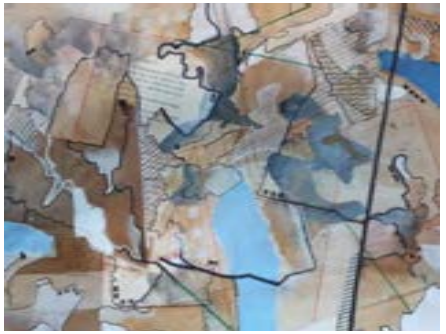
Shade – when you add black to a colour to make it darker.

Tone – when you add grey to a colour to dull the intensity.

Monochrome – different shades of one colour.

The colour wheel is divided into warm and cold colours. Cold colours are calm and soothing, the warm colours are energetic and vivid.

Collage describes both the technique and the resulting work of art in which pieces of paper, photographs, and fabric etc are arranged and stuck down onto a surface



Year 10: Unit 6

Unit 6
Threshold Concept (TC57) - Understand that artwork can be influenced by many factors including the work of others.
Threshold Concept (TC58) - Understand that developing, refining, recording and presenting are fundamental to the design process and these can be undertaken in any order to achieve a final outcome.
Threshold Concept (TC59) - Understand that artwork can take many forms using a wide range of materials and processes.

Refer to Year 10 Unit 2 for artist research and photography.

Refer to Year 10 Unit 3 for drawing.

Keywords
Develop,
Refine,
Record,
Present.

Formal Elements of Art
Colour – what you see when light reflects off something.
Line – a mark made which can be long, short, scribbled, straight etc.
Shape – a 2D area which is enclosed by a line.
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Tone – how light or dark something is.
Texture – how something looks or feels (visual or actual) rough etc.
Pattern – a symbol or shape that can be random or repeated.

AO1: Develop ideas through investigation, demonstrating critical understanding of sources

(Collect ideas and explore artists work to help inspire your own work).

AO2: Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.

(Experiment with various media and techniques to help improve your skills and visual ideas).

AO3: Record ideas, observations and insights relevant to intentions as work progresses.

(Show a clear journey throughout your chosen theme by producing observations, reflecting and evaluating).

AO4: Present a personal response and meaningful response that realises intentions and demonstrates understanding of visual language.

(Complete a relevant and intentional final piece that shows a journey through your portfolio.

A study of the Ironbridge in a joiner style, influenced by the artist David Hockney.

Computer Science

Algorithms

An **algorithm** is a sequence of ordered instructions that are followed step-by-step to solve a problem. This does *not* need to be on a computer.

Decomposition is the breaking down of a complex problem into smaller more manageable problems that are easier to solve.

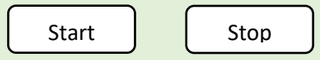
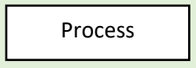
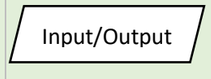
Abstraction allows us to remove unnecessary detail from a problem leaving us with only the relevant parts of a problem thereby making it easier to solve.

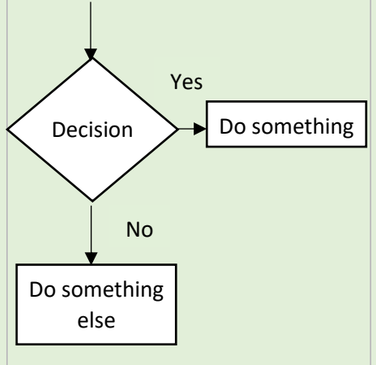
Algorithm Efficiency More than one algorithm can be used to solve the same problem. Normally we use the algorithm that solves the problem in the quickest time with the fewest operations or makes use of the least amount of memory.

Dry run testing is carried out using **trace tables**. The purpose of the trace tables is for the programmer to track the value of the variables and outputs at each step of the program and to track how they change throughout the running of the program.

Flowchart Symbols

We can represent algorithms using flowcharts

Start and Stop 	**Process – An operation that the algorithm performs** 
Connector – Links all the other symbols together 	**Input and Output of data that is read in and written out** 

Decision is the same as a selection (if then … else)
 
	`IF answer is "yes" THEN`
	`  do something`
	`ELSE IF answer is "no"`
	`  do something else`
	`ENDIF`

Pseudocode

We can represent algorithms using pseudocode

	Example	Python equivalent
Variable assignment	a ← 10	`a = 10`
Constant assignment	constant PI ← 3.142	`PI = 3.142`
Input	a ← USERINPUT	`a = input()`
Output	OUTPUT "Bye"	`print("Bye")`
Arithmetic Operators Add Multiply Divide Subtract Integer division Modulus (remainder)	 + * / - a ← 7 DIV 2 a ← 7 MOD 2	 + * / - a= 7 // 2 a = 7 % 2
Relational Operators Less than Greater than Equal to Not equal to Less than or equal to Greater than or equal to	 < > = ≠ or <> ≤ ≥	 < > == != <= >=
Boolean Operators AND OR NOT	 AND OR NOT	 AND OR NOT

Selection
 	
if ..
 	
if .. else …
 	
if … else if … else
	
	IF i > 2 THEN
	 j ← 10
	ENDIF
	
	IF i > 2 THEN
	 j ← 10
	ELSE
	 j ← 3
	ENDIF
	
	IF i ==2 THEN
	 j ← 10
	ELSE IF i==3
	THEN
		
		if i > 2:
		 j=10
		
		if i > 2:
		 j=10
		else:
		 j=3
		
		if i ==2:
		 j=10
		elif i==3:
		 j=3

	j ← 3
	ELSE
	 j ← 1
	ENDIF
		else:
		 j=1

Iteration
 	
While loops
 	
For loops
 	
Repeat loops
	
	a ← 1
	WHILE a < 4
	 OUTPUT a
	 a ← a + 1
	ENDWHILE
	
	FOR a ← 0 TO 3
	 OUTPUT a
	ENDFOR
	a ← 1
	
	REPEAT
	 OUTPUT a
	 a ← a + 1
	UNTIL a←4
		
		while a<4:
		 print(a)
		 a=a+1
		
		for a in
		range(3):
		 print(a)

Subroutines
 	
procedure
 	
Function (with paramerters and return)
	
	SUB hello()
	 OUTPUT "hello"
	ENDSUB
	
	SUB add(n)
	 a ← 0
	 FOR a ← 0 TO n
	 a ← a + n
	 ENDFOR
	 RETURN a
	ENDSUB
		
		def hello():
		 print("hello")
		
		def add(n):
		 a=0
		 for a in
		range(n+1):
		 a=a+n
		 return a

Built-in functions Length of array Random integer	 LEN(a) RANDOM_INT(0, 9)	 len(a) import random random.randint(0,9)

Searching Algorithms

Linear Search Algorithm

- The purpose of the linear search algorithm is to find a target item within a list.
- Compares each list item one-by-one against the target until the match has been found and returns the position of the item in the list.
- If all items have been checked and the search item is not in the list then the program will run through to the end of the list and return a suitable message indicating that the item is not in the list.
- The algorithm runs in linear time. If *n* is the length of the list, then at worst the algorithm will make *n* comparisons. At best it will make 1 comparison and on average it will make (*n+1)*/2 comparisons.
- The performance of the algorithm will be improved if the target item is near the start of the list.

Example

Find the position of letter "Z" within the following list. Assume we do not have visibility of the list

Index position	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Value	V	A	S	Z	X	R	T	G

We compare it with the value in index position 0. We find that the value is "V" so we need to move on to the next index position. At index position 1 and 2 we still have not found Z. However, we get to index position 3 and we compare the target with the value and we find that they match, so the algorithm returns the index position and stops.

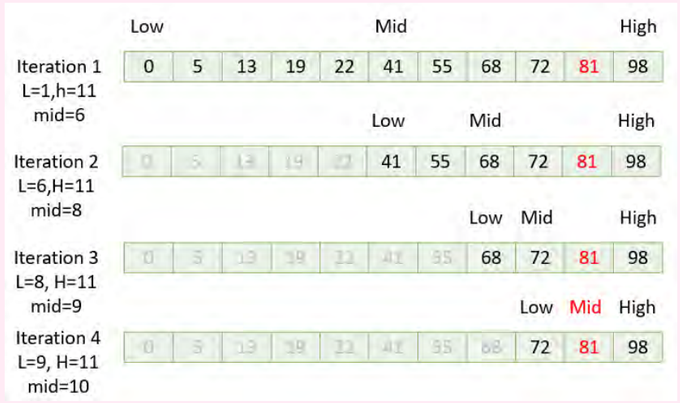
Pseudocode

```
i ← 0
x ← len(listOfItems)
pos ← -1
found ← False
WHILE i < x AND NOT found
 IF listOfItems[i] == itemSearch THEN
  found ← True
  pos ← i + 1
 ENDIF
 i=i+1
ENDWHILE
OUTPUT pos
```

Binary Search Algorithm

- The binary search algorithm works on a sorted list by identifying the middle value in the list and comparing it with the search item.
- If the search item is smaller the mid element becomes the new high value for the search area.
- If the search item is larger the mid element becomes the low value for the search area.
- The keeps repeating until the search item is found.
- When the search item is found the index position of the item is returned.
- At each iteration the search are halved in size consequently this is an efficient algorithm.

Example: Binary search in operation to find 81



Pseudocode

```
low ← 1
high ← LENGTH(arr)
mid ← (low + high) DIV 2
WHILE val ≠ arr[mid]
 IF  arr[mid] < val THEN
  low ← mid
 ELIF arr[mid] > val THEN
  high ← mid
 ENDIF
  mid ← (low + high) DIV 2
  ENDWHILE
OUTPUT mid
```

Linear search versus binary search

	Advantages	**Disadvantages**
Linear Search	• Very simple algorithm and easy to implement • No sorting required • Good for short lists	• slow because it searchers through the whole list • very inefficient for long lists
Binary Search	• much quicker than linear search, because it halves the search zone each step	• The list need to be ordered

Sorting Algorithms

Bubble Sort

- The purpose of sorting algorithms is to order an unordered list. Item can be ordered alphabetically or by number.
- Bubble sort steps through a list and compares pairs of adjacent numbers. The numbers are swapped if they are in the wrong order. For an ascending list if the left number is bigger than the right number the items are swapped otherwise the numbers are not swapped.
- The algorithm repeatedly passes through the list until no more swaps are needed.

Example

Sort the following sequence in ascending order using bubble sort: 5,3,4,1,2.

Pass 1	**5**	**3**	**4**	**1**	**2**	
	3	5	4	1	2	Compare 5 and 3 – swap
	3	4	5	1	2	Compare 5 and 4 – swap
	3	4	1	5	2	Compare 5 and 1 – swap
	3	4	1	2	5	Compare 5 and 2 – swap; end of pass 1
Pass 2	3	4	1	2	5	Compare 3 and 4 – no swap
	3	1	4	2	5	Compare 4 and 1 – swap
	3	1	2	4	5	Compare 4 and 2 – swap
	3	1	2	4	5	Compare 4 and 5 – no swap; end of pass 2
Pass 3	1	3	2	4	5	Compare 3 and 1 – swap
	1	2	3	4	5	Compare 3 and 2 – swap
	1	2	3	4	5	Compare 3 and 4 – no swap
	1	2	3	4	5	Compare 4 and 5 – no swap; end of pass 3
	1	**2**	**3**	**4**	**5**	

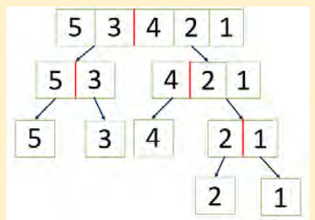
Bubble sort Pseudocode

```
A=[5,3,4,1,2]
sorted ← False
WHILE not sorted
 sorted ← True
 FOR I TO LEN(A)-1:
  IF A[i] > A[i+1]:
   temp ← A[i]
   A[i] ← A[i+1]
   A[i+1] ← temp
   sorted ← False
  ENDIF
 ENDFOR
ENDWHILE
OUTPUT A
```

Merge Sort

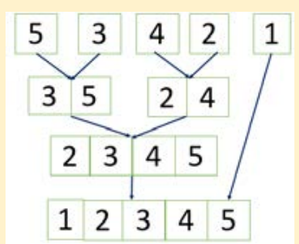
- Merge sort is a type of divide and conquer algorithm.
- There are two steps: divide and combine
- Merge sort works by dividing the unsorted list sublists. It keeps on doing this until there is 1 item in each list.
- Pairs of sublists are combined into an ordered list containing all items in the two sublists. The algorithm keeps going until there is only 1 ordered list remaining.
- Merge sort is a recursive function, that calls itself.

Step 1: Divide



Keep dividing until there is only 1 item in each list

Step2: Combine



1. The first items in the two sublists are compared, and the smallest value is copied to the parent list.
2. The copied item is then removed from the sublist.
3. When there are no items left in one of the sublists the remaining items in the other sublist are them copied in order to the parent list.

Merge sort Versus Bubble sort

	Advantages	**Disadvantages**
Bubble sort	Very simple and robust algorithm	Can be slow particularly for long lists. As the number of items increases the time taken for the algorithm to run increases dramatically.
Merge sort	Much faster than bubble sort especially when the number of elements is large	More complex to understand Step 1: Divide Step 2: Combine

Computer Networks

A network is a set of computers that are connected to one another.

Standalone computers are isolated from other devices.

Advantages of a network
- ✓ Share resources, such as software applications, files and hardware (eg printers).
- ✓ Allows communication (eg email) and can transfer files easily.
- ✓ Easier network management (eg can backup data onto a central fileserver; updates can be sent to all computers; users on a network can login to any computer)

Disadvantages of a network
- ✓ Greater security risk as computers can be hacked if they are connected to the internet.
- ✓ Worms can spread from one computer to another
- ✓ A problem with any shared resource, (eg file server goes down) can impact the whole network.

Types of Computer Networks

Personal Area Network (PAN) set up around an individual person. Many people have multiple devices such as tablets, phones and computers that can be interconnected using a PAN. A Bluetooth PAN uses radio waves to communicate wirelessly between devices over a range of a few metres.

Local Area Network (LAN) covers a relatively small geographical area typically extends over the range of a single organisation such as a university campus, school site. LANs are usually managed by a single organisation.

Wide Area Network (WAN) made up of many local area networks and covers a much wider geographical area. The internet the ultimate WAN. It is a network of networks with billions of interconnected devices. No single person or organisation has control over a WAN.

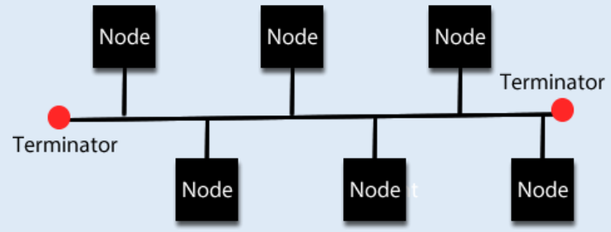
Network Topology

A network topology describes how a set of computers are arranged within a network.

Bus network topology All devices including clients, servers, printers and so on are connected to a cable called a bus. All communication is via the shared bus. At either ends of the bus is a terminator.

Advantages
- ✓ Easy and cheap to install and does not require much cable
- ✓ Easy to add more computers

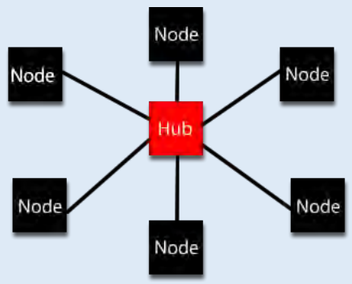
Disadvantages
- ✓ If the main cable fails then then the whole network fails.
- ✓ Less secure as data are broadcast to all devices on the network.
- ✓ Can be slow as there are collisions between data along the shared bus.
- ✓ Will get slower as more computers are added.



Star network topology all devices including clients, servers, printers and so on are connected to a central hub or switch. All communication is via the hub

Advantages
- ✓ Greater security as data are only sent to the intended recipient.
- ✓ If any of the connections fail only a single node will be affected.
- ✓ Fewer collisions between data packets

Disadvantages
- ✓ If the central hub fails then every computer on the network is affected.
- ✓ Expensive as extra cable and hardware (hubs) are needed.



Wired and Wireless

Computers can be connected using wired or wireless methods

Wired transmission methods use cables to communicate

Wireless transmission use radio waves communicate (eg Wi-Fi).

Advantages of wireless
- ✓ Can use computer anywhere and not constrained by cables

Disadvantages of wireless
- ✓ Packets can be intercepted more easily than wired connections
- ✓ Security is a much more difficult challenge, as the network can be accessed from outside the confines of a building.
- ✓ Slower than wired methods
- ✓ Signal can be interfered with by other electronic devices.

Advantages of wired
- ✓ Allows more control, security and reliability. Can restrict who has access to the network.
- ✓ Wired methods have greater speeds than wireless methods.

Disadvantages of wired
- ✓ Cables can be difficult to maintain in big organisations

Wired networks use a variety of cables, including copper and fibre optic.

Copper cables use electrical signals to transmit data. Three main types:

- ✓ **Coaxial cable** – the signal loses strength over long distances
- ✓ **Unshielded twisted pair** – A pair of copper cables are twisted together and allows data to be transmitted over longer distances
- ✓ **Shielded twisted pair** – Shielding around the twisted cables means the signal is less susceptible to interference.

Fibre optic cables are glass or plastic and use use pulses of light to transmit data

Advantages of copper cables
- ✓ Cheaper than fibre optic
- ✓ Reliable because a telephone is powered from the copper cable and does not rely on a separate electrical power supply

Advantages of copper cables
- ✓ Slow
- ✓ Low capacity
- ✓ Can only be used over short distances
- ✓ Interference can occur

Advantages of fibre optic
- ✓ Higher bandwidth than copper so can transmit more data
- ✓ Less attenuation (degrading) of the signal so fibre optic is more suitable over long distances
- ✓ Less “cross talk” interference between fibres compared with copper so the quality of the signal is better

Disadvantages of fibre optic
- ✓ Expensive
- ✓ Difficult to install

Network Security and Protocols

Why do we need network security?

- ✓ To prevent unauthorised access to our electronic devices
- ✓ To protect our data eg to prevent sensitive data being stolen
- ✓ Prevent cyberattacks

Methods of Network Security

Authentication allows us to confirm the identity an individual. There are lots of ways of confirming the identity of an individual that come under one of three factors:

- ✓ Knowledge factor: Something the user knows, eg a password
- ✓ Possession factor: Something the user owns eg a mobile phone
- ✓ Biometric factor: eg Fingerprint, iris scan

Encryption The message is garbled so if it gets intercepted during transmission it will be almost impossible for anyone without the key to read the original message.

Firewall prevents packets containing malware getting on to the computer

MAC address filtering A MAC (Media Access Control) address is a unique identifier for any device that is connected to a network. Each network interface card has a unique MAC address that is a 12 digit hexadecimal code (e.g. 12-F3-EE-56-44-A1).

- ✓ *White list filtering* only allows devices on a list to connect to the network.
- ✓ *Black list filtering* devices in a black list blocked from accessing the network.

Network Protocols

A **network protocol** is a set of rules that allow computers to communicate and exchange information over a network. There are many types of protocols depending on the application.

HTTP (Hypertext transfer protocol) is the protocol used for the World Wide Web. An exchange begins with a request for a web page from a client web browser to a web server. The server then sends the web page to the client.

HTTPS (Secure Hypertext transfer protocol) is a secure way of transferring data between a web browser and a server because the data are encrypted during transfer. Used for e-commerce and online banking.

FTP (File Transfer Protocol) is usually used to download or upload large files from a server to a client.

Ethernet is not a single protocol but a collection of related protocols. LANs most commonly use ethernet. The following is a simplified procedure:

1) Check whether there is any traffic on the ethernet
2) If so wait for traffic to clear
3) Send the packet
4) If collision detected, go to step 1 to resend.

Wi-Fi is a collection of protocol that use radio waves to transmit data between devices. Wi-Fi is a trademark and WLAN (Wireless LAN) is the generic term. Data are transmitted when the medium is clear, and an acknowledgement is received if the transmission was successful. If no acknowledgement is received, then the data are resent as it is assumed that a collision occurred, and the packets did not reach their destination.

Email protocols

SMTP (simple mail transfer protocol) Sends the mail from the user onto the mail server.

IMAP (Internet Message Access Protocol) Retrieves the mail from the mail server to the client (user) and allows access from anywhere on any device because the email remains on the server.

TCP (Transport Control Protocol) When files are sent over the internet they are broken up into small chunks called packets. When they arrive at the destination computer they are reassembled back into the original format. TCP handles and controls all this. TCP waits for acknowledgements to verify whether the packets have reached their destination. TCP will also retransmit packets of they have not arrived at the destination or become corrupted.

IP (Internet Protocol) The internet protocol is a set of rules that govern the transmission of data across the internet.

UDP (User Datagram Protocol) is used as an alternative to TCP. It is used in video conferencing and online gaming when speed is necessary as huge volumes of data are transferred in real time. It improves speed by not checking for lost packets so they do not get re-sent.

TCP/IP

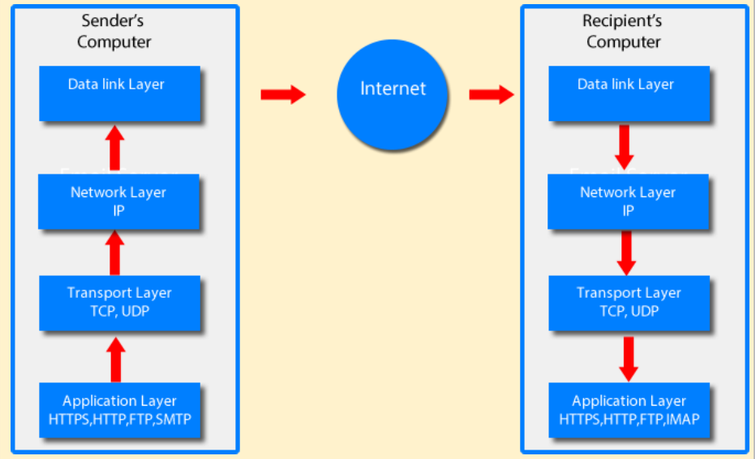
The TCP and IP protocol work closely together and are referred to as TCP/IP. The TCP/IP model consists of four layers that pass data between each layer.

Application layer contains protocols related to the application such as HTTP, HTTPS for web browsers, FTP for file transfer and SMTP and IMAP for email. The application layer interacts with the user via appropriate application software (eg web browser / ftp client).

The **transport layer** establishes the end to end connection. When files are sent over the internet, they are broken up into small chunks called packets. When they arrive at the destination computer they are reassembled back into the original format. It is the role of the transport layer to split the data into packets and pass the data onto the network layer. On the recipient's computer the transport layer reassembles the packets into the original form. The packets are numbered by this layer to allow them to the reassembled. The transport layer chooses the port number for sender and receiver. TCP and UDP are the main protocols used in this layer.

The **network layer** adds the source and destination IP address and route the packets over the network. At the destination the network layer strips out the IP addresses. The IP operates on this layer.

The **data link layer** has a network card and deals with the physical connection and adds the physical addresses (MAC address) of the hardware to the packets that it receives from the network layer. For each step the sender and receiver MAC address is removed then a new sender and receiver MAC address is added. The receiver MAC address becomes the sender MAC address.



Network Security and Protocols

Why do we need network security?

- To prevent unauthorised access to our electronic devices
- To protect our data eg to prevent sensitive data being stolen
- Prevent cyberattacks

Methods of Network Security

Authentication allows us to confirm the identity an individual with usernames and passwords. Digital certificates also provide the identity of a person or device and allow secure information exchange.

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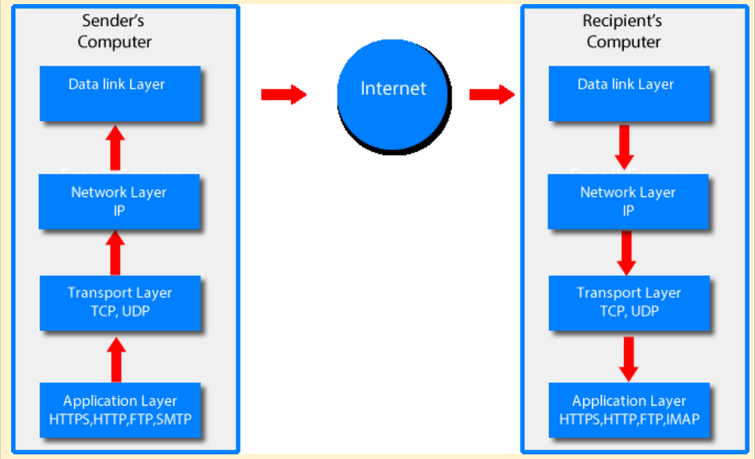


Computer Systems

A computer system has both hardware and software.

Hardware are the physical components that make up a device or computer system. These include both the internal components (eg motherboard, CPU, RAM) and peripheral devices such as printers.

Software is the computer code, programs and algorithms that give instructions to the hardware to make it perform the desired task. Without the software the hardware will not get any instructions and it will not do anything.

Software Classification

Software is split into two types: application software and system software

Application software is a program designed to perform a specific task that the user interacts directly with (eg spreadsheets, web browser and word processor, disk defragmentation).

System software is concerned with the running of the computer. Its purpose is the control the computer hardware and manage the application software. (eg operating system, antivirus, backup tools, firewall)

The **operating system (OS)** is the most important piece of system software. The OS handles management of the processor, memory, input/output devices, applications and security.

- **Application management** - Application software does not need to concern itself with interaction and complexities of managing the hardware because this is dealt with by the operating system. Application software runs on top of operating system which is an intermediary and takes care of interaction with the hardware.

- **Processor resources** – Allows multiple applications to be run simultaneously by manages the processing time between applications and cores and switching processing between applications very quickly. Multiple applications will access the processor resources via a schedule that alternates process between applications. High priority applications will have more CPU time, but it means that lower priority applications will take longer to run.

- **Memory management** – Distributes memory resources between programs and manages transfer of data and instruction code in and out of memory. Ensures that each application does not use excessive memory.

- **Security** – Tools such as anti-virus software and firewalls help protect the computer from attack. In addition requirement for passwords and control of access rights
.
- **Input / Output devices** – OS controls interaction with input (eg keyboard) outputs (eg. Monitor) and storage (eg hard disk) using hardware drivers. Allows users to save files to the hard disk and print documents for instance.

Cloud Computing

- Can store data and files on a server elsewhere that can be accesses via the internet.
- Can use applications over the internet
- Can sync files so that all your devices see the same files
- Can share documents with others
- Can access your files anywhere if you have a good internet connection

Advantages of cloud computing
- Only pay for storage that you use
- Data and files available from anywhere in the world where there is an internet connection
- Data automatically backed up

Disadvantages of cloud computing
- Need a reliable network connection
- Files are hosted elsewhere so a security concern
- the most recent versions of software is often not available
- Transfer of data over the internet will slow down performance.

Advantages of local storage
- Files can be accessed even when there is no internet connection
- More secure as files to not need to be transferred over the network and the user has more control

Disadvantages of local storage
- Users need to organise their backup solutions
- Not so easy to share documents
- Can only access the files locally

Memory

Volatile memory (main memory) When the computer is turned off the contents of volatile memory is lost. When there is no power, volatile memory is erased.

Non-volatile memory (secondary storage) Even when here is no power, the data remain unchanged and can be accessed once again once power has been resumed. This allows you to store files for he long term.

ROM (Read Only Memory) Data can only be read from the device, and cannot the memory cannot be edited or deleted. ROM is only used for situations where you can be sure that updates will not be needed. The computer's BIOS (basic input output system) which controls the boot up sequence is stored on a ROM chip.

RAM (Random Access Memory) - When applications are executed they are loaded into RAM first. RAM is volatile.

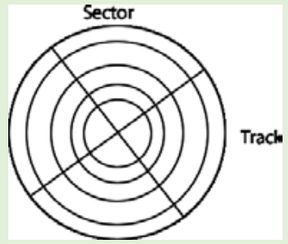
Embedded Systems

An embedded system is a computer system that is designed for a specific function, in contrast to a general-purpose computer that can carry out many tasks. Embedded systems typically have a minimal or no user interface. Thus, they can be optimised for size and power consumption, for instance. Examples of embedded systems include digital watches, MP3 players, washing machines, cars and mobile phones.

Secondary Storage

Secondary storage is necessary for saving files long and software including the operating system. Even when the computer is turned off, the data remain unchanged, and can be accessed again once the power supply has been turned on.

Magnetic Hard Disk
- Tracks on the disk platters contain tiny magnets, each holding 1 bit of data.
- The polarity (negative or positive) of the magnets determines whether the bits are 0 or 1.
- The write head modifies the polarity of the magnet as appropriate.
- The read head identifies whether each magnet is negative or positive.
- The tracks are laid out as a series of concentric rings.



Advantages
- Cheap form of storage

Disadvantages
- Less reliable because it contains moving parts that can break
- Electromagnetic surge can corrupt the data held
- Slow speed of read/write access

Optical Disks

- Tracks on the disk contain pits and lands.
- The track is a spiral.
- A laser is emitted and the laser light is reflected when it hits the lands, but is scattered when it hits the pits.
- Depending on whether the light is scattered light is encoded as a binary value of 0 and reflected light is encoded as a 1.
- The sensor is able to detect light reflected, but not scattered.
- Example: Blue-Ray (25 Gb) DVD (4.7 Gb), CD (700 Mb).

Advantages

- Can transfer easily between computers

Disadvantages

- Can scratch easily
- Not much storage compared with other methods.
- No unlimited writes to the hard disk

Solid state Drive

- Use millions of switches called floating gate transistors on microchips to store data.
- Electrons are stored in gates and this is encoded as 0 when there is an electron present and encoded a 1 when there is no electron present.
- The electros remain trapped even when there is no flow of electricity.
- Contain no moving parts and are therefore more robust that optical and magnetic storage.

Advantages

- Much faster that other means of storage
- More reliable than other means if you are only reading
- Quiet

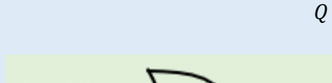
Disadvantages

- More expensive per volume of storage
- Reliability might be an issue if you do a lot of writing

Boolean Logic

NOT gate - The output is the opposite of the input

$$Q = \bar{A}$$
$$Q = NOT\ A$$

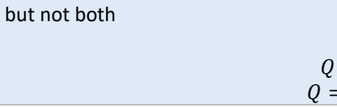


NOT truth table

Input	Output
0	1
1	0

AND gate - has two inputs and will have a true output if the two inputs are true otherwise the output will be false

$$Q = A.B$$
$$Q = A\ AND\ B$$

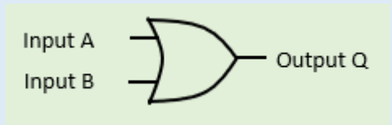


AND truth table

Input - A	Input - B	Output
0	0	0
1	0	0
0	1	0
1	1	1

OR gate - has two inputs and will have a true output if either or both the inputs are true

$$Q = A + B$$
$$Q = A\ OR\ B$$

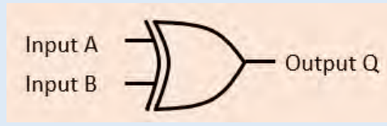


OR truth table

Input - A	Input - B	Output
0	0	0
1	0	1
0	1	1
1	1	1

XOR gate - has two inputs and will have a true output if either the inputs are true but not both

$$Q = A \oplus B$$
$$Q = A\ XOR\ B$$



OR truth table

Input A	Input B	Output
0	0	0
1	0	1
0	1	1
1	1	0

Converting a truth table to a logic circuit

There is a general approach to converting a truth table into a logic circuit.

We consider only the lines with an output of 1.
We take in the input of each and then AND.

We then OR between each statement such that
(NOT A AND B) OR (A AND NOT B). We can then draw the logic circuit.

Worked example: What is the logic circuit for the following truth table

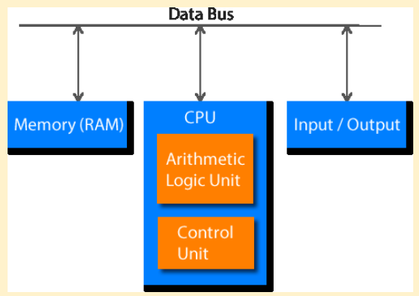
Input - A	Input - B	Output
0	0	0
1	0	1
0	1	0
1	1	1

(A AND NOT B) OR (A AND A)

System Architecture

CPU (Computer Processing Unit) or processor Fetches, decodes and executes instructions and performs logical and arithmetic operations.

Von Neumann architecture is the stored program concept, where program instructions and the data to be processed can be stored in the same memory.



Components of a CPU

Bus Wires through which data and instructions are transferred between computer components

Clock keeps all the CPU components synchronised

Arithmetic Logic Unit (ALU) Every operation takes place here. This is where the arithmetic (eg adding two binary numbers) and logic operations (eg checking to see if one number is bigger than another) take place.

Control Unit Decode the machine code instruction so that the ALU knows what to do with the instruction. Controls and monitors data transfer between different input and output hardware components

Factors affecting CPU performance

Clock speed is the number of cycles that a processor carries out per second. Each cycle of the CPU allows a single action (instruction) to be carried out. The greater the clock speed, the greater the number of operations and the faster the computer will run.

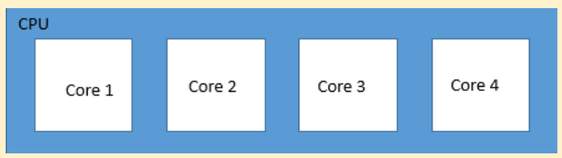
Number of processor cores A core is CPU in its own right. Nowadays most CPUs have multiple cores. Having multiple cores allows instructions to be carried out concurrently (at the same time), whereas a single core will only allow carry out instructions in serial (one at a time).

Latency Delay in transfer of data between components

Cache size Cache is a volatile memory store on the processor. Cache is much faster but smaller that RAM. Frequently used data and instructions within an application can be stored in cache instead of fetching from RAM which is quite slow. The bigger the cache the greater the volume of data and instructions that can be stored thereby reducing latency and improving performance of the CPU.

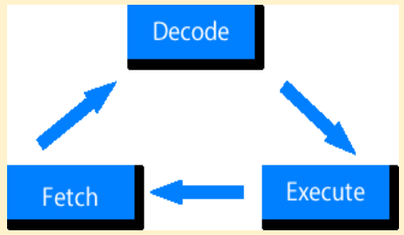
Cache type There are three levels of cache**.** Cache Level is a trade off between size and speed

- *Level 1 Cache* closest to the CPU and is the fastest cache (lowest latency), but does not have much capacity
- *Level 2 Cache* – is slower and further away from the CPU than L1 cache so latency is greater, but has more storage capacity.
- *Level 3 Cache* is the slower than L1 and L2 cache; much faster than RAM; has greater capacity than L1 and L2 cache.



Fetch execute cycle

1. Instructions are loaded into memory
2. Processor fetches the instruction from the main memory
3. Instruction is decoded so the CPU knows what to do with the instruction
4. Processor then executes the instruction
5. Result of the instruction can be stored in memory
6. Next instruction is then fetched from main memory and the cycle repeats itself.



Classification of programming languages

High level programming languages are closer to human language and is therefore easier to understand. A translator is used to convert the instructions into code that the computer understand. High level languages allow programs to be written that is independent of the type of computer. High level programming languages allow code to be written that is independent of the type of computer system. It is up to the compiler to translate the code into the right machine code for a particular code. There is a huge variety of high level programming languages, and the choice depends on the application.

Low level programming languages refer to machine code and assembly language. The Low level refers to low level of abstraction. The low level language is close to the language understood by the computer where operations map to the instruction in the processor instruction set. However it is difficult for humans to understand. Low level languages are appropriate for developing new operating systems, embedded systems and hardware device drivers

Machine code is expressed in binary values 0 and 1. This is the language that computers understand. All codes whether assembler or high level programming languages need to be translated into machine code. Machine code is specific to a processor.
Machine code instructions are made up of two parts the operator and the operand. The processor decodes the operator to identify the task that is to be carried out (eg. Add, load). The operand is the value or memory address that that instruction is to be operated on

Machine code instruction	
Operator	Operand
0011	10010100

Assembly language provides basic computer instructions for programs to run. There is a one to one relationship between machine code and assembly code instructions. One assembly language instruction maps to one machine code instruction, thus the structure of assembly language and machine code is the same, but where machine codes uses 0 and 1 which are very difficult for programmer to understand, assembly language uses mnemonics which is easier for the programmer.

Assembly language sample Instruction set

```
LOAD #23 # Load from RAM to processor
MOV a 23 # Transfer in number 23 into the variable a
ADD 2 3  # Add 2 values
STORE    # store data in RAM
```

Each type of processor has its own instruction set and therefore its own assembly language and machine code. So Assembly code written for one type of processor will not run on another.

Low level languages versus high level languages

	Advantages	**Disadvantages**
Low level	Produce code that is faster and better optimised than high level languages. Appropriate for developing new operating systems, embedded systems and hardware device drivers	Difficult to understand and modify Assembly code is written for a specific processor architecture, and so is not portable to other computer architectures
High level	High level programming languages allow code to be written that is more portable. Thus code can be run on different of the types of computer system with different processor architecture. Easier to understand Easier to modify	Needs a translator run slower because of the layers of abstraction and there is inefficiency in translator.

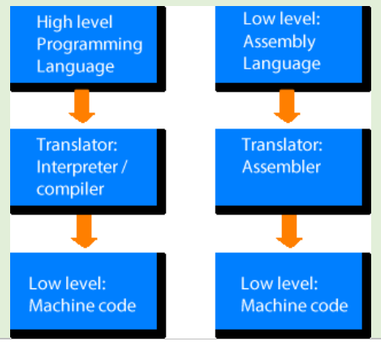
Program translators allow programs to be translated into machine code so the than programs can be run on a computer.

Interpreter converts high level languages into machine code one instruction at a time on-the-fly while the program is running. Each instruction is converted to machine code once the previous instruction has been executed. Interpreters are good for debugging code because the program stops as soon as the error has been found. However running code this way is much slower running compiled code. The machine code is not saved.

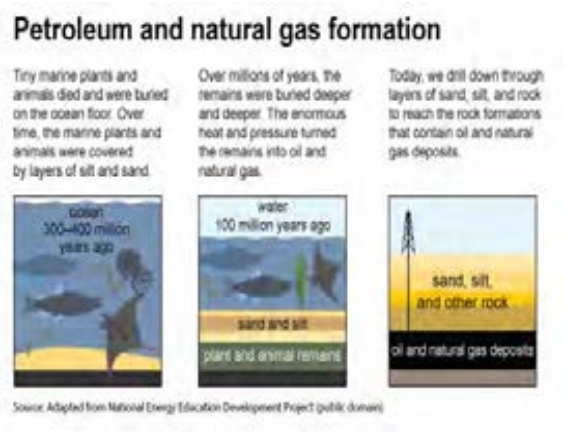
Compiler A program that converts high level languages into machine code before the program is run. A compiler saves the machine code,

so the source code is no longer needed A compiler allows a program to be run faster than interpreted code. Software is normally distributed as compiled machine code. For proprietary software this is good because other people cannot copy the code and use it for their own applications.

Assembler Assembler converts assembly language instructions into machine code.



GCSE Design and Technology



Oil is thought to have formed over **millions of years** from the break down of tiny **dead creatures.** Natural gas is formed alongside oil. The dead organisms sank to the bottom of lakes or seas and became **trapped** in muddy sediments. As the sediments built up, the lower layers were under pressure. They eventually turned to rock. If there was no oxygen in the sediments, **heat and pressure** turned the remains of the organisms into oil and natural gas.

The large majority of plastics we use today are formed from oil. Crude oil is separated into separate batches of different compounds by heating it in a process called fractional distillation

Oil and pollution

There are many risks involved with the extraction and processing of oil. Oil spills from oil rigs, pumping stations and oil tankers can cause huge environmental problems for both marine and land habitats.
Airborne pollution from oil refineries contributes towards both acid rain and increasing carbon dioxide in the atmosphere. This can impact on peoples health, have a negative effect on the environment, damage habitats and contribute towards climate change.

Thermoplastics are a group of plastics (polymers) that as they are heated become soft and **CAN be moulded** over and over again. These plastics then harden as they cool. The Polymers in Thermoplastics do not form strong bonds so they can move over each other and be reshaped when subjected to heat.

Advantages
•Highly recyclable
•Aesthetically-superior finishes
•High-impact resistance
•Remolding/reshaping capabilities
•Chemical resistant
•Eco-friendly manufacturing

Disadvatages
•Generally more expensive than thermoset
•Can melt if heated

Thermoset plastics are a group of plastics that once they have been moulded and set **CANNOT be remoulded.** Once moulded, they do not soften when heated and they cannot be reshaped. Its polymer chains are joined together by cross-links, so they cannot slide past each other easily.

As a result of this resistance to heat **Thermosetting plastics** are suitable where a degree of heat resistance is required, such as engines, electrical components and fittings, saucepan handles etc.

Advantages
•More resistant to high temperatures than thermoplastics
•Highly flexible design
•Excellent aesthetic appearance
•Cost-effective

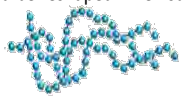
Disadvantages
Cannot be recycled
More difficult to surface finish
Cannot be remolded or reshaped

Tips for exams

- If it's a **drinks bottle its PET.**
- If it's a **chemical** container its probably **HDPE.**
- If it's a **thin film** its probably **PVC** or **LDPE** – both would be accepted.
- If its **safety** equipment its **PC.**
- If its **anything else** it could be **ABS** because they cant prove otherwise**.**
- If its **packaging** it is **expanded polystyrene.**
- If its around **food** it will be **PET, HDPE, LDPE**

There are many types of plastics that are used for a huge variety of different tasks. These plastics can be divided into two main groups; Thermosetting plastics and Thermoplastics. Plastics are made up of long strings of monomers that bind together to form **polymers.**

Thermoplastics are a group of plastics (polymers) that as they are heated become soft and **CAN be moulded** over and over again. These plastics then harden as they cool. The Polymers in Thermoplastics do not form strong bonds so they can move over each other and be reshaped when subjected to heat.

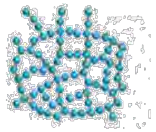


Thermoplastic

Common Thermoplastic Polymers

Some of the most commonly found thermoplastic polymers include polyethylene, polypropylene (PP), polyvinyl chloride (PVC), polystyrene, polytetrafluoroethylene (PTFE, commonly known as Teflon), Acrylonitrile butadiene styrene (ABS plastic), and polyamide (commonly known as nylon).

Thermoset plastics are a group of plastics that once they have been moulded and set **CANNOT be remoulded.** Once moulded, they do not soften when heated and they cannot be reshaped. Its polymer chains are joined together by cross-links, so they cannot slide past each other easily.



Thermoset

As a result of this resistance to heat Thermosetting plastics are suitable where a degree of heat resistance is required, such as engines, electrical components and fittings, saucepan handles etc.

Common Thermoset Polymers

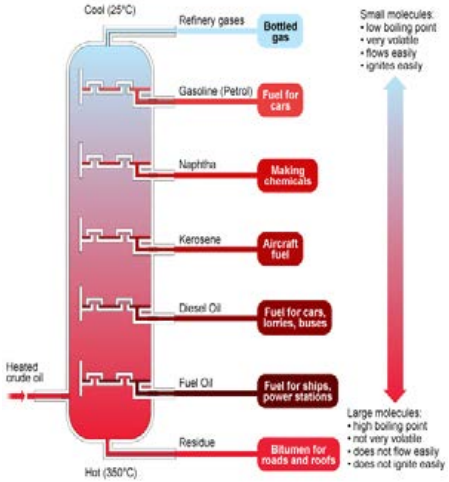
Some of the most commonly found Thermosetting polymers include Epoxy Resin, Melamine Formaldehyde, Polyester Resin and Urea Formaldehyde

Fractional distillation of crude oil

Crude oil is a **mixture** of many thousands of different compounds with different properties. They are called **hydrocarbons** because they only contain the elements hydrogen and carbon.

To make crude oil useful, batches of similar compounds with similar properties need to be sorted. These batches are called **fractions** and they are separated by **fractional distillation.**

The theory behind this technique is that some of the compounds in crude oil are easily vaporised, for example, they are volatile due to their low boiling points. Others are less volatile and have higher boiling points.



Tips for exams

- **If its electrical - it Urea Formaldehyde**
- **If its worktop or flooring – it Melamine Formaldehyde**
- **If its GRP or carbon fibre – Its Polyester Resin**

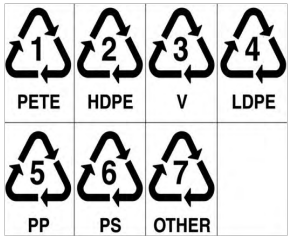
Thermoplastics

The majority of plastics that are used each day are Thermoplastics. Due to the fact they are easy to mould, can be recycled and have a wide variety of uses.
A large proportion of plastics can be identified by their **Resin Identification Code.** This is normally stamped on the product so we can identify the type of plastic it is made from.

Look on the bottom of your bottle of water, you will see this symbol. It is made up of the recycling symbol we are all familiar with, a number and sometimes letters. The number and letters identify plastic in the picture as 1 (PET) **Polyethylene terephthalate.** PET is fine in all exam situations!!!!

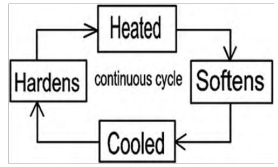
Resin identification codes

These were introduced in 1988 to help identify the main groups of plastics to help with recycling. They identify 6 named types of plastic and all others are grouped as number 7



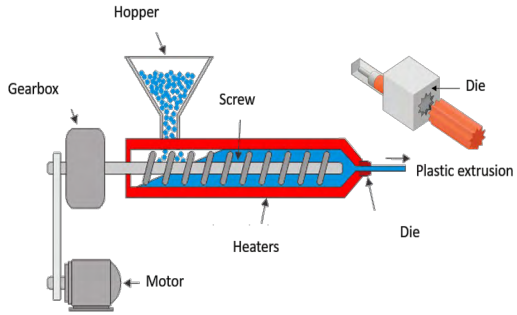
7 – OTHER

These days we use such a wide variety of different plastics that a large proportion of products will fall into the 'OTHER' category. For example Other **acrylic, nylon, polycarbonate (PC), and Acrylonitrile Butadiene Styrene (ABS)**



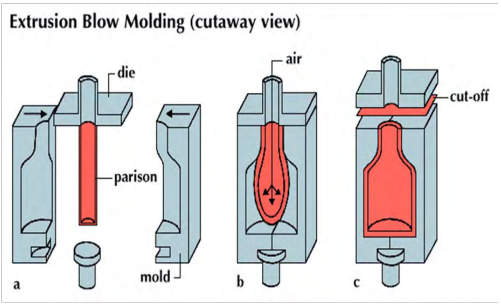
Extrusion

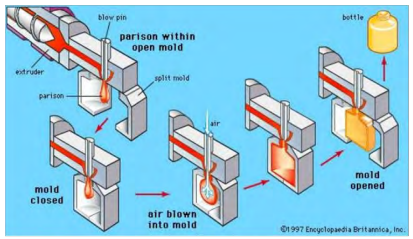
Extrusion is the starting point for other forms of plastic moulding as will be seen later. Extrusion is generally used to form of plastic moulding. It is used to form pipes, moulded sections and trunking. Plastic granules are fed into the screw barrel by a hopper, as they pass along they are heated and for a semi liquid homogenous mass. This is then forced out under pressure through the DIE, what ever the shape of the die the plastic adopts. It is then cooled rapidly in water baths to stop it deforming and cut to the required length.



Blow Moulding

Blow moulding is a plastic moulding process that is often used to form hollow products such as bottles. A plastic tube is extruded following the extrusion process discussed earlier. This tube is known as a **parison**. The parison is clamped between two halves of a mould and air is blown in through one end. The hot, flexible plastic is blown out and takes on the shape of the mould. The steel mould helps the plastic cool rapidly. When cooled the mould opens and the bottle falls out.

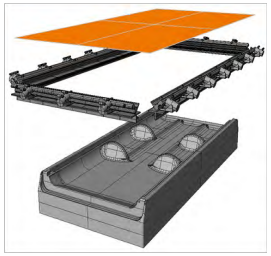


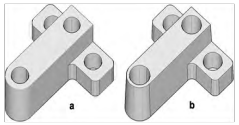


Products that are blow moulded often have a visible line down them on opposite sides, this is where the mould opens, it is known as a split line.

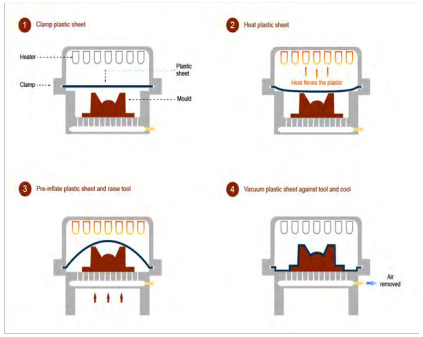
Vacuum Forming

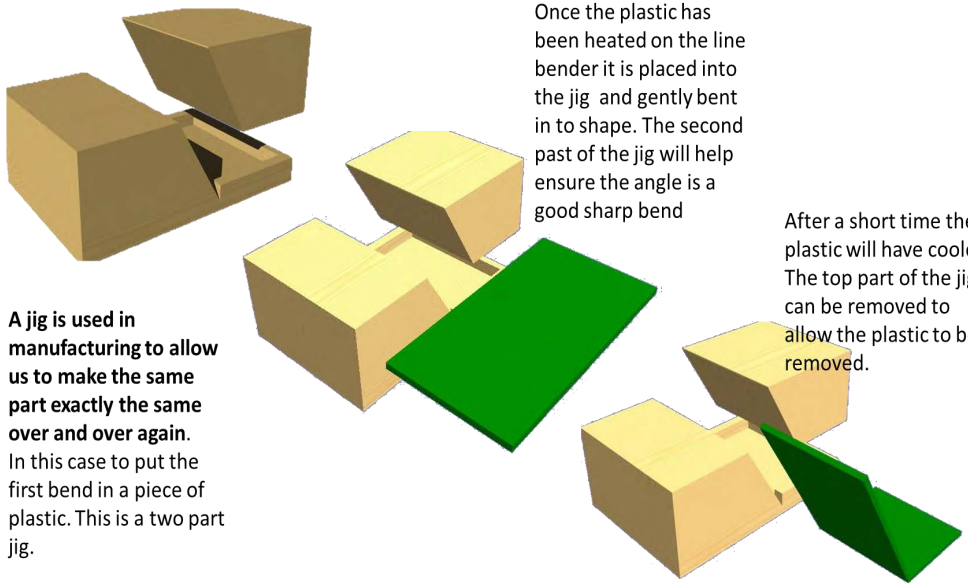
The vacuum forming process involves heating a plastic sheet until soft and then dropping it over a mould. A vacuum is applied sucking the sheet into the mould. The finished sheet is then taken from the mould.
The table that moves the mould up in to the soft plastic sheet is called the plattern. As the plattern is pushed up and the plastic starts to form the shape of the mould the vacuum is turned on actually sucking the plastic tight over the mould.





All moulds must have a **DRAFT** angle to allow them to be removed from the formed plastic. The sides must have an angle of around 5º to allow the parts to separate.





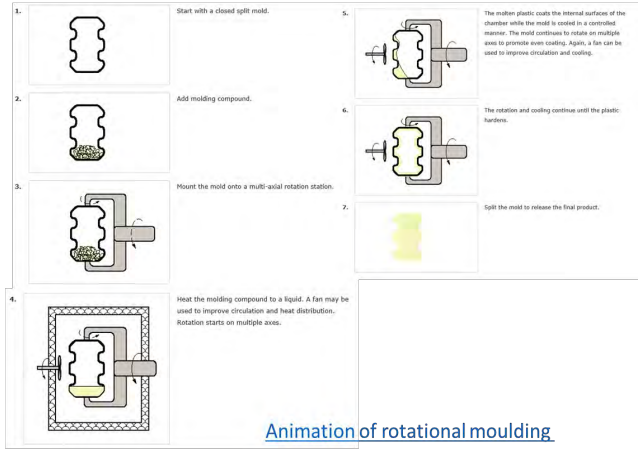
A jig is used in manufacturing to allow us to make the same part exactly the same over and over again.
In this case to put the first bend in a piece of plastic. This is a two part jig.

Once the plastic has been heated on the line bender it is placed into the jig and gently bent in to shape. The second past of the jig will help ensure the angle is a good sharp bend

After a short time the plastic will have cooled. The top part of the jig can be removed to allow the plastic to be removed.

Rotational Moulding

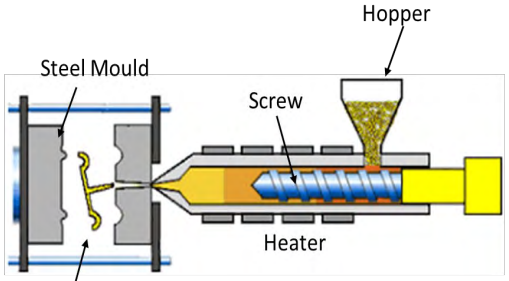
Rotational moulding is a plastic moulding process commonly used to make large, hollow products.
Plastic powder or granules are loaded into an open mould. The mould is then sealed and heated. The mould then spins around 3 axis so the plastic sticks to the cooling metal mould. Layers are built up by adding more plastic following each cooling process.



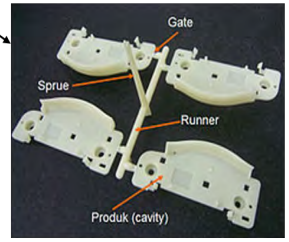
Animation of rotational moulding

Injection Moulding

Injection Moulding along with extrusion ranks as one of the main processes for producing plastics articles. It is a fast process and is used to produce large numbers of identical items from high precision engineering components to disposable consumer goods.
The process is similar to the extrusion process in terms of the hopper and screw, how ever rather than the plastic being pushed through a die it is injected under pressure into a steel mould.

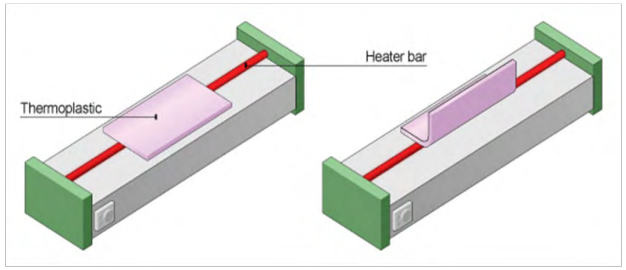


Injection moulded product



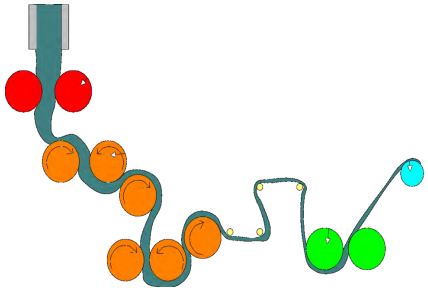
Line Bending/Strip heating

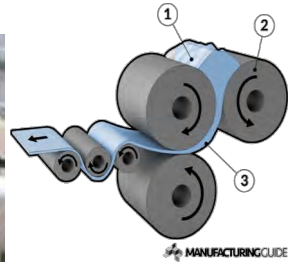
Line bending/strip heating is a simple process often used with ACRYLIC to bend a straight line in the plastic.
The acrylic is heated slowly over a heated bar or wire. This softens the plastic which then allows it to be reformed (bent) along the heated line.
Simple angles can be completed easily and with some planning some more complex shapes can be achieved. To ensure accurate bends a jig should be used to hold the soft plastic at the desired angle until it has hardened.



Calendaring

Calendaring is the process of squeezing a soft (melted) plastic between several rollers. The careful control and space between thee rollers will determine the eventual thickness of the plastic film.
The original plastic is extruded from the same as we looked at in the extrusion process. This melted extrusion is then dropped onto the first few sets of rollers to position and start the cooling process. The other rollers in the process stretch and adjust the thickness of the desired film.





Laser cutter

Although technically not a moulding process the laser cutter is often used in schools and industry to shape plastic.
The laser cutter is a 2 Dimensional cutting machine that can also engrave on to a range of materials.
In schools laser cutters are used to cut a variety of materials, but acrylic is widely used. This **CAM (Computer Aided Manufacture)** process is quick, easy and produces a finished edge when cutting acrylic.

A design is produced in a **CAD (Computer Aided Design)** package and sent to the laser cutter. A popular CAD program would be **2D Design.** This CAD design would identify which parts of the plastic are to be cut and which engraved. If multiple products are needed the designs should be collected together in a tessellation (sometimes called NESTING) to save material.

J Evans 2018

As discussed previously the majority of plastics are made from oil. This causes problems fom the environment through the process of extracting oil from the ground or under the sea. There are also problems with the processing of oil into compounds we can use as plastics and the pollution these produce.

Plastic also creates problems following our use and its **final disposal**. Plastic is generally not biodegradable, meaning it is not easily broken down naturally by animals and enzymes digesting it. Plastics have only been around for about 70 years. So microorganisms simply haven't had much time to evolve the necessary biochemical tool kit to latch onto the plastic fibres, break them up into the constituent parts and then utilise the resulting chemicals as a source of energy and carbon that they need to grow.

Disposing of plastic

According to National Geographic only 9% of plastic is recycled.
The vast majority—79%—is accumulating in landfills or discarded in the natural environment as litter. Meaning: at some point, much of it ends up in the oceans, the final sink.

Environmental impact of disposal.

- Most plastic ends up in landfill, land that cannot be used again as plastic does not natural degrade.
- A large proportion is simply litter damaging habitats.
- Much will finally end up in the ocean as small pieces where it is ingested and will enter the food chain.

Mr Evans 2018

Can plastics be environmentally friendly?

If we recycled 100% of all plastic produced then there is every chance the use of plastics would become sustainable, but we don't. Alternatives are needed to allow us to continue to use this versatile material.

I order to make plastic more environmentally friendly we need to look at:

- **Bioplastics** made from natural materials such as corn starch
- **Biodegradable** plastics made from traditional petrochemicals, which are engineered to break down more quickly
- **Eco/recycled plastics**, which are simply plastics made from recycled plastic materials rather than raw petrochemicals.

Bioplastics

The theory behind bioplastics is simple: if we could make plastics from kinder chemicals to start with, they'd break down more quickly and easily when we got rid of them.

The most familiar bioplastics are made from natural materials such as **corn starch** and sold under such names as *EverCorn™* and *NatureWorks*. Some bioplastics look virtually indistinguishable from traditional petrochemical plastics.

Polylactide acid (PLA) looks and behaves like polyethylene and polypropylene and is now widely used for food containers.

Biodegradable plastic is **plastic** that decomposes naturally in the environment. This is achieved when microorganisms in the environment metabolize and break down the structure of **biodegradable plastic**. The end result is one which is less harmful to the environment than traditional **plastics**

Some supermarkets now use what are described as **photodegradable**, **oxydegradable**, or just **biodegradable bags** (in practice, whatever they're called, it often means the same thing). As the name suggests, these biodegradable plastics contain additives that cause them to decay more rapidly in the presence of light and oxygen (moisture and heat help too). Unlike bioplastics, biodegradable plastics are made of normal (petrochemical) plastics and don't always break down into harmless substances: sometimes they leave behind a toxic residue and that makes them generally (but not always) unsuitable for composting

Mr Evans 2018

Eco/recycled plastics

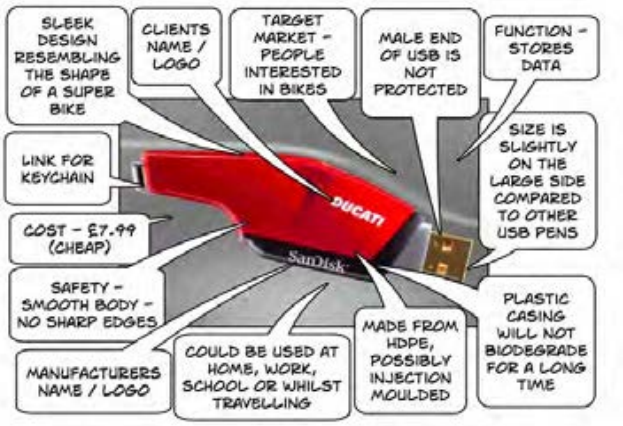
One easy solution to the problem of plastic disposal is to recycle old plastic materials (like used milk bottles) into new ones (such as items of clothing). A product called ecoplastic is sold as a replacement for wood for use in outdoor garden furniture and fence posts. Made from high-molecular polyethylene, the manufacturers boast that it's long-lasting, attractive, relatively cheap, and nice to look at.

CNAT
Engineering
Design

Year 10 – Engineering – Summer Term
Unit R040: Design, evaluation and modelling

Designers need an understanding of how products are manufactured to ensure that their ideas can be produced effectively. Analysing how products are made can help to inform designs, and it can be useful to disassemble existing products to discover how they function and how they were manufactured.
In this unit you will learn how designers can quickly create and test models to develop a prototype of a design.

Task 1:1 Carry out product analysis using ACCESS FM.

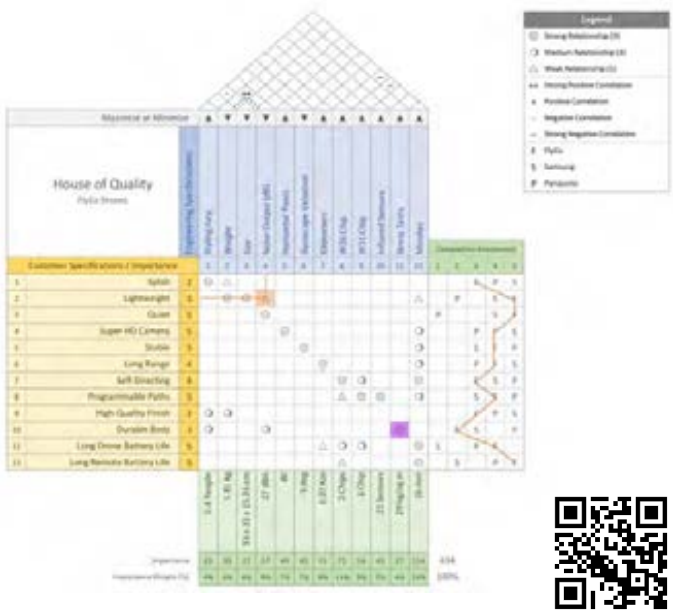


- □ **Aesthetics** = how it looks
- □ **Cost** +how much it costs to make and buy
- □ **Customer** = Who is it for?
- □ **Environment** = How will the product impact on the environment?
- □ **Size** = How big is it?
- □ **Safety** = how is the product made safe?
- □ **Function** = what does it do?
- □ **Materials** and manufacturing = what is it made of and how is it made?

Task 1:2 Compare Products

It is useful to compare products so you can identify the most important features. One way of doing this is using a matrix such as "the house of quality" used as part of the Quality Function Deployment (QFD). Learn more about QFD here: QFD

You also need to compare advantages and disadvantages of a product identified using primary and secondary research.



1.3 Carry out product disassembly

A good way to find out more about a product is to take it apart to see what each part is made of and how it all fits together.

For this task you will:

□ Use manufacturers manuals or other published Sources to disassemble a product
□ Use appropriate tools and instruments
□ Analyse the disassembled product for:

- □ components and their functions
- □ assembly methods
- □ materials
- □ production methods
- □ maintenance considerations

Enterprise

BUSINESS: *Creating informed, discerning employees, consumers and future leaders*

Enterprise and Marketing KO

Key Vocabulary

Design mix – the combination of aesthetics, function and cost that are the combined design priorities for a product

Aesthetics – how things appeal to the senses, i.e. look, smell, sound

Function – how well the product or service works for the consumer

Economic manufacture – making a product cheaply enough to make it profitable

Product life cycle – the theory that every product goes through the same stages

Introduction phase – phase of the product life cycle when a product is developed and launched onto the market

Growth phase – phase of the product life cycle where sales are growing; costs will be very high

Maturity phase – phase where sales and revenue is at the highest point

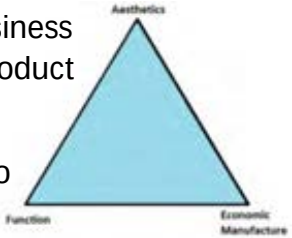
Decline phase – phase when sales are dropping

Extension strategy – an attempt to prolong sales of a product to avoid the decline phase

Product differentiation – the extent to which consumers see your product as distinct from rivals

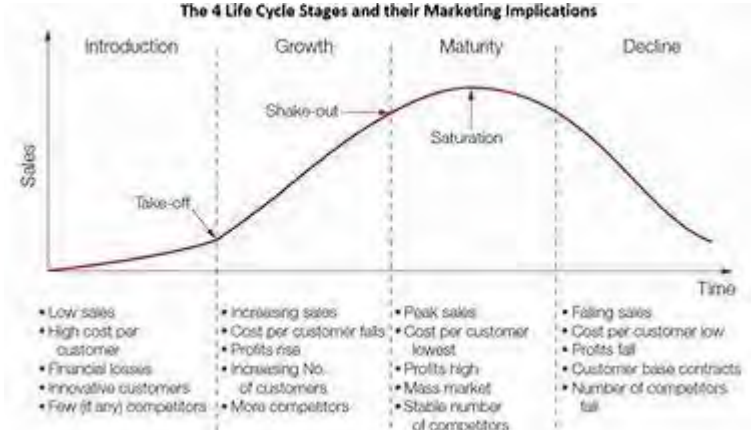
Core Knowledge

The design mix is a diagram to show how a business must consider the aesthetics and function of a product as well as the cost.



When creating a product a business will want it to stand out from rivals. This is known as product differentiation. Businesses can use branding or USPs.

The Product life cycle shows the stage that every product goes through. A business will use extension strategies to extend the life cycle.



Don't be a "man on the street"

- Don't assume everyone prefers branded products – some consumers will consider cost more important
- Remember that all products will see a decline in sales, eventually, but the time this takes will differ
- Just because a product is in decline does not mean it must be withdrawn – it may still contribute a considerable amount of revenue

Wider Business World

Apple – use of branding and extension strategies

Kellogg's – developed new products such as cereal bars to meet customer needs

KitKat – launched different flavours and sizes as an extension strategy

Synoptic Links

Customer needs – if these change products will need to change

Market research – how a business finds out customer needs

External influences – will lead to changes in 4Ps

Operations – need to be able to make the product

Breakeven – understanding the link between costs and economic viability

Food Preparation and Nutrition

British cuisine

Cuisine is a style of cooking characteristic for a given region or country, which uses specific ingredients, dishes, preparation and cooking methods.

Cuisine may be affected by various factors, such as climate, type of soil available for growing plants, or history.

Immigrants and conquerors in the past have brought many new meals, ingredients, spices and cooking methods, not previously known in the UK.

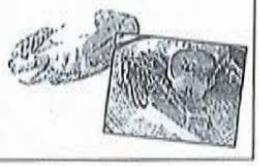
Distinctive features and characteristics of cooking

Main ingredients used, traditional dishes and other factors which distinguish the cuisine from others.

Traditional ingredients:

- Beef, lamb, pork, poultry, bacon and ham
- Potatoes, onions, leek, peas, beans, swede
- Milk and cheese (e.g. Cheddar, Stilton)
- Herbs, such as mint and sage

Traditional meals and dishes differ depending on the region (see below).



Equipment and cooking methods

Kitchen utensils, dishes and cooking methods specific for a given cuisine.

Equipment:

- Open fire for roasting, now exchanged with ovens
- Thick ceramic dishes used for stews, soups and sauces
- Tins and moulds for making puddings, pies and tarts

Cooking methods:

- Stewing, simmering and braising
- Roasting and baking
- Grilling and barbecuing
- Poaching
- Frying

Eating patterns

The meals during the day vary between countries – both the time at which they are eaten and the types of meals that are served. This is changing dynamically due to busy lifestyles.

- Breakfast – eaten in the early morning; traditionally very filling; nowadays lighter; may consist of toast with coffee or a bowl of cereal
- Elevenses – small, usually sweet snacks eaten around 11am with a cup of tea or coffee
- Brunch – eaten before noon instead of breakfast and lunch, usually at weekends or during business meetings
- Lunch – midday meal consisting of a sandwich, salad or soup; traditionally, a Sunday lunch is more filling and consists of roasted meat, vegetables, Yorkshire pudding and gravy
- Afternoon tea – eaten in the afternoon, consists of a pot of tea or coffee with a range of small snacks, sandwiches, biscuits and cakes
- Dinner – hot meal eaten in the early evening, the main meal of the day
- Supper – consumed a bit later than dinner, usually replaces it

Presentation styles

How the food is served – how it appeals to the appetites and tastes of consumers.

- Presentation is usually simple, some garnish or sauce may be used to make the food more appetising.
- Meat or fish is served accompanied by potatoes, vegetables and gravy
- Puddings are also served with sauces, e.g. custard
- Desserts are served in individual

Traditional and modern variations of recipes

Traditional recipes can be modified to suit busy lifestyles, healthy eating patterns or medical conditions. Variations help to make the meal faster, easier and cheaper to cook.

- Meats, sausage and bacon can be exchanged with low-fat or low-salt products, or substituted with protein alternatives, such as soy chunks or tofu
- Traditional breakfast is replaced with lighter options, such as toast with jam and orange juice or a bowl of cereal
- Instead of frying, people may choose to roast, grill or dry-fry the food to make it healthier and less fatty
- Lard and suet may be exchanged for vegetable oils and spreads
- New ingredients are introduced to meals as importation allows for a greater variety of foods

Traditional foods of Great Britain

England

- Cornish pasty
- Yorkshire pudding
- Lancashire hotpot – lamb and vegetable stew topped with mashed potatoes
- Clotted cream, cream tea
- Fish and chips
- English breakfast – rich and high in calories, contains bacon, sausages, baked beans, buttered toast, fried egg, fried mushrooms and tomatoes
- Sandwiches
- Sunday roast
- Beer and cider

Wales

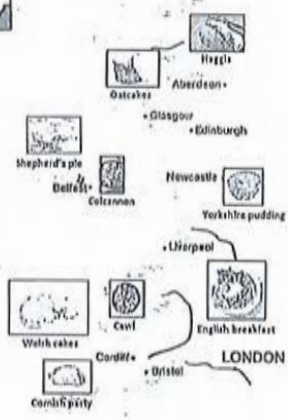
- Cawl – meaty broth served with bacon or lamb and vegetables
- Welsh rarebit – spiced melted cheese served on toast
- Glamorgan sausage
- Welsh cakes
- Bara brith – rich yeast bread with dried fruit
- Laver bread – stewed laver weed
- Tatws popty – potatoes baked with onion under a thick layer of cheese

Northern Ireland

- Colcannon – mashed potatoes with kale and cabbage
- Soda bread
- Black pudding – sausage made from pork fat, blood and oatmeal
- Shepherd's pie
- Irish stew
- Oatmeal
- Irish cream
- Whiskey and beer

Scotland

- Porridge
- Scotch broth
- Dunlop cheese
- Kippers – smoked herring
- Tatties and herring
- Haggis – sausage made from sheep offal and barley
- Scotch pie – pie with mutton meat filling
- Oatcakes, scones
- Shortbread
- Neeps and tatties – potatoes with swede (turnip)
- Whisky and ale



International cuisines*

Cuisine depends on a region: its culture, religion, climate and weather conditions, and even plant and animal species that live there.
For centuries, countries and regions have created a variety of meals, cooking dishes and methods, and even serving and eating patterns, which are characteristic of them.

	Distinctive features and characteristics of cooking Main ingredients used, traditional dishes and other factors which distinguish the cuisine from others.	Equipment and cooking methods Kitchen utensils, dishes and cooking methods specific to a given cuisine.	Eating patterns Meals vary between countries; for example, the time of day at which they are eaten and the types of meals that are served. This is changing dynamically due to busy lifestyles.	Presentation styles How the food is served – how it appeals to the appetites and tastes of the consumers.	Traditional and modern variations of recipes Traditional recipes can be modified to suit busy lifestyles, healthy eating patterns or medical conditions. Variations help to make the meal faster, easier and cheaper to cook.
Mediterranean cuisine	Includes: Italy, France, Spain, Greece, North Africa, Turkey Ingredients: olives and olive oil, grapes and wine, fish and seafood, tomatoes, aubergines, courgettes, wheat (e.g. in couscous, pasta, semolina), bell peppers, citrus fruits, apricots, herbs (saffron, thyme, oregano, marjoram), garlic and onion, beans and lentils, milk and dairy Typical meals: • Italian: risotto, pizza, spaghetti, mozzarella, ricotta • French: casserole, ratatouille, fish soup bouillabaisse, selection of cheeses, croissants, crêpes • Spanish: paella, cured and dried ham, omelette, gaspacho • Greek: moussaka, tzatziki, feta, filo pastry • Moroccan: tabbouleh, hummus, bulgur, couscous, tagine, harissa • Turkish: börek, pilav, kebab, sheep cheese, baklava, halva	Equipment: • Clay ovens used for baking, now exchanged for electric or gas ovens • Thick ceramic dishes for stews • Paellera – shallow frying pan used to make paella • Tagine – a dome-shaped clay dish used to prepare tagines in Arabic countries Cooking methods: • Baking • Frying • Simmering and stewing • Grilling • Steaming and boiling	• In Italy and France, especially on large occasions, meals can have many courses (usually a starter, soup, main dish, salad, cheese and dessert), usually accompanied by wine • Breakfast might be rather small and sweet, e.g. croissants with jam and coffee • In Spain, a siesta (short nap) is taken after the midday meal • Dinner in Spain (cena) and Greece (svadino) is eaten quite late – after 9pm • In Morocco and other Arabic countries, meals are celebrated and a long time is spent eating • In Turkey, hands and mouth are washed before and after eating. Traditionally, it was considered to be good manners to belch and lick one's fingers while eating; nowadays it may be considered rude	• Most meals are quite simple, consisting of 4–8 ingredients only, but they are usually very colourful • A sauce may be splashed on top to make it more appetising, e.g. cream on top of a soup, carbonara sauce with pasta • Dishes might be garnished with fresh herbs, such as coriander or parsley • In Morocco, meals are often served in large clay dishes so people may eat from one dish	• Traditional meals are quite time-consuming to prepare, so are often exchanged for more modern, faster to cook meals • People often choose to eat out or order take-away • Thick sauces based on fat and cream may be exchanged for lighter versions, e.g. yoghurt • People more often choose, healthy, natural, organic foods • In Morocco, more modern cooking includes the use of fewer spices and eating more raw vegetables • Culinary shows make cooking more trendy and inspire people to cook at home more often
Asian cuisine	China Each canton in China has its own regional cuisine and uses different ingredients and spices (e.g. Szechuan and Cantonese) Ingredients: noodles and rice, pork, duck, chicken, Chinese cabbage, water chestnuts, bamboo shoots, mushrooms, beansprouts, soy, soy sauce, lychee fruit, fish and seafood, eggs, ginger, garlic, sesame and peanut oil Traditional meals: steamed or fried rice, chicken soup with noodles, tofu and sticky tofu, moon cake, spring rolls, wontons, dumplings, chow mein, sweet and sour pork	Equipment: • Wok – deep, rounded pan • Chopsticks – used instead of cutlery • Bamboo strainers – used to drain wontons and dumplings • Cleaver – large, heavy-duty knife used by chefs • Brightly-coloured lacquerware and porcelain dishes used to serve foods Cooking methods: • Stir-frying and deep-frying • Steaming and boiling • Red stewing (cooking with addition of a red-dyed liquid	• Breakfast is rather light, may consist of soy milk, noodles or soup • Usually eaten in a nearby canteen or ordered in, rather light, consists of rice or noodles with meat and vegetables • Dinner is large and often eaten in a restaurant, with a broad selection of meats and vegetables • Soup is eaten throughout a meal, not only at the beginning	• Very colourful dishes • Served in many small bowls for people to share • May be garnished with spring onions or herbs • Chopsticks are provided instead of cutlery • The use of a knife may be seen as offensive	• Traditionally, meals were served in individual dishes; nowadays, they are placed in the middle of the table for people to share and try all of them • Talking is now allowed during the meal – in the past people rarely spoke while eating • Modern lifestyle has caused a dramatic increase in obesity rates in China • International cuisines are gaining in popularity, e.g. pizza
	Japan Ingredients: rice, soya, fish and seafood, noodles, seaweed, eggs, seasonal foods, green tea, wasabi Traditional meals: sushi, tempura, donburi, udon noodles, miso soup, sashimi	Equipment: • Chopsticks – used instead of cutlery • Knives – famous for their sharpness Cooking methods: • Deep-frying, grilling and steaming • Eating raw fish, vinegared dishes	• Typically three meals a day • Early breakfast, might contain boiled white rice with various sides • Lunch may be substituted with light snacks • Dinner, usually shared with family or friends	• Food is often served and eaten on the floor, while dinera kneel • A hot towel may be provided to clean hands before eating • Soy sauce is provided for dipping food in	• Foreign meals are eaten more often, such as American burgers, Korean kimchi, Hawaiian spam musubi and Chinese ramen • Meat consumption has increased during the last 50 years • Meals can be skipped or replaced with light snacks
	India Also differs from region to region Shaped by colonialism and development of trade Ingredients: pearl millet, rice, lentils, chickpeas, beans, peanut oil, coconut milk, ghee butter, paneer cheese, many rich spices Traditional meals: fried paneer, vindaloo curry, rogan josh, korma, bhaji, tandoori chicken	Equipment: Tandoor oven – cylindrical clay oven used to roast and bake, typical for India and Central Asia Handi – deep, wide metal cooking dish Cooking methods: Deep-frying, frying, roasting, stewing, steaming	• Rich, filling breakfast is important to provide energy for the whole day • Betel leaves may be eaten after the meal to support digestion • Evening meal is usually eaten with the whole family – it is the most important meal of the day	• Foods are often served with rich, thick sauce, e.g. curry • A selection of dishes is served for dinner to share • Traditionally eaten on low stools or cushions • Food is traditionally eaten with hands, not cutlery • Food may also be served on banana leaves	• People more often use cutlery to eat, especially the middle class • The use of many nuts may need a replacement which is suitable for nut-allergy sufferers • The cuisine is mainly vegetarian • The use of many various spices may also pose a risk for allergy sufferers, as well as deterring people who don't enjoy spicy foods • People more often choose to eat out than cook at home

*This provides two cuisines, however schools or colleges/students can select any two different cuisines

Food sources

...ure and how food is made depends on many factors, such as:

- → Climate
- → Soil quality
- → Availability of water and other resources
- → Availability of land suitable for growing plants and pastures
- → The size of a population and how much food needs to be produced.

Other factors, such as religion and ethical beliefs of local communities, also play an important role in deciding what foods will be made in the nearest area.

For example, more and more free-range eggs are produced in the UK nowadays due to popular belief that free-range hens are happier and produce better-quality eggs, but also to ensure animal welfare standards are kept.

Food source type	Where	Example	What for?
Grown	Orchards	Apples, plums, avocados, cherries, nuts	Fruit, nuts, animal feed
	Fields	Root vegetables, grains, seeds, legumes	Food, animal feed, fertilisers, bioenergy
	Polytunnels	Lettuce, radish, strawberries	To ensure availability all year long
Reared	Sheds, barns	Cattle, pigs, horses, poultry	Meat, milk, leather, feathers, eggs, work, bioenergy
	Fish farms	Fish, seafood	Food, animal feed
Gathered	In forests, near the roads	Wild berries, mushrooms, herbs	Medicines, beverages, herbal teas, spirits and liquors, pickles
Caught	Open spaces and forests	Wild animals, game and venison	Food, enjoyment
	Oceans and seas	Wild fish, seafood	Food

Farming

A farm is an agriculture establishment in which crops are grown and livestock is reared for profit. The two main ways of farming include:

Organic farming

- ✓ No chemicals
- ✓ Little or no use of pesticides
- ✓ No artificial fertilisers
- ✓ No herbicides
- ✓ No GM feed or seeds
- ✓ Antibiotics are only used when necessary
- ✓ Crop rotation may be applied to preserve soil quality
- ✓ Animal welfare standards are kept

Intensive farming

- ➢ Chemicals such as pesticides, herbicides and artificial fertilisers are used to prevent crop failure
- ➢ Antibiotics are used to prevent diseases in livestock, not to cure them
- ➢ GM feed and seeds are used to obtain high-yield crops
- ➢ Animal welfare standards are often violated

Sustainable fishing

Rearing fish and seafood in fish farms for meat, caviar, pearls, animal feed or other reasons. Sustainable fishing means that fishing in natural fisheries is allowed only for certain periods of time so that the shoal of fish has the chance to reproduce and restore itself.

Advantages of fish farms:

- ✓ Protect natural ecosystems
- ✓ Prevent overexploitation of fisheries
- ✓ Keep animal welfare standards
- ✓ Protect wild species diversity
- ✓ Prevent by-catch

By-catch: accidental catch of a sea organism which wasn't the primary goal of the fishing.

Disadvantages of fish farms:

- ✕ The fish tanks are often overcrowded
- ✕ Fish might be fed low-quality feed which affects their flavour and nutritional value
- ✕ Fish might be fed antibiotics, increasing the risk of antibiotic resistance

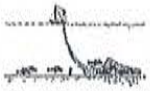
Sustainable fishing policy is set by the Marine Stewardship Council.

Methods of fishing:

Purse seining: fishing with the use of a large net in which fish and other sea organisms are trapped

Longlining: fishing with the use of a longline to which other lines are attached, each of which ends with a hook

Bottom trawling: pulling a large net along the sea bottom, used to catch shrimp and bottom-dwelling fish



Food production

The way food is made affects its quality, safety and yield. Modern technologies help to obtain high amounts of food while ensuring it's safe to eat and nutritious.

Egg production

Symbol	Name	Conditions
0	organic	Birds are fed only organic feed, animal welfare standards are applied
1	free-range	Hens are let outside the barn during the day to enjoy the most natural conditions possible
2	barn	Birds can move freely around the barn, but may have trimmed beaks to reduce injury caused by fighting among themselves
3	cage	Hens are kept in tight cages, without being able to move

Red Lion Scheme is a quality mark which ensures that all hens have been vaccinated against salmonella so the eggs are safe to eat.

Local and seasonal foods

Characteristic of countries or regions, as well as certain seasons of the year.

- fresher
- more nutritious
- tastier
- empowers local farmers
- supports local communities
- may be cheaper than imported foods
- supports biodiversity of species

- limited offer / small variety of foods offered
- limited availability /short time for purchase
- depends on weather conditions and local climate
- may be more expensive than imported foods

Genetically modified foods

Come from GM animals or plants, or GM microorganisms are used during production.

- resistance to pests and unfavourable weather conditions
- more nutrients, e.g. beta-carotene in Golden Rice
- fewer pesticides and herbicides are used
- higher yield of crops = more food
- stay fresh for longer, shelf life is improved

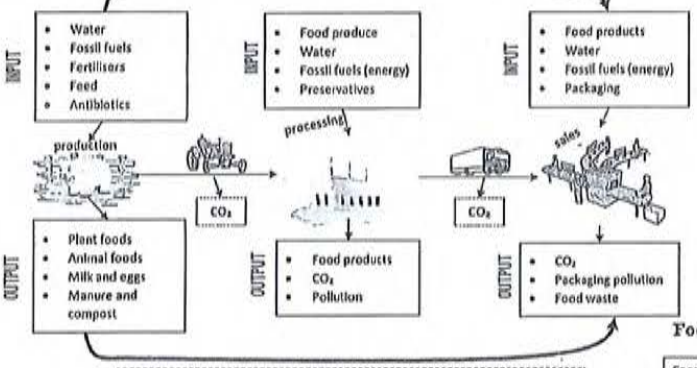
- no known long-term health effects
- use of viruses and bacteria may pose risk of spreading new diseases
- GM seeds can contaminate natural habitats and decrease species variety
- pests, bacteria and viruses may develop resistance and pose new risks

Food and the environment, and sustainability of food

Why is carbon dioxide so dangerous?

Food production, at each of its stages, emits large amounts of carbon dioxide. Carbon dioxide creates an impermeable layer around Earth. When warmth is reflected from the Earth's surface, it is caught by that layer and bounces back. As a result, the average temperature on Earth rises, and that affects plant and animal species.

Carbon footprint
The amount of carbon dioxide and other greenhouse gases emitted into the environment during production and transportation of a product



Food miles
The distance from the field to the plate of the consumer – importing food products from distant countries increases the food miles

Each step of food production has a huge impact on the environment. Overexploitation of natural resources, such as water, soil and fossil fuels, together with transportation and packaging of food, contribute significantly to climate change.

Climate change

... the effect of this process is known as global warming. Global warming means that climate conditions change and plants cannot grow anymore, because they are not used to the new conditions. Also, as it is warmer, oceans evaporate faster, and this leads to severe hurricanes and massive rainfall, which damage even more crops by causing flooding.

- Carbon dioxide and other greenhouse gases create a layer around Earth
- The heat cannot escape into space and the temperature of the atmosphere rises
- Glaciers melt and sea levels rise, while oceans evaporate faster due to higher temperatures
- Fierce hurricanes, rainfall and tornadoes devastate the land
- Crop failure due to floods and droughts
- Food shortages, famine, wars and death

Greenhouse gases
Vapour, CO_2, nitrous oxide, methane, ozone, CFCs absorb infrared radiation and trap heat

Global warming
Rise in average temperature on Earth due to extravagant release of greenhouse gases

Food availability

Climate change affects food availability. Droughts caused by faster evaporation of waters, and floods caused by massive rainfall are causes of crop failure around the world. Crop failure means that there are no plants to eat, and no food for animals.

Food security – when all people, at any time, have access to nutritious, healthy food in sufficient amount

Food availability may be increased by:	Food availability may be decreased by:
✓ The use of GM seeds and organisms to produce more food	✗ Climate change and the effects of global warming
✓ Modern technologies to store food for longer	✗ Insufficient land for growing food
✓ Transportation of food around the world, e.g. to those who affected by famine	✗ Growing world population which requires more food
	✗ Overexploitation of soil and fisheries
	✗ Limited resources such as water and fossil fuels

How food production affects the environment and communities

Food production has a direct and an indirect effect on the environment by creating various pollutants or by causing deforestation. The way we produce and transport food is also meaningful to those who produce it: farmers, farm workers, and even people working in your local shop.

Packaging

- → Fossil fuels are used to produce many types of packaging
- → Tonnes of used packaging are thrown away every day
- → Unrecycled packaging creates pollution
- → Animals, birds and fish swallow the debris and die
- → Some materials used for packaging NEVER decompose!

Fairtrade
A foundation and ethical movement focused on supporting farmers and sustainability of food.

Advantages of Fairtrade:

- ✓ Ensures fair wages and prices
- ✓ Improves working conditions
- ✓ Empowers local communities, farmers and workers
- ✓ Supports education and growth in developing countries
- ✓ Helps to protect the environment

Seasonal foods

Food products which are characteristic of a given season, because this is when they are ripe and are harvested

Spring: sprouts, kale, lettuce, spring onion, radish
Summer: peas, berries, courgettes, cucumbers, apricots, cherries
Autumn: apples, pears, plums, aubergine, pumpkin, celery
Winter: potatoes, carrots, parsnips, beetroots, Brussel sprouts, onions

Advantages of seasonal foods:

- ✓ Are often produced locally, so reduce food miles and carbon footprint
- ✓ Are cheaper in season
- ✓ Are higher in nutrients and tastier than off season

Food waste

Reasons:
- → Buy and cook too much
- → Don't eat the food before it goes off

Effects:
- → Waste of money, pollution, carbon footprint increase

Methods of prevention:
- → Plan shopping, don't go shopping when hungry
- → Only cook as much food as needed
- → Eat everything on the plate or store leftovers for later
- → Reuse food products to make new meals
- → Store food correctly to avoid spoilage
- → Use peelings and scraps to make compost

Food choices

Religion often dictates nutritional regime, indicates what foods can be eaten and when, and what foods should be avoided.

	Rastafarians	Buddhists	Muslims	Jews	Hindus	Sikhs	Christians
Eat	• I-tal • Coconut oil, herbal tea, fruit and juices, vegetables	• A vegetarian diet	• Halal food only	• Kosher food only	• Milk • A mainly vegetarian diet	• A vegetarian diet	• Generally everything, no specific restrictions
Don't eat	• Pork and other meat • Salt • Milk • Coffee • Alcohol	• Alcohol • Meat	• Pork • Alcohol • Fish and shellfish without scales	• Shellfish • Pork • Meat with dairy	• Beef • Alcohol	• Alcohol • Kosher or halal food • Beef	• Meat on Fridays
Holidays or fasting periods	• Ethiopian Christmas (7th Jan) • Groundation Day	• Vesak – Buddah's birthday	• Ramadan – month-long fasting period during which Muslims can eat only at night	• Passover • Rosh Hashanah • Yom Kippur • Hanukkah	• Diwali – festival of lights	• Guru Nanak's birthday	• Lent – period of fasting lasting for 40 days before Easter • Easter • Christmas
Other	• I-tal means clean, natural, pure	• Don't kill animals purposefully but would not refuse meat if given	• Halal means permitted, allowed	• Kosher means clean • Matza is a special unleavened bread	• Cows are sacred animals • During Diwali, sweets are given as gifts	• Karah Parshad pudding eaten during the holiday	• Many festive foods, usually different for Easter and Christmas; Christmas pudding, hot cross buns, chocolate Easter eggs

Fasting means that a person cannot eat any food for a given period of time. Sometimes water and other beverages are permitted.

Alcohol consumption is forbidden by most religions

Ethical beliefs

People may choose to eat or avoid eating certain products because of their ethical or moral beliefs.

These may be based on:

1. Whether animals or people suffer during food production
2. How food is made
3. How food production affects the environment

1 Fairtrade

Global movement focused on ensuring fair working conditions, prices and wages to farmers and workers in developing countries.

- ✓ Improves working and living conditions
- ✓ Supports education and development
- ✓ Empowers farmers and their families

1 Animal welfare

Movement focused on ensuring the well-being of animals and humane conditions for rearing animals.

- ✓ How animals are treated
- ✓ How they are treated for medical conditions or protected from diseases
- ✓ How they are slaughtered
- ✓ What their living conditions are like

2 Organic foods

Plants and animals are grown and reared in the most natural way possible.

- → No chemicals
- → No pesticides or herbicides
- → No artificial fertilisers
- → No antibiotics
- → No GM feed or fertilisers

2 GM foods

Plants or animals in which DNA has been altered.

DNA

Carrier of all information about a living organism, in the form of a double helix tightly packed in a cell's nucleus

Gene

Part of a DNA strand, which carries specific information

- \+ Improved immunity, reduced need for pesticides
- \+ Higher crops and smaller risk of food shortage
- \+ More nutrients (e.g. Golden Rice)
- − Unknown health effects
- − Probably cause morbid obesity
- − Potentially cause cancer

3 Local produce

- ✓ Fresher, tastier, cheaper food products
- ✓ Fewer food miles and lower carbon emissions
- ✓ Support for local farmers and societies
- ✓ No need for long-distance transportation

3 Food miles

Distance from a farm to the plate

3 Carbon footprint

Indicates how much carbon dioxide and other greenhouse gases were emitted during the production and transportation of a given product

3 Greenhouse gases

- → Carbon dioxide
- → Water vapour
- → Nitrous oxide
- → Ozone
- → Chlorofluorocarbons

Trap heat around Earth and contribute to global warming.

Medical conditions

Many people cannot eat certain products because they would cause harm to their bodies.

Food intolerance

Reaction of the digestive tract to a food ingredient

What are the most common intolerances?

- ✓ Lactose – the sugar naturally occurring in milk
- ✓ Gluten – the protein naturally occurring in wheat, barley, rye and oats

Symptoms and diet

- ☹ Food intolerances cause bloating, stomach cramps or diarrhoea, but aren't dangerous.
- ☹ People should avoid eating certain foods or eat them in small amounts only.

Food allergy

Reaction of the immune system to a food ingredient

What are the most common allergens?

- ✓ Nuts, eggs, milk, wheat, fish and shellfish

Symptoms and diet

Allergens may cause a severe, life-threatening reaction: anaphylactic shock.

People with allergies have to avoid the foods they are allergic to for their entire life.

Factors influencing food choice

Food choices are driven by many various factors, which are very important when planning diets, meals and menus.

Physical activity level

Amount of energy needed to perform all daily tasks, such as waking up, showering, exercising, working and shopping.

The more active a person, the more energy they need.

If you eat more than you need (your PAL is low), you are likely to gain weight.

If you do not eat enough, or you are very active (your PAL is high), then you are likely to lose weight.

Keep your diet balanced to maintain weight!

Healthy eating

A balanced and varied diet is key to a long life!

Healthy foods and snacks may be:

- → low-fat
- → low-sugar
- → high-fibre
- → low-calorie
- → low-salt

or a combination of these.

Reasons for choosing them usually include the need to lose weight or maintain health.

Lifestyle

The way in which people live often means they have:

- → busy schedules
- → no time for shopping and cooking
- → no time for eating

A healthy lifestyle should include home-cooked food and regular meals during the day. There is a variety of healthy snacks and foods which are ready to eat:

- → portioned fruit and vegetables
- → protein shakes and smoothies
- → sandwiches, salads and soups

Food availability

The amount and variety of food depends on:

- → food production possibilities
- → food storage
- → transportation and import from other countries

Seasonal foods might be cheaper in their harvesting season, but still available all year round.

Seasonality

Some foods may be unavailable beyond their harvesting season or may be more expensive.

People may prefer seasonal foods for various reasons:

- → locally grown, cheaper, fresher, tastier
- → want to decrease the environmental impact – food miles and carbon footprint

Time available to prepare food

- → Busy schedules and lack of time
- → People choose ready-to-eat foods, order in or eat out more often
- → People choose simple recipes which don't take too long to cook

Time of day (in the UK)

- → Breakfast: sandwiches, cereals; more filling meals are served at weekends or during holidays
- → Lunch: pasta, salads, sandwiches or eat out
- → Dinner: more demanding foods, soups, stir-fry, curry, pie, order in or eat out

Cost of food

The price of food products varies depending on:

- → quality
- → quantity in a package
- → brand
- → place you're shopping in

Supermarkets usually have lower prices than convenience stores on most products. Food may be cheaper if you look out for special offers, meal deals and discounts.

Income

Disposable income is the amount of money a family can spend on goods such as food and rent.

The amount of money available determines the quality, quantity and variety of food which can be bought.

Low-income families may choose high-fat and high-sugar products since they are usually cheaper than healthy foods such as fruit or vegetables.

Preferences

Some people have a 'sweet tooth' and tend to choose more sugary foods, while others prefer savoury and will tend to buy salty or more bitter foods.

Enjoyment

People often like to eat certain foods for enjoyment.

This may include popcorn and fizzy drinks at the cinema, ice creams or candyfloss at an amusement park or toffee apples for Halloween.

These foods tend to be more fatty and sugary than everyday food.

Celebration

Food plays a large role on various special occasions. To celebrate, people eat:

- → more food
- → special festive food
- → more fatty or sugary foods than usual

People celebrate with food on various occasions:

- → birthdays
- → weddings
- → anniversaries
- → funerals
- → special events
- → religious events

Food labelling

Proper labelling of food products is important to ensure food safety (e.g. for allergy sufferers) and nutritional education (e.g. for those who wish to lead a healthy lifestyle).

1. Name of the food is important so that people know what is inside the package, e.g. butter or butter-like spread

2. Use by – applies to food safety; it may be harmful to eat food after this date; used on fresh, perishable foods such as milk, dairy and fresh meat

   Best before – applies to food quality; it is usually safe to eat the food after this date, although its flavour, colour or appearance may be changed; used on dried, preserved or tinned foods such as jams and pasta

3. Quantity is given so that it is easier to compare prices between products and so that the consumer knows how many portions of food the package contains

4. Warnings are given as necessary, e.g. may contain nuts, source of phenylalanine

5. List of ingredients is shown in *descending order*, from the one which is used in the largest amount to the one which used in the smallest amount

6. Name of the company is important to track where the food comes from in case of food spoilage, anaphylactic reactions, pieces of glass inside, etc.

7. The lot number is useful in case of food spoilage or contamination – it is easier to track the whole lot and remove it from the market

8. Storage conditions are given if needed, e.g. refrigerate after opening, suitable for freezing

9. Instruction for preparation helps people to properly prepare and enjoy the food, without poisoning themselves

10. Country of origin is important to track in case of food poisoning, but also for people who prefer to eat locally produced food

Food legislation authorities

European Parliament and the European Council

Food Standards Agency

Food label: mandatory information

1. Name of the food
2. Date marks
3. Quantity, e.g. in litres, grams or pieces
4. Warnings
5. List of ingredients
6. Name and address of the producing, packing or selling company
7. The lot number
8. Special storage conditions
9. Necessary instructions for use or preparation
10. Country of origin
11. Allergens
12. Nutrition declaration

11. Allergens – ingredients which may cause an allergic reaction – are shown in **bold**

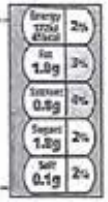
List of allergens which HAVE to be indicated on the label

- × Cereals containing gluten: wheat, rye, barley, oats
- × Peanuts
- × Nuts: almond, hazelnut, walnut, cashew, pecan, Brazil, pistachio, macadamia, Queensland nut, e.g. *flavourings (almond)*.
- × Mustard
- × Sesame, e.g. *tahini (sesame)*
- × Soybeans, e.g. *tofu (soya)*
- × Fish, e.g. *cod (fish), salmon (fish)*
- × Crustaceans: prawns, crayfish, lobster, shrimp
- × Molluscs: oyster, squid, cockles, mussels, winkles, scallops, snails, e.g. *oyster sauce (molluscs)*
- × Lupin
- × Eggs, e.g. *powdered yolk (eggs)*
- × Celery
- × Milk, e.g. *Cheddar cheese (from milk)*
- × Sulphur dioxide or sulphites, e.g. *preservative (sulphur dioxide)*

12. Nutrition declaration informs consumers of the amount of certain nutrients per 100 g or portion of product and % of GDA it provides.

Traffic light label may be used to indicate low (green), medium (amber) or high (red) amounts of sugar, fats, saturated fats, and salt in a portion of a food product.

Protein	8.8g	0.6g	1%	50g
Salt	1.55g	0.10g	2%	6g



Non-mandatory information

Some food labels may include non-mandatory information, such as a picture of the food, health and nutritional claims or serving suggestions.

GDA – guideline daily amount – amount of a nutrient a person should eat each day to remain healthy and avoid under- or over-nutrition

Nutritional claim
Statement regarding nutrient content, e.g. *'low energy', 'low fat', 'sugar free', 'source of vitamin C'*

Health claim
Statement suggesting potential health benefits of eating a given product, e.g. *Calcium is needed for the maintenance of healthy teeth and bones*

Nutrients have to be listed in a specific order...

- Energy
- Fat, inc. saturates
- Carbohydrates, inc. sugars
- Fibre, if any
- Proteins
- Salt or sodium
- Vitamins and minerals

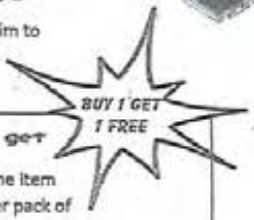
Marketing influences

Various techniques and methods which aim to increase sales and maximise profit

MEAL DEAL

A type of special offer in which buying two or more indicated products means that the price is cheaper than when buying them separately.

BOGOF (buy one, get one free)



Special offer whereby buying one item of a product means that another pack of the same product will be free.
Other versions include 'buy one, get one half price' or 'three for the price of two'.

ADVERTISING

Posters, TV spots, newspaper publications and other actions taken to promote a product and make it desirable for consumers.

SPECIAL OFFER

Usually, special offers include discounts when buying larger amounts of a given product, free gifts, vouchers, etc.

A specific type of special offer is selling food more cheaply shortly before its 'best before' / 'use by' date.

MEDIA INFLUENCES

The television, radio or newspapers may have a large impact on food choices by using a technique called 'product placement'.

A food product is used by famous actors, movie characters or characters from popular sitcoms to make the food look 'desirable', 'fashionable' and 'cool'.

Point of sales

Food stand located near checkouts, usually containing relatively expensive items such as chewing gum, chocolate bars and other sweets.

People tend to buy these products more often if they spend a lot of time standing in a queue.

PEER PRESSURE

This applies especially to children and teenagers, as they tend to follow what's 'cool' in their age group, e.g. smoking.

PESTER POWER

The ability of children to force their parents to buy them sweets, toys or other things.

Food packages are often colourful and eye-catching to make them desirable for children. This technique uses pester power to increase sales.

Food production

Various methods of food production and processing help to obtain a variety of food products, but can also affect the nutritional value of food.

Primary sources of food
Foods in their natural, raw state, e.g. milk, wheat grains, apples

Secondary sources of food
Foods that have been changed, e.g. yoghurt, flour, jam

Water-soluble vitamins are especially fragile to such factors as light and temperature. Heating can lead to a loss of approximately 70% of folates, 55% of thiamine and 50% of vitamins C, B6 and B12.

Primary processing of food
Does not significantly affect natural values of food products

- Sorting, trimming, discarding
- Washing, wrapping
- Draining, trussing, cutting
- Heat treatment
- Milling
- Deboning, skinning, deseeding

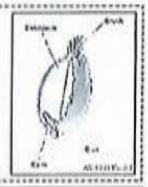
Secondary processing of food
Usually affects natural features of the food and helps to obtain new food products

- Smoking, e.g. meat, fish, cheese
- Irradiation, e.g. herbs, meat
- Adding additives
- Fermentation, e.g. dairy, sausages, wine and beer
- Cooking/heating, e.g. meat preserves
- Drying and freeze-drying, e.g. fruit, herbs, milk

The making of flour

1. Harvesting and transport to the factory/mill
2. Separating from dirt, stones, pieces of metal and other pollution
3. Washing and drying to easily separate the bran
4. Milling
5. Sieving to separate the bran

Bran: the outer layer of a grain

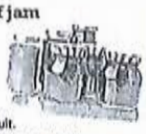


The making of pasta

1. Harvesting the cereals and transportation to the mill
2. Milling and transportation to the factory
3. Mixing flour with warm water
4. Kneading and gluten formation
5. Adding flavourings and colourants
6. Rolling and pressing
7. Pasteurisation with steam
8. Cutting the pasta into chosen shape
9. Drying
10. Packaging

The making of jam

1. Harvesting the fruit
2. Washing and crushing/cutting
3. Adding water and sugar
4. Simmering
5. Pouring into jars



Pectin: natural gelling agent present in fruit.
It is released from fruit in the presence of heat and acid.
Acid: may be naturally occurring in fruit or may be added to the mixture to help release the pectin.

Heat treatment of milk

Pasteurisation: warming up the milk to 72 °C for 15 seconds to kill most of the pathogenic bacteria
Ultra-heat treatment: heating up the milk to 135 °C for 1–2 seconds to kill all bacteria and spores
Microfiltration: pushing the milk through very fine membranes to remove bacteria and other pollutants
Homogenisation: pushing the milk under pressure through very fine membranes to reduce the size of fat droplets and prevent the formation of cream
Sterilisation: heating up the milk to over 110 °C for 30 minutes to kill bacteria and spores.
Sterilisation of milk leads to a change in colour, flavour and nutritional value of milk. During the process, milk proteins react with lactose, creating brown pigments which also affect the flavour of milk. High temperature decreases the amount of vitamins in the milk, especially vitamins B1 and B12.
Drying: process in which milk is first condensed, and then dried. The temperatures used during the process may lead to a fall in the levels of vitamin B1 and vitamin B12 in the powdered milk.

The making of yoghurt

1. Milking cows and transporting the milk to the factory
2. Pasteurisation and homogenisation
3. Warming up to 42 °C
4. Adding starter cultures
5. Fermentation (ripening)
6. Cooling
7. Adding flavourings
8. Packaging

Starter cultures: probiotic bacteria added to milk during yogurt and cheese production to begin the process of fermentation
Fermentation: changing lactose into lactic acid by adding bacteria. This changes the pH of milk and leads to protein coagulation/denaturation and thickening of the mixture.

The making of cheese

1. Milking cows and transporting the milk to the factory
2. Pasteurisation and homogenisation
3. Adding starter cultures
4. Fermentation (ripening)
5. Adding rennet
6. Cutting the curd and separating it from the whey
7. Pressing (stacking curds on top of each other)
8. Adding salt
9. Pressing into cheese hoops
10. Ageing

Rennet: enzyme which coagulates milk and increases curdling
Whey: liquid by-product of cheese production

Technological developments associated with better health and food production

Modern technologies not only help to obtain high-yield crops, but also help to better preserve and improve nutritional value of food to support healthy living.

Supporting health

What we eat has a huge impact on our health. Eating too little may lead to deficiency of a given nutrient. This is important since processing of food often leads to a decrease in its nutritional value – higher calorie content, but lower vitamin and mineral amount, etc.

Governments and producers strive to make food safe and healthy for consumers by adding substances which are beneficial for health.

Cholesterol-lowering spreads

Cholesterol: fatty substance necessary for correctly transporting fats around the body. It is found in many animal-derived foods, such as meat, cheese and eggs. Cholesterol does not occur in plant-derived foods.

- → LDL is 'bad' because it increases cholesterol amount in blood where it can be used to build plaque in blood vessels
- → HDL is 'good' because it transports cholesterol to the liver, which can remove its excess from the body

Health outcomes of increased cholesterol levels and excessive fat consumption:

- → In excess, cholesterol may be deposited in the blood vessels, creating atherosclerotic plaque
- → This increases the risk of hypertension, CHD, heart failure and stroke.

Some fat spreads are enriched with plant sterols and plant stanols. These substances have proven to be effective in lowering blood cholesterol level and preventing atherosclerosis.

Food fortification

During processing, many food products lose their nutritional value.

The function of food fortification is to:

- → Restore the nutritional value of foods
- → Improve the nutritional value of foods
- → Make food more suitable for certain groups of consumers
- → Prevent diseases caused by malnutrition

Some foods are fortified by law:

Wheat flour and bread	Thiamine	To prevent beriberi disease, help release energy from food
	Niacin	To prevent pellagra, help release energy from food
	Calcium	To prevent rickets and osteoporosis
	Iron	To prevent iron deficiency anaemia
Vegetable fat spreads	Vitamin A	To prevent growth and eyesight issues, such as night blindness
	Vitamin D	To prevent rickets and osteoporosis
Semi-skimmed and skimmed milk	Vitamin A	To prevent growth and eyesight issues, such as night blindness

Other foods, such as cereals and fruit juices, may be fortified voluntarily.

60% Wholegrain Rolled Oats, 30% Wholegrain Oat Flour, Calcium, Niacin, Iron, Riboflavin B2, Vitamin B6, Thiamin B1, Folic Acid, Vitamin D, Vitamin B12.

Genetic modifications

Each cell of a plant or animal has a nucleus, which contains its DNA. DNA is built of tiny fragments called genes, which encode all information about the organism.

Cell → nucleus → chromosome → DNA → gene

Modern technologies have allowed people to manipulate and change the DNA code. It is possible to:

- → Cut out unwanted genes to avoid diseases or eliminate bad features
- → Modify the sequence of genes to change the information they carry
- → Paste new genes to a DNA strand to give the organisms new features

If a plant or an animal's DNA has been changed, we say the organism has been called genetically modified.

Advantages of GM foods

- ✓ Resistant to weather conditions
- ✓ Resistant to pests
- ✓ Need fewer nutrients to grow
- ✓ Less need for fertilisers and herbicides
- ✓ Animals produce more muscle tissue and milk
- ✓ Produce high-yield crops necessary to feed the growing population
- ✓ May have more nutrients than the natural species (e.g. Golden Rice)
- ✓ May have more intense flavour or colour

Disadvantages of GM foods

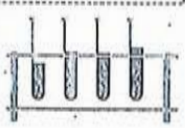
- × GM seeds contaminate fields and lower biodiversity of plant species
- × No proof that they are safe to eat
- × May increase the risk of allergies and cancer
- × May contribute to the growing rates of obesity in the world
- × The use of bacteria and viruses in production can cause the creation of new diseases
- × May lead to antibiotic resistance and the spreading of diseases which are difficult to fight off
- × Pests may develop resistance and the use of pesticides may increase drastically when this happens

Food additives

All food additives must be carefully tested before they can be used in food products. They are listed on the food label along with their E number and their function.

	Advantages	Disadvantages
Colourings	• Improve the look of food • Make food more appetising	• May be used to hide poor quality of food • May cause hyperactivity in children
Emulsifiers and stabilisers	• Prevent the ingredients from separating • Maintain the texture of food	• Flatulence and bloating • May be used to hide poor quality of ingredients used
Flavourings	• Improve the taste and smell of food • Make food more appetising	• May be used to hide poor quality of ingredients used • Increase appetite and make people eat more than they need
Preservatives	• Enhance shelf life of food • Prevent oxidation and spoilage	• May cause allergy response and anaphylactic shock • Nitrates may contribute to cancer development

Food additives may be natural (e.g. beetroot extract used as a colouring agent) or synthetic (e.g. citric acid).



French

French Year 10 Summer Term – Le grand large

Objective: To discuss holidays.
Threshold Concepts:
- There are two versions of the possessive adjective "our" in French – plural and singular.
- In French, some verbs are reflexive and have an extra pronoun, which agrees with the subject of the verb.
- Some expressions use the verb "avoir" in French but are mostly translated using the English "to be", eg, "avoir faim" – "to be hungry".

The **Oak National Academy** website has lessons which accompany work on this topic

Holiday & Accommodation:

Je vais- I go
en France- to France
au Pays de Galles- to Wales
aux Etats-Unis- to the USA
Je voyage – I travel
en avion/bateau- by plane/boat
en car/train- by coach/by train
en voiture- by car
À vélo- by bike
Je pars avec…- I go with
ma famille- my family
mes parents- my parents
mes copains/copines- my friends m/f
seul(e)- alone
Je loge dans- I stay in/on
un camping- a campsite
un hôtel- a hotel
une auberge de jeunesse- a youth hostel
Je voudrais réserver une chambre I would like to reserve a bedroom
pour une/deux personnes/ nuits – for 1 or 2 people/nights
avec un lit simple/un grand lit- with a single/ double bed
Est-ce que vous avez – Do you have
une piscine?- a swimming pool?
la climatisation?- air conditioning?
une vue sur la mer?- a sea view
un balcon?- a balcony
un restaurant?- a restaurant
un télévision à écran plat- a flat-screen TV

At the tourist office:

Au guichet- at the ticket counter
Je peux vous aider? – Can I help you?
Je voudrais un aller simple/ un aller-retour pour Paris s'il vous plait- I would like a single/return to Paris please.
En quelle classe?- In which class?
En première/deuxième classe.- In first/second class
C'est quel quai?- Which platform is it?
Le train part à quelle heure?- What time does the train leave?
Le voyage dure combien de temps?- How long does the journey last?

Catastrophic Holidays:

J'ai oublié mon passeport- I forgot my passport
J'ai pris un coup de soleil- I got sunburnt
J'ai été malade- I got sick
J'ai casé mon appareil photo- I broke my camera
Il y avait des cafards dans notre chambre- there were cockroaches in our room
J'ai raté l'avion- I missed the plane
J'ai dû aller chez le medecin- I had to go to the doctor
J'ai perdu mes photos- I lost my photos

Holiday Activities:

Je fais- I do/go
de la planche à voile- windsurfing
de la voile- sailing
de l'accrobranche- a tree-top adventure
du ski- skiing
Je visite les musées/monuments- I visit the museums/monuments
Je vais à la peche/ à la plage- I go fishing/ to the beach
Je joue à la pétanque- I play French bowls
Je me baigne- I swim (in the sea)
Je me promène- I go for a walk
Je me repose- I rest/relax
Je sors au restaurant- I go out to a restaurant

Reflexive Verbs:

These are verbs which either:
1. Reflect the action back onto the subject (e.g. I wash myself: Je me lave), or
2.have the sense of "each other" (e.g. They love each other: Ils s'aiment)

Learn about them more on BBC Bitesize by scanning this QR code:

Now practice using them on Languages Online by scanning this QR code:

The possessive adjective 'our':

To express who something belongs to (my, your, our), use a possessive adjective. In French, the possessive adjective agrees with the gender of the thing owned, not the owner.

English	Masc	Fem	Plural
Our	notre	notre	nos

Use the QR code to watch the BBC Bitesize video about possessive adjectives and take the quiz to check you have understood:

Expressions using 'avoir- to have' in French:

Certain expressions use avoir 'to have' in French but are not translated literally in English.
e.g. avoir faim- to <u>be</u> hungry
avoir soif- to <u>be</u> thirsty
avoir besoin de- to need
avoir envie de= to want
Use the QR code to read more about this on BBC Bitesize and then watch the YouTube video to consolidate your learning:

Geography

MSN 2020

T1

Find a playlist of explainer clips by scanning or clicking the QR code

CLICK ME

SCAN ME

Landscapes and physical processes

Geography Knowledge Organiser

1.1.1 - Distinctive landscapes

Upland Areas +600m

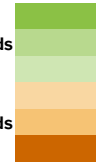
Peaks and ridges. Cold, misty and snow common. i.e. Scotland

Lowland areas -200m

Flat or rolling hills. Warmer weather. i.e. Fens

Relief of the UK

Relief of the UK can be divided into uplands and lowlands. Each have their own characteristics.



Glaciation in the UK

Over many thousands of years, glaciation has made an impression on the UK's landscape. Today, much of upland Britain is covered in u-shaped valleys and eroded steep mountain peaks.

During the ice age

Ice covered areas eroded and weathered landscapes to create dramatic mountain scenery.

After the ice age

Deep valleys and deposition of sediment revealed

What is a landscape?

A landscape has visible features that make up the surface of the land. Landscapes can be broken down into four 'elements'.

Landscape Elements

Physical	Biological
-Mountains	-Vegetation
-Coastlines	-Habitats
-Rivers	-Wildlife
Human	**Variable**
-Buildings	-Weather
-Infrastructure	-Senses

1.1.2/3 - Human activity

Honeypot site - A location which attracts a large number of tourists who, due to their numbers, place pressure on the environment and local people.
Carrying capacity - The number of people which a region can support without damaging the location and environment.
Visitor pressure - tourists who, due to their numbers, place stress on the environment and local people.

Positives of visitor pressure	Negatives of visitor pressure
Employment opportunities are created to meet the demands of the tourists	Jobs are often seasonal or part time. This makes it harder to support family.
Tourism brings in money and will boost the local economy	There is overcrowding in the peak seasons
There will be upkeep of the area, making it a clean place to live	Businesses are designed for the tourists
Crime can be reduced due to higher levels of employment	There can be congestion on the roads
	Scenic walks and hikes are damaged by footpath erosion

(1.1.3) Management: repairing footpaths

Stone pitching - This technique involves digging stone into the ground to form good solid footfalls. This ancient technique is used extensively in the central fells using stone which is naturally occurring.

Soil Inversion - A digger is used to construct a ditch drain. The soil removed from the drain is placed alongside to create a hard wearing walking surface. Grass seed mix is then sown to encourage vegetation to bind all the works together.

Sheep wool - The fleece is placed between the soil and the stones to prevents the stone from sinking into the soil. This creates a 'floating' path and also absorbs some water to slow surface runoff.

1.2.1 - Processes & landforms (Rivers)

Erosion

Attrition	Rocks that bash together to become smooth/smaller.
Solution	A chemical reaction that dissolved rocks.
Abrasion	Rocks hurled at the base of a cliff to break pieces apart.
Hydraulic Action	Water enters cracks in the cliff, air compresses, causing the crack to expand.

Transportation

Solution	Minerals dissolve in water and are carried along.
Suspension	Sediment is carried along in the flow of the water.
Saltation	Pebbles that bounce along the sea/river bed.
Traction	Boulders that roll along a river/sea bed by the force of the flowing water.

Deposition

When the sea or river loses energy, it drops the sand, rock particles and pebbles it has been carrying. This is called deposition.

Freeze-thaw weathering

Stage One
Water seeps into cracks and fractures in the rock.

Stage Two
When the water freezes, it expands about 9%. This wedges apart the rock.

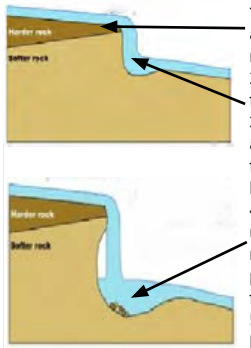
Stage Three
With repeated freeze-thaw cycles, the rock breaks off.

Weathering

Chemical
Action of chemicals within water dissolving the rock.

Biological
Rocks that have been broken down by living organisms or plant roots.

Formation of a waterfall



1) River flows over alternative types of rocks.
2) River erodes soft rock faster creating a step.
3) Further hydraulic action and abrasion form a plunge pool beneath.
4) Hard rock above is undercut leaving cap rock which collapses providing more material for erosion.
5) Waterfall retreats leaving steep sided gorge.

Formation of floodplains and levees

When a river floods, fine silt/alluvium is deposited on the valley floor. Closer to the river's banks, the heavier materials builds up to form natural levees.

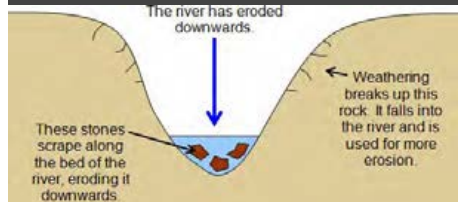
Formation of a meander

A meander is a curve in a river's course formed when erosion and deposition take place on opposite river banks. The two sides of the meander eventually meet and create a straight channel.

Inside bend:
Slowest speed
Deposition
Slip-off slope/point bar

Outside bend:
Fastest speed
Erosion
River cliff/undercut

Formation of a V-shaped valley



River long profile

Upper course

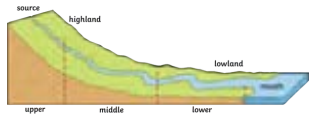
Near the source, the river is flows over steep gradient from the hill/mountains. This gives the river a lot of energy, so it will erode the riverbed vertically to form narrow valleys.

Middle course

Here the gradient get gentler, so the water has less energy and moves more slowly. The river will begin to erode laterally making the river wider.

Lower course

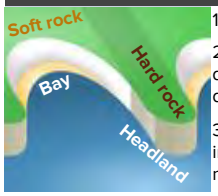
Near the river's mouth, the river widens further and becomes flatter. Material transported is deposited.



MSN 2020

1.2.1 - Processes & landforms (Coasts)

Formation of bays and headlands

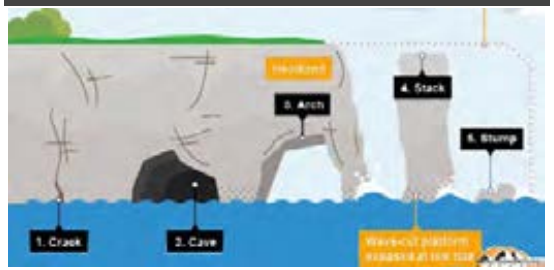


1) Waves attack the coastline.

2) Softer rock is eroded by the sea quicker forming a bay, calm area cases deposition.

3) More resistant rock is left jutting out into the sea. This is a headland and is now more vulnerable to erosion.

Formation of coastal landforms



1. Hydraulic action widens cracks in the cliff face over time. Abrasion forms a wave cut notch between HT and LT.
2. Further abrasion widens the wave cut notch to from a cave.
3. Caves at both sides of the headland break through to form arch
4 .Weather above/erosion below –arch collapses leaving stack.
5. Further weathering and erosion eaves a stump.

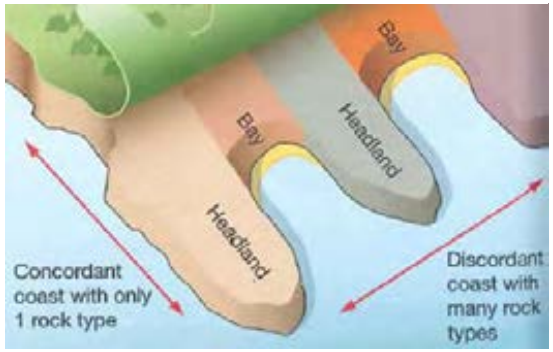
Types of coastline

Concordant

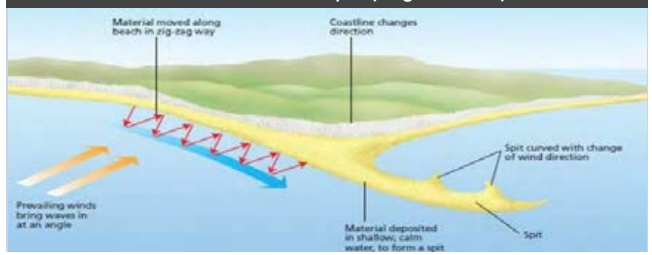
A concordant coastline occurs where the bands of differing rock types run parallel to the coast. The outer hard provides a protective barrier to erosion of the softer rocks further inland. Sometimes the outer hard rock is punctured allowing the sea to erode the softer rocks behind. This creates a cove which is a circular area of water with a relatively narrow entrance way from the sea.

Discordant

Discordant coastline occurs where bands of differing rock type run at right angles to the coast. The different resistance to erosion leads to the formation of headlands and bays.



Formation of coastal spits (longshore drift)



1) Swash moves up the beach at the angle of the prevailing wind.
2) Backwash moves down the beach at 90° to coastline, due to gravity.
3) Zigzag movement (Longshore Drift) transports material along beach.
4) Deposition causes beach to extend, until reaching a river estuary.
5) Change in prevailing wind direction forms a hook.
6) Sheltered area behind spit encourages deposition, salt marsh forms.

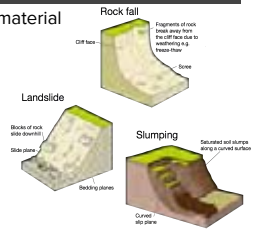
Mass movement

Mass Movement is the downhill movement of cliff material

Rockfall As the weathering processes weaken the structure of the cliff rock fragments fall away.

Landslide Large blocks of the cliff slide down to the base of the cliff due to erosion weakening the base of the cliff

Slumping When soft rocks like clay become too wet from rainfall and weakened by erosion, the entire cliff face slips down in a curve, making steps in the cliff



Wave-cut landforms

1. The sea attacks the base of the cliff between the high and low water mark.

2. A wave-cut notch is formed by erosional processes such as abrasion and hydraulic action - this is a dent in the cliff usually at the level of high tide.

3. As the notch increases in size, the cliff becomes unstable and collapses, leading to the retreat of the cliff face.

4. The backwash carries away the eroded material, leaving a wave-cut platform.

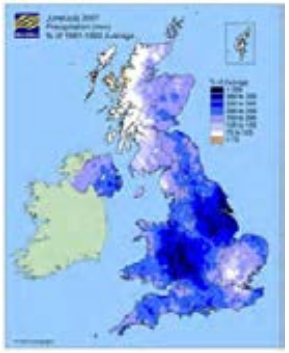
5. The process repeats. The cliff continues to retreat.

1.2.2 - Rates of change

Climate

The rainfall map of the UK shows variations in rain.
Less precipitation occurs in low land areas. East England
Most precipitation occurs in upland areas. Scotland.

These differences mean...
Uplands experience more weathering, erosion and mass movement.



Geology

Some rock types erode faster than others (sedimentary limestone or clays erodes quicker than metamorphic granite). The direction rocks are layered in can also affect this eg. concordant or discordant coastlines

Human activity

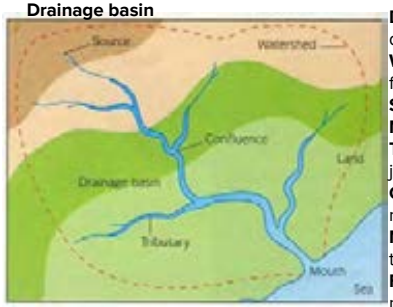
Humans can increase rates of change such as footpath erosion on cliffs or building on floodplains but humans can also put management in place is slow erosion or transport processes, like dams, groynes, river dredging & afforestation.

1.3.1 - Drainage basins

Hydrological cycle

Condensation- when water vapour cools to form clouds
Evaporation- where water is turned into water vapour (gas)
Precipitation- any water that falls from the sky (rain, snow etc)
Interception- vegetation traps water before it reaches the ground
Transpiration- water is evaporated from the leaves of vegetation
Surface runoff- water runs across the ground to a river
Infiltration- water seeps into the soil in the ground
Percolation- water seeps into rock deeper in the ground
Groundwater flow- water flows through the soil and rock in the ground

Drainage basin



Drainage Basin- is the area of land drained by a river and its tributaries
Watershed- the area of high land forming the edge of a river basin
Source- where a river begins
Mouth- where a river meets the sea
Tributary- a small river or stream that joins a larger river
Confluence- the point at which two rivers meet
Main river channel- main river flow in the drainage basin
Floodplain- flat land on the sides of the river that takes the overflow water

1.3.2 - River flooding

Factors influencing how rivers flood:

Steep Slopes - If the land surrounding a river is steep, rainfall will run quickly across the ground as surface runoff, increasing the river's discharge

Urbanisation - Roads and pavements are built using a tarmac, an impermeable material. Rainfall flows quickly over tarmaced surfaces as it cannot infiltrate into the ground, leading to rapidly increasing discharge

Geology - If a drainage basin has impermeable rock, water is unable to percolate into the rock. As a result, the rainfall flows into the river via throughflow and surface run off

Heavy or prolonged rainfall - A high volume of rainfall will cause a river's discharge to increase rapidly, increasing the chances of the river bursting its banks

Vegetation - Trees intercept rainfall as it falls from the sky. If there is a lack of vegetation, more rainfall reaches the ground and eventually the river, seeing a large increase in discharge

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1.3.3 - Flood management

Hard Engineering - Hard engineering management involves using artificial structures, such as dams and embankments which try to control rivers. They tend to be expensive.

Soft Engineering - Soft engineering management is a more natural approach to manage flooding, it does not involve building artificial structures, but takes a more sustainable approach to managing the potential for river flooding.

River defences	
Hard Engineering	
Channel straightening	Removing meanders, increases velocity to remove flood water.
Artificial Levees	Man-made banks heighten river so flood water is contained.
Channel widening	Makes river wider to increase capacity for a flood.
Soft Engineering	
Afforestation	Planted trees soak up rainwater, reduces flood risk.
Managed Flooding	Naturally let some areas flood to protect settlements.

Home study questions

DEVELOPING

Describe how tourists can have benefits and negatives to honeypot sites **[3 marks]**

Explain why a waterfall migrates backwards the source **[4 marks]**

SECURING

Analyse the pattern of average precipitation (rainfall) in the UK (1.2.2) **[6 marks]**

Explain the difference between discordant and concordant coastlines **[4 marks]**

MASTERING

'Urbanisation is the most significant factor in flooding' **To what extent** do you agree with this statement? **[8 marks]**

Sketch and annotate the formation of a spit **[6 marks]**

CHALLENGE

Create a spider diagram to show how all the erosional processes and landforms of rivers and coasts are linked

Draw out a river long profile and **label** where the different landforms and processes would usually occur

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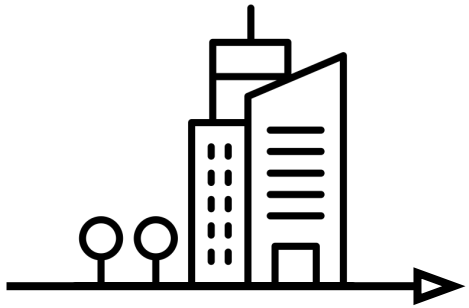
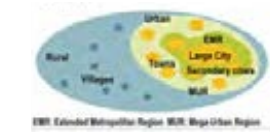
Rural-urban links



Geography Knowledge Organiser

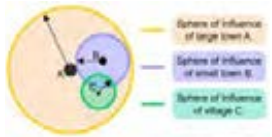
2.1.1 - Rural-urban continuum



A **rural-urban continuum** is the gradual change from a very built up urban area (like a large city) through to rolling countryside and sparsely populated villages. There is no clear line between urban and rural, as represented by the diagram

Service provision

As we move along the continuum from the most rural to the most urban locations, the number of services provided by each settlement increases. For example, in a small village there is likely to be a post office and a. However, in a large city there are a large number of shops, supermarkets, banks, hospitals and entertainment providers.



A **sphere of influence** is the area around the settlement from which people are attracted to visit or work due to the services the settlement provided. Large cities have more services so have a larger sphere of influence in the area

Counter-urbanisation

The movement of people from urban to rural areas to live.

Reasons for counter-urbanisation:

Housing - cheaper & bigger

Transport - improved roads and increased car ownership

Employment - more workplaces now located on urban-rural fringe

Environmental factors - less noise and air pollution

Impact of counter-urbanisation:

Higher house prices - increased demand

Decrease in traditional services - (village shops) residents now shop in urban areas

Increase need for local schools

Traffic congestion

Commuting - People often choose to live in cheaper rural areas and commute to work rather than paying higher urban prices, or just work from home

2.1.2 - Changing rural areas

Rural change

Counter-urbanisation, sphere of influences and technological change has lead to:

- Reduction or change in employment opportunities in rural area
- Closure of rural services like banks and post offices
- Increase in house prices rural areas, especially in accessible "commuter belt"
- Increased "second" home ownership
- Some locals can no longer afford local houses
- Reduction in bus services

Some of the more remote rural areas have experienced lots of negative changes. These include depopulation and deprivation. Deprivation is often characterised by a lack of public transport, healthcare and education.

Spiral of deprivation

Sustainable rural community

Things that need to be considered when creating a sustainable community;

Availability of jobs – encourage jobs based in rural areas by encouraging more companies to locate there

Education – ensuring local schools remain open

Healthcare – ensure all locals can access healthcare (transport links to cities)

Village services – encouraging shops, pubs and post offices to remain open

Transport – ensuring public transport runs regularly and can be accessed by all

Internet – ensure fast and reliable broadband

2.2.1 - Changing population

UK population change factors

Social

Healthcare - free and accessible for all, so people are living longer

Marriage/culture - People are marrying later and having a family later, reducing the number of children they can have

Economic

Careers - many women now chose to have a career, than start a family

Maternity pay - Getting paid while looking after a newborn child encourages more people to have children

Political

Contraception - is widely available

Mat-/Pat-ernity rights - Mothers and Fathers now have the rights to paid leave to care for a newborn, so encouraging more people to have children

UK migration

Migration to the UK

Stable government
More available jobs
Good healthcare system
Already have family in the UK
Good education system
Better rates of pay

Migration within the UK

Cost of housing cheaper somewhere else
Change in lifestyle - retiring to a rural area
Searching for work - more jobs in a cities
Moving to reduce the commuting time - live closer to work
Moving closer to family for care needs

UK's ageing population

Causes

Low birth rate and low death rate means we have more people living for longer (high life expectancy). The UK now have more people aged 60+ than ever before

Social/Health effects

- OAPs have more health issues, straining NHS
- Increased demand for care homes and carer services
- More people living longer increases demand for homes

Economic effects

- Not enough working aged population to pay taxes
- Healthcare, free public transport etc costs the state more money
- Pension costs for government increases

2.2.2 - UK towns and cities

Egan's wheel

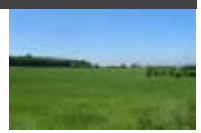
Egan's wheel outlines the criteria that needs to be met for a community to be sustainable. There is a social, economic and environmental focus. All of these categories must be met in order to have a sustainable community in urban and rural places.

Greenfield development

Greenfield sites are those that have not been built on before.

They are easier and cheaper to build on as there's nothing to knock down and there's more land available.

But this isn't sustainable as it is destroying the natural environment and animal habitats.



Brownfield development

Brownfield sites are those that have been built on before and is often derelict.

Planning permission is often easy to obtain and there are already existing services.

This is a more sustainable method of development however space is often limited and it can be expensive.

2.2.3 - Changing retail

Retail change in the UK

Economic factors

More home delivery firms making deliveries cheaper, congestion in cities, free parking in out of town centres, high city centre parking costs

Cultural factors

Car dependant society, habit of bulk buying weekly or monthly shops

Technological factors

Development of high speed broadband, improved websites that can be used to compare prices, internet banking

Out of town centres

Benefits	Costs
Large free parking areas	Can cause decline in city centre
Less congestion at out of town location	Can increase congestion out of town
Quick and easy access (near motorway network)	Often has the same chain stores at out of town centres – so does not support smaller independent shops.
Often room for expansion	Land use conflicts in out of town areas – areas in high demand from business parks and golf courses
Near suburban housing	

Internet shopping

Benefits	Costs
Convenient and often cheaper	Not everyone, (the elderly) have internet
Can buy products not available locally	Goods might be difficult to return
Can buy at any time or any location	City centre shops might close, leads to jobs losses and decline
Less time consuming	More delivery vans = more congestion
Traffic congestion is reduced	Using bank details can lead to fraud
Jobs created for those delivering products	

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2.3.1 - Global urbanisation

Distribution of global cities

As a result of globalisation, places around the world are now more connected than ever before. **Global cities** have become key globally connected places.

Although global cities are distributed widely across the world it is not an even distribution. For example;

- North America, Western Europe and South Asia have clusters of global cities
- Africa has very few
- India has 8
- China has 14

Changes over time

The rate of urbanisation varies across the world. In many HICs the period of rapid urbanisation occurred back in the 1800s, whereas many LICs are experiencing it at the moment.

2.3.2 - Urbanisation in global cities

London (HIC global city)

Reasons for growth

Natural population change – from the migrants and young workers who were attracted to the city for work

Migration – the UK attracted many from ex-colonies as well as people from other EU countries

Connections – London is the financial capital of UK and for most of the global finances too. It has the stock exchange. It is also home to large MNCs. London is also a major trading and transport hub.

Way of Life

The UK has huge numbers of cultures and races, as well as white British people there are huge numbers of migrants from India, Pakistan, Bangladesh, Canada, USA, Kenya, Zimbabwe and other ex-British colonies

London houses a major world financial centre and a range of business specialisms which attract a highly skilled workforce.

However London's unemployment rate was one of the highest in the UK

Challenges

Poverty

Often people who live in inner-city areas experience a poor quality of life. This is because the inner-city is typically a zone with older housing and declining industry. There is a lack of housing provision; access to services; access to open land;safety and security.

Traffic Issues

London has massive problems with congestion. From the 1950s, car ownership has grown at a very quick rate. The increasing population of the city has meant roads are crowded and transport services such as the underground and buses struggle to cope

Urban decline

Some areas of a London suffers from out-migration of people and businesses, derelict buildings, high unemployment. This was common in the inner cities of the UK in the 1980s, leading to further poverty in these areas.

Mumbai (NIC global city)

Reasons for growth

Natural population change – in 1974 the fertility rate was 4, although this has now reduced to 1.8. Natural change was therefore a big factor in the 1970's and 1980s but less so now.

Migration – the pull factors for Mumbai are cheap rail travel, jobs and better education. The push factors from the surrounding countryside are poor standards of housing, healthcare and sanitation.

Connections – Mumbai is the financial capital of India and home to the stock exchange. It is also home to large MNCs.

Way of Life

Mumbai is a city of contrasts. One obvious one is the difference between rich and poor. Many well education people live in expensive properties while the majority of the city live in slums and work in the informal economy (in roles such as street vendors and rubbish collectors)

In the slims there is a lack of sanitation, adequate housing and open sewers are just some of the issues that face people living in these areas. Disease often spreads quickly due to the conditions and lack of health care facilities.

Informal sector

Wages are low = families unable to save and cannot afford to send children to school = children fail to get an education and forced to work in informal sector

Informal workers don't pay tax = government does not raise income and cannot afford to invest in schools or hospitals = **children fail to gain a good education** and forced to work in the informal sector.

Challenges

Reducing poverty and deprivation – with such a large proportion of people living in slums. Education opportunities for these people are being increased, in addition to improved healthcare and sanitation.

Housing – the majority of people live in slums, are pavement dwellers or live in crawls (four or five story tenement buildings with shared facilities). These areas suffer from overcrowding and the risk of fire, flooding or collapse.

1.3.3 - Connected global cities

Global Cities are connected to each other and other places around the world by:

Finance and Trade - global cities are the world's financial centres as banks locate their head offices in these cities and decisions regarding world trade are made here. This makes them very important places for the economy.

Migration and Culture - global cities attract economic migrants from all over the world. This pattern of migration results in cultural diversity which means that new languages, traditions, foods, celebrations and religions are brought to the country. For example in London over 250 languages are spoken.

Governance and Decision-Making - global cities are home to some of the most influential businesses and companies in the world where decisions made can influence the rest of the globe. For example the UN has headquarters in New York and yet employs 41,000 people worldwide.

Ideas and Information - global cities are home to many of the world's largest television and film industries, broadcasting all across the globe.

Transport Hubs - global cities are home to some of the world's largest airports which allow for the movement of people, goods and tourists across the globe. For example about 158 flights arrive at Dubai International Airport.

Home study questions

DEVELOPING

Define what an rural-urban continuum is **[2 marks]**

Explain how the spiral of deprivation leads to depopulation **[4 marks]**

SECURING

Analyse the distribution in global cities around the world (2.3.1) **[6 marks]**

Explain why building on brownfield sites is more sustainable than on greenfield sites **[4 marks]**

MASTERING

'The challenges associated with an NIC global city are more difficult to solve than those of HIC global cities' **To what extent** do you agree with this statement? **[8 marks]**

Decide why Europe and North America has the most significant concentration of global cities **[6 marks]**

CHALLENGE

Link greenfield and brownfield developments to as many different elements of this module as possible

Create a spider diagram to show how Newcastle is linked to the rest of the world (a connected global city)

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Tectonic hazards

Geography Knowledge Organiser

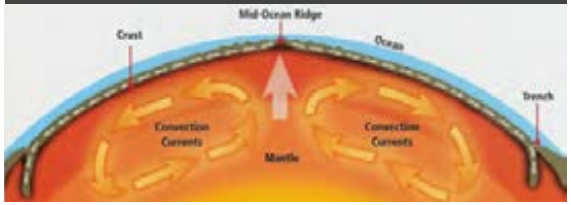
3.1.1 - Tectonic processes and landforms

Tectonic plates

The earth is made up of a series of layers. The outer layer is called the crust. This is made of 2 different types:

Continental Crust (which is on average 35km thick)
Oceanic Crust (which is much thinner, between 6-8km)

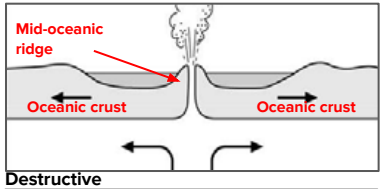
Convection currents



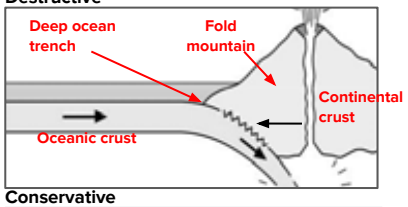
Heat from the core causes **convection currents** in the mantle and these currents slowly move the plates

Tectonic boundaries

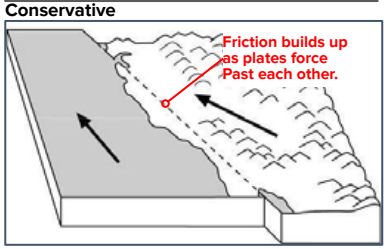
Constructive



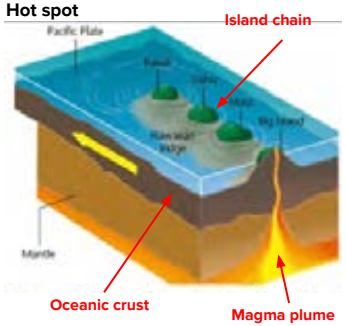
Destructive



Conservative



Hot spot



1. Intense radioactivity in the Earth's interior creates a large column of magma (known as a magma plume)

2. The plume rises, melting and pushing through the crust above

3. The plume lies in a fixed position under the plate – as the plate move over it, a series of new volcanoes are created along the plate

3.1.1 - Tectonic processes and landforms

Volcanic landforms

Shield volcano characteristic
Low profile
Wide base
Thin runny lava
Made up of layers of lava
Frequent and gentle eruptions

Stratovolcano characteristic
High profile
Narrow base
Thick, slow lava
Made up of layers of mainly ash
Infrequent and violent eruptions

Feature	How it is formed	Found at
Ocean trench	Where subduction takes place	Destructive
Fold mountain	Continental crust is crushed and folded upwards	Destructive
Ocean ridge	As lava cools a ridge is formed under the sea	Constructive
Rift valley	Where 2 continental plates pull apart	Constructive
Caldera	A large depression or crater formed by large stratovolcanoes or supervolcanoes	Destructive & hotspot
Cinder cone	Bowl shaped crater of a shield volcano	Constructive
Lava tube	Under the ground, basic lava develops a hard crust through which lava flows	Constructive
Geysers	Water in the ground heated by the magma explodes onto the surface	Destructive & hotspot

3.2.1 - Tectonic impacts

Volcano effects

MONTSERRAT 1995-7

Health
- Ash clouds caused breathing problems
- 19 deaths
- 100s injured

Infrastructure
- The capital, Plymouth, has been covered in layers of ash and mud
- Lahars have destroyed large areas urban areas
- The only airport was destroyed

Economy
- Farmland abandoned (significant unemployment)
- Prevented tourism so tourism economy suffered
- Capital city is abandoned and rebuilt in the north

Earthquake effects

HAITI 2010

Health
- 250,000 people died.
- 300,000 people were injured.
- Cholera spread through temporary camps

Infrastructure
- Airport and port damaged
- 30,000 buildings collapsed
- Hospitals and medical centres were destroyed

Economy
- Damage to the main clothing industry
- Tourist industry will take years to recover
- Infrastructure damaged reduced trade, imports and exports

Tsunami effects

SOUTHEAST ASIA 2004

Health
- Over 220 000 deaths
- 650 000 injured
- 5-6 million needing emergency aid

Infrastructure
- 1,000s of railway lines, roads, bridges and airports were destroyed
- Hospitals within 30mi of the coastline were destroyed
- Water supplies contaminated

Economy
- Fishing industry devastated
- Tourism, dropped 80%
- Reconstruction cost billions of pounds

Vulnerability to tectonic hazards

Physical factors

Duration - the longer a hazard lasts the more severe the impact
Predictability -hazards that hit with no warning have a larger impact

Volcanoes

Lava flows - Molten rock flows down the side of a volcano (Local)
Lahars - Volcanic mudflows consisting of a mixture of ash and water (Local)
Pyroclastic flow - Burning clouds of gas and ash (Local)
Ash clouds - Ash thrown into the atmosphere (Regional/National/Global)

Earthquakes

Magnitude - the stronger the hazard the more severe the impacts

Human factors

Wealth - poor people are less able to withstand disasters and recover from it
Education - where populations are able to read and write, written messages can be used to spread warning or give advice about how to cope
Governments - can support education and and can pass building regulations
Age - children and the elderly are more vulnerable
Health - healthy people are more able to cope
Population density - the more people living in the area the more that will be affected
Time of the day - e.g. earthquakes in rush hours have a more devastating effect
Emergency services - richer countries have well trained and well resourced response

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3.2.2 - Tectonic management

Earthquakes are difficult to predict but there are some monitoring techniques:
- Laser beams can detect plate movement
- A seismometer is used to pick up vibrations in the earth's crust. These can lead up to an earthquake

Monitoring Techniques used to predict volcanic eruptions include:
- Remote sensing. Satellites monitor gas emissions and thermal imaging can work out the temperature within the volcano.
- Seismometers can pick up movements in the earth which sometimes occur before an eruption.

Tsunami warning system:
- Following the 1960 Chilean earthquake the Pacific countries decided to set up the Pacific Tsunami Warning System (PTWS).
- This is a network of seismometers and ocean buoys that detect earthquakes and ocean movements.
- Warnings are then given to local centres, which warn local people using the TV, radio, text messages and sirens.

Hazard planning strategies

Hazard Mapping highlights areas affected by or vulnerable to earthquakes, volcanoes and tsunamis so planning and money can be targeted at these areas
New building technology can also reduce the impact of earthquakes. Often they are built to absorb the energy and withstand the earth's movement
Emergency planning:

- An exclusion zone can be set up around a volcano
- Lava flows can be diverted
- Emergency services can be trained and given the equipment needed
- People put together emergency kits which include first aid items, blankets etc.

Home study questions

DEVELOPING

Describe how a hot spot creates island arcs **[2 marks]**

Compare the differences between shield volcanoes and stratovolcanoes **[4 marks]**

SECURING

Analyse the distribution of the 3 different plate boundaries around the world (3.1.1) **[6 marks]**

Explain how tsunamis impact the health and infrastructure of a country **[6 marks]**

MASTERING

'Human vulnerabilities are responsible for more deaths than the physical risks associated with tectonic hazards' **To what extent** do you agree with this statement? **[8 marks]**

Explain how tectonic hazards are managed **[4 marks]**

CHALLENGE

Research the responses to the 3 hazard case studies (Montserrat, Haiti and SE Asia) and add these to the space below

Explain how tsunamis are a secondary effect of earthquakes

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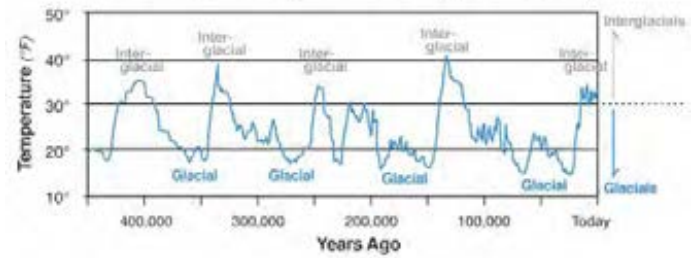
Weather, climate and ecosystems

Geography Knowledge Organiser

5.1.1 - Climate change evidence

Climate Change during the Quaternary Period



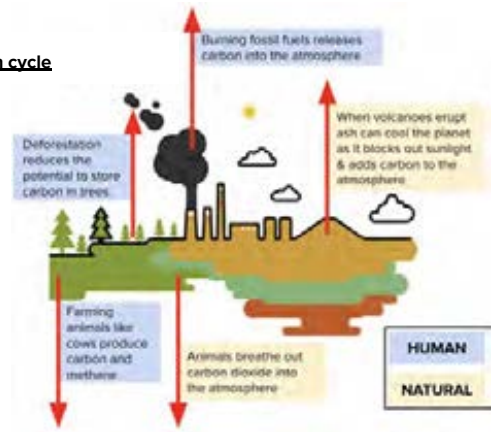
Over a long period of time (the last 400,000 years) there have been natural cycles of cooling and warming. The periods of time the average global temperature was below 15°C are known as **glacials**, and periods of warmth are known as **interglacials**.

Evidence for climate change

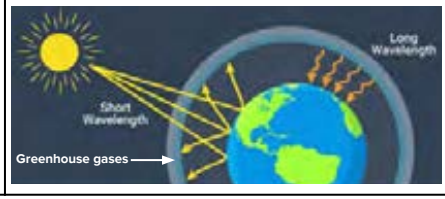
- Ice cores from the Antarctic show the amount of CO_2 and methane in the atmosphere have changed over the last 420,000 years
- Historical records, such as diary extracts
- CO_2 levels in the atmosphere
- Measurements by the met office show temperature has increased by 0.6°C over the past 100 years.

5.1.2 - Climate change causes

Carbon cycle



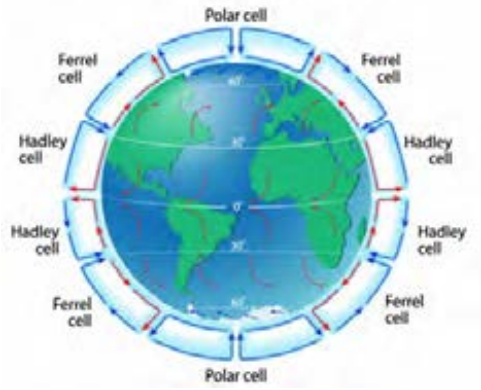
Greenhouse effect



The greenhouse effect is natural but humans have worsened the impacts. Carbon Dioxide and Methane are greenhouse gases which trap heat in the atmosphere. As more gases build up more heat is stored, warming the planet.

5.2.1 - Weather hazards

Global circulation

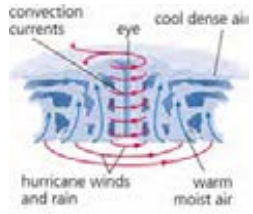


1. At the equator insolation heats the Earth which heats the air above
2. Hot air rises creating low pressure – as it rises it travels north and south
3. This air eventually cools and sinks at about 30° north/south of the equator – this creates high pressure
4. This air then returns to the equator (known as the intertropical convergence zone ITCZ)

Low pressure & tropical storms

Warm air rises because it is less dense. When it reaches the edge of the atmosphere it cannot rise any further and moves north and south. The edge of the atmosphere is cold and so the air cools too. Low pressure can create a hazard called a tropical storm, which is also known as a hurricane, cyclone or typhoon

Tropical storm cross section



Tropical storm causes (CYCLONE PAM 2015)
Occurred near the island chain of Vanuatu in the South Pacific
Tropical storms can only form over large/deep oceans
Ocean temperatures of at least 27°c
Water depth of at least 50 meters
Gentle winds in the atmosphere to draw air up from water surface

Tropical storm effects (CYCLONE PAM 2015)
11 people died
90000 homeless
Hospitals and schools destroyed
Widespread destruction of fruits, vegetables, root crops and livestock
Stormsurge flooded coastal areas and contaminated freshwater supplies

Tropical storm responses (CYCLONE PAM 2015)
Emergency aid sent by Australia, Fiji, New Zealand and UK
153 temporary school built
Repairs to infrastructure to provide safe drinking water
Blankets & tents given to those made homeless
28 schools used as evacuation centres

High pressure & droughts

As the air cools in the outer atmosphere it becomes heavier and starts to sink. This air moves back to the ground. This is called high pressure. As the air reaches the surface it starts to warm again and the cycle continues. High pressure can produce a hazard called a drought - a long period of no available water due to intense heat.

Drought causes (CALIFORNIA 2012)
The jet stream was further north that normal, pushing low pressure systems north and allowing high pressure systems to sit over the state creating a heat wave.

Drought effects (CALIFORNIA 2012)
A hosepipe ban was introduced
Homes were destroyed by wildfires
Hydroelectric power dams stopped producing electricity
Crops could not be grown and 17,000 agriculture jobs were lost
Fish died as high temps caused an oxygen decrease

Drought responses (California 2012)
12,500 water metres installed in homes
400,000 water saving toilets installed
3.2 million square feet of turf removed.
50% of Orange County's water supply is now imported from other areas.

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5.2.2 - UK weather variations

Weather - the conditions of the atmosphere over a short period of time, often a day
Climate - the weather of a place averaged over a period of time, often 30 years

Factors affecting Climate in the UK

Latitude –the north of the UK has cooler temperatures than the south
Altitude – mountain areas have cooler temperatures. Temperatures decrease by 1°C for every 200m of elevation.
Ocean currents – the North Atlantic drift brings warmer water to the UK, keeping the climate milder in winter and cooler in summer.
Different winds directions also bring different **air masses**:

- **Pm** North westerly brings polar maritime air (cool and showery)
- **Tm** South westerly brings tropical maritime (mild and wet)
- **Pc** Easterly brings polar continental (cold and dry)
- **Tc** South easterly brings tropical continental (warm and dry)
- **Am** Northerly brings arctic air (cold and snow in winter)

Low Pressure (depressions)
Begin in the Atlantic and move east

Brings rain, cloud and wind

Air rises, cools and condenses forming clouds

High Pressure (anticyclone)
Low wind speed, stable conditions with no clouds

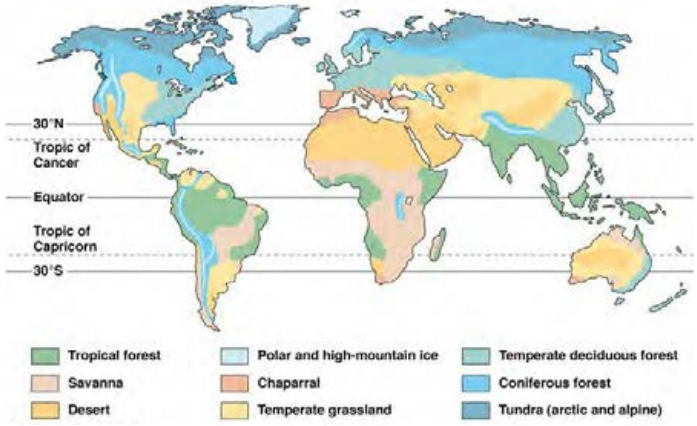
In summer they bring hot weather, which may lead to drought

In winter they bring cold (frosty) nights

Microclimate

Physical features - hills, trees can block the wind and sun. Water cools the air
Shelter - Buildings, trees and hills can shelter from the wind
Surface (albedo) - dark surfaces heat up quicker than light surfaces
Buildings - Buildings store up heat and redirect wind direction
Aspect - locations facing south have sun all day, the north doesn't receive sunlight

5.3.1 - Ecosystems



Large scale **ecosystems** are known as **biomes**.

Climate – the most important factor in determining their distribution
Rainfall – the amount and patterns determine the distribution of biomes
Temperature – when rainfall is reliable and distributed evenly temperature becomes the most important factor

Other factors can also have an influence e.g.
Tropical rainforests are located either side of the equator where hot and wet conditions allow continuous growth of plants

5.3.2 - Ecosystem processes

Tropical rainforest characteristics

Shrub layer. It is dark and gloomy with very little vegetation.
Under canopy. It is the second level up. There is limited sunlight. Saplings wait here for larger plants and trees to die
Canopy. This is where the upper parts of most of the trees are found. The canopy is typically about 65 to 130 feet (20 to 40 metres) tall.
Emergents. These are the tops of the tallest trees in the rainforest. These are much higher, and so are able to get more light than the average trees in the forest canopy.

Nutrient cycle

The rainforest nutrient cycling is rapid. The hot, damp conditions on the forest floor allow for the rapid decomposition of dead plant material. This provides plentiful nutrients that are easily absorbed by plant roots.

Water cycle

The roots of plants take up water from the ground and the rain is intercepted as it falls - much of it at the canopy level. As the rainforest heats up, the water evaporates into the atmosphere and forms clouds to make the next day's rain.

Carbon cycle

Rainforests contain about 40 to 50% of the carbon in the biomass, and very little in the soil due to the rapid nutrient cycling

Key services

Regulating climate and air quality
Preventing Soil Erosion
Carbon Storage
Provisioning Goods (food, fuel)
Flood prevention

Biodiversity

Biodiversity is the variety of plant and animal life in a particular habitat, a high level of which is considered to be important and desirable. The tropical rainforest has a higher level of biodiversity than savannah

5.3.2 - Ecosystem processes

Savanna characteristics

Grasses and trees - The savanna is a grassland with scattered trees and shrubs.
Rainy and dry seasons - Savannas have two distinct seasons in regards to precipitation. There is a rainy season in the summer with around 15 to 25 inches of rain and a dry season in the winter when only a couple of inches of rain may fall.
Large herds of animals - There are often large herds of grazing animals on the savanna that thrive on the abundance of grass and trees.
Warm - The savanna stays pretty warm all year.

Nutrient cycle

Nutrients are cycled quicky during the dry season in the tropical heat. Wildfires are common and nutrients are returned to the soil when vegetation burns.

Water cycle

All most all rain falls during the rainy season. Vegetation quickly absorbs and stores this water for the dry season. Little water is lost by transpiration due to waxy leaves and low surface area of the plants.

Carbon cycle

Majority of carbon is stored in vegetation with a lesser amount in soil. During dry seasons, wildfires can burn vegetation, releasing CO_2 into the atmosphere.

Key services

Preventing Soil Erosion
Carbon Storage
Provisioning Goods (food, fuel)

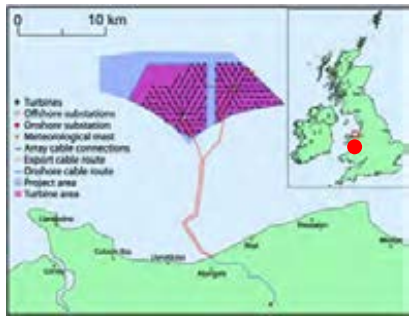
Small scale ecosystem: sand dunes

Sand Dunes are a build up of sand around vegetation. This requires loose sand and prevailing winds which blow on-shore. They are formed through a processes known as succession. As plants die and decompose it nourishes the soil making it better quality and now more fragile plants will start to grow.

5.4.1 - Human uses

Gwynt y Môr offshore wind farm
Offshore wind farms are located in the sea close to the shoreline as winds are stronger, unobstructed and do not impose on cities/population as much. Gwynt y Môr is located 15km off the north coast of Wales

The demand for renewable energy is increasing as non-renewables such as coal and gas are depleting



Advantages	Disadvantages
Produces power for 400,000 homes	RSPB says it affects bird migrations and their normal routines
Creates 100+ jobs	National Trust has concerns over affecting heritage and tourism
Helps with global climate change efforts	Locals are opposed as it spoils the natural beauty

5.4.2 - Human impacts

Tropical rainforest uses

Advantages:
Infrastructure, hospitals and education can be improved
Raw materials, eg tropical hardwoods such as ebony and mahogany, can be sold for a good price abroad.
Large-scale farming brings money into the country and provides food and jobs.
Small-scale farming provides food for rainforest communities.

Disadvantages:
Land clearance for farming, transportation and mining can lead to **deforestation.**
Loss of fertile soils that make farming possible are quickly washed away when the forest is cleared.
Loss of animal habitat occurs when trees are cut down. Hence, deforestation can result in endangering animals and plant life, or even causing them to become extinct.

Savanna uses

Advantages:
Small-scale farming provides food for rainforest communities.
Raw materials, eg fuel (firewood)

Disadvantages:
Large areas of grassland have been turned into **farmlands** for growing crops and for rearing cattle.
Animals have been **hunted** for their valuable body parts or for sport.
Loss of fertile soils that make farming possible are quickly washed away when the forest is cleared.





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5.4.3 - Ecosystem management

Tropical rainforest management

Selective logging – only cutting down older trees and not rare species. The International Forest Stewardship Council makes people aware of products made from sustainable timber.

Agro-forestry – growing new trees alongside crops

Wildlife corridors – connecting separated areas of forest with strips of vegetation so animals can move between areas

Eco-tourism – encouraging small groups of sustainable tourism. Money made is used to protect the ecosystem and uses local tour guides and companies.

Debt-swaps – HICs cancel debts which LICs have, if they protect their rainforests from over-exploitation

Savanna management

Crop rotation – growing different crops and giving the land time to rest between planting to allow soil to recover nutrients

Afforestation – planting more trees to protect the soil

Drought-resistant crops – Planting genetically modified crops which can withstand long periods of water shortage

Population control – Encouraging people to have fewer children so less crops and water are needed in the area

Home study questions

DEVELOPING

Describe the economic effects of a low pressure hazard **[3 marks]**

Give three ways that humans have influenced the carbon cycle **[3 marks]**

SECURING

Analyse the pattern of temperature change over the last 450 million years (5.1.1) **[6 marks]**

Explain how low pressure systems forms **[3 marks]**

MASTERING

Discuss how sustainable the use of one ecosystem is **[8 marks]**

Explain the factors that influence changes in weather for the UK **[6 marks]**

CHALLENGE

Decide how deforestation would affect the nutrient, water and carbon cycles in the tropical rainforest - present your decision as a paragraph or concept map

Evaluate how successful you think management strategies for the savanna ecosystems are

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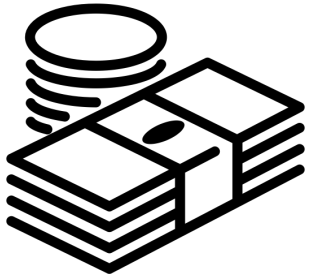
Development and resource issues



Geography Knowledge Organiser

6.1.1 - Measuring development

Measures of development

Gross domestic product (GDP) - the total value of all goods and services produced within a country
Gross National Income (GNI) - (per capita) average wage per person
Employment structure - the type of work people do (for example, primary, secondary, tertiary)
Poverty - the % of the population that earn less than $1.90 a day

Limitations of these measures
They only measure wealth and not social factors (like life expectancy)
They do not show inequality in country (gap between rich and poor)
They do not show the cost of living (ie. the amount that can be bought with the average wage)

Development continuum

A development gap exists between richer and poorer countries. The "Brandt" line splits the world into more developed "global north" countries and less developed "global south" countries.

Less developed — More developed

LIC — Lower middle — Upper middle — HIC

However, the Brandt line is a bit too simplistic. In reality there is a "**development continuum**". This is a sliding scale from super rich countries to the very poor. The World Bank splits countries into 4 categories based on their Gross National Income (GNI):
HICs with GNI of $12,736 or above
Upper Middle Countries with GNI between $4126 and $12735
Lower middle countries with GNI of $1046 to $4125
LICs with GNI of $1045 or less

6.2.1 - Uneven development

Causes of uneven development

Trade involves buying goods from other countries (imports) and selling them (exports)
HICs generally export valuable goods such as electronics, cars and financial products. They import cheaper primary products like tea, sugar and coffee.
LICS do the opposite. This means they earn little and remain in poverty

The prices of these products go up and down but HICs tend to have the biggest influence over them. LICs lose out when the price drops, but have little control over it. Increasing this trade and changing the balance of imports/exports is essential for LICs to develop. Some HICs impose tariffs (import costs) and quotas (a limit to the amount of imports) which also affects LICs.

Multinational corporations (MNCs)

MNCs have grown as a result of globalisation. Often they are free to decide where they locate many aspects of their company. The headquarters if usually found in a global city such as London. However, other parts of the company can be located around the world. Factors like, government incentives, location of raw materials, labour costs and reduced costs for buildings and land make a difference.

Advantages of MNCs in LICs	Disadvantages of MNCs in LICs
Created jobs and improved local skills	Investment could be transferred to other countries quickly
Pays higher wages than most local Companies	They has large demand for energy/water
Helped attract more MNCs	They have reputation for workers abuse
Contributes to tax which helped pay for schools, hospitals etc.	They might undermine national culture

6.2.1 - Uneven development

Tourism

As a result of globalisation the tourist industry has grown rapidly. It now accounts for 1-in-11 jobs worldwide. It is increasingly becoming important for low and middle income countries. Rapid growth is due to:
Early retirement & higher life expectancy mean people can spend time travelling
People earn more so have more disposable income
Modern aircraft make is cheaper and quicker
The internet allows people to research destinations

Mass tourism
Where tens of thousands of people going to the same resort often at the same time of year

Enclave tourism
Where tourists pay one price and get all travel, accommodation, food and drink in one place

Cruise holidays
Cruise ships sell all inclusive packages

Advantages of tourism in LICs	Disadvantages of tourism in LICs
Employs thousands directly and hundreds of thousands indirectly, bringing billions to the economy	Many tourist development are partly owned by foreign companies. Some profits leak (send) overseas
Tourism is encouraging new skills and improving language skills of locals	Jobs are seasonal, many people lose their jobs in the wet or winter season
New services such as transport can be used by tourists and locals	The growth of sex tourism can become an issue in some countries
New national parks are being created to protect wildlife and encourage tourism	The arrival of tourists can cause a decline in local cultures, for example loss of language or religious traditions

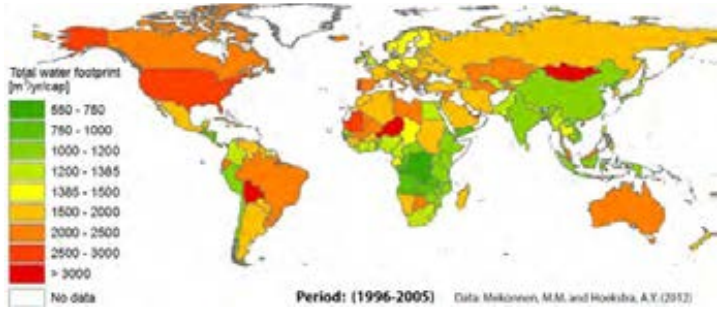
6.2.2 - Managing development

Aid

Aid is the transfer of resources from a richer country to a poorer country. Different types of aid include:
Bilateral aid – between two countries
Multilateral aid – money donated by richer countries via organisations such as the UN
Short term emergency aid – immediate relief following a natural disaster
Long term development aid – a sustained programme of aid which aims to improve the standard of living
Debt abolition – when richer countries cancel debt owed by poorer countries
Aid from non-governmental organisations (NGO's) – given through charities such as Oxfam.

Advantages of aid for LICs	Disadvantages of aid for LICs
Emergency aid saves lives and reduces misery	Aid can increase dependency on the donor country
Development aid can lead to long term improvements and increase standards of living	Profits from the large projects can go to multinationals and donor countries
Assistance in developing natural resources benefits global economy	Aid doesn't always reach the people who need it and can be kept by corrupt officials
Aid for industrial development creates jobs and aid for agriculture increases food supply	Aid can be spent on prestige projects in urban areas rather than in the areas of real need
Provision of medical training and supplies improves health	Aid can be used as a weapon to exert political pressure on the receiving country

6.3.1 - Water demand



The global consumption of water is rising. This is because:
Population is rising
Economic development - The more developed a nation the more water used
Increased need by agriculture - irrigating crops
Industrial growth - As more MNCs invest in NICs and LICs the more water needed
Consumerism - HICs use appliances like dishwashers and washing machines

Water footprint - a measure of humanity's use of fresh water and/or polluted
We don't just use water to drink and for hygiene reasons. 70% of our water is used to produce food (crops & animals). Industries use water in 'cooling processes'. Water is need in thing like clothing - fabrics have to be grown.

Water security - the capacity to safeguard the sustainable availability and access to drinking water
The UK generally have excellent access to water all year round. Some places don't, where water isn't clean or alway available. Sometimes it's too expensive to transport or access (economic scarcity) or it's not available due to droughts (physical scarcity).

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6.3.2 - Water sustainability

Dams: Dams block the flow of a river, creating a large reservoir to the rear which can be used all year round. Dams can be expensive to build, and the reservoir may flood local settlements and ecosystems.

Water transfers: When water is transferred to from an area that has a surplus of water to an area that is experiencing a shortage. This may be conducted within a country, but it can also be conducted from one country to another. For example, Lesotho transfers water to areas of South Africa experiencing physical water scarcity.

Desalination plants: Desalination is the process by which salt is extracted from water. At these plants, salt is removed from seawater to make it safe to drink. Such plants are extremely expensive to run.

Water conservation: This is when an attempt is made to actually use less water in the first instance. For example, many toilets have dual-flush systems to reduce the amount of water used. In addition, meters may be installed within households so residents can check their water usage

Over-abstraction of groundwater

India is a country that is over extracting its groundwater (the water table is 4m lower than in 2000)

Reasons for this
Some states like Gujarat have a long dry season
Surface stores (like reservoirs) are often polluted
Cheap electricity has encouraged farmers to dig deeper wells

Solutions
The government can build more dams (this is an example of top down development)
Farmers could be encouraged to conserve water e.g. rainwater harvesting (this is bottom up development)

6.4.1 - NIC regional development

India's regional patterns

Northeast has higher levels of poverty (over 30% of people)

South has the least levels of poverty (less than 10%)

The east generally has lower levels of poverty (around 15%)

GDP per region in India

Physical reasons

Northern India is more mountainous and dry, so it has poor soil and climate to grow crops. **The south** has a more humid climate with rains.

Political reasons

Kerala (in the south) funds education and encourages families to have fewer children = better quality of life (less pressure on resources)
Kashmir (in the north) has seen conflicts/wars and is in a mountainous area = not very populated, poor access, dry climate.
Maharashtra (in the east) has the capital city and attracts lots of industries like manufacturing and has ports for trade

Cultural reasons

India had a **caste system** (some people had more rights than others). Although it's illegal now it still has an impact on people today with types of jobs people can do.

Girls and women are discriminated against particularly in rural areas

6.4.2 - UK regional development

UK's regional patterns

There is a north-south divide in the UK for development. The divide recognises the social and economic differences between Southern parts of the UK (more developed) and the rest of the UK (less developed).

Economic reasons

With the l**argest markets located in the south-east,** which also includes **good access to European markets**, companies have greatest potential to **maximise profits by locating in the south**.

Social reasons

With over 20 million people of the UK's population living within a one hour commute of London, many **businesses prefer to locate themselves close to their customers**, and within **commuting distance of their staff.**
Many universities are in the south of the UK, including Oxford and Cambridge, which provide many workers - who **employers may perceive as being most skilled** and desirable.

Political reasons

Many large companies have headquarters (HQ) in the south-east, making it easier to make crucial decisions. Even though government policy has tried to encourage investment in other parts of the UK it is **still more convenient for other smaller businesses to start up where there is already infrastructure** to support.

6.4.3 - Managing UK development

Positive multiplier effect

Regional inequality can be reduced by investment in deprived areas of the UK. Various strategies have been used in the past which usually includes investing in infrastructure in an area which is deprived to try and promote a **positive multiplier effect**. However, when industries close there is also a **negative multiplier effect**.

Positive multiplier effect

National strategies

Giving power to local authorities e.g. regional mayors (Manchester/Leeds)

The **creation of the "Northern Powerhouse**" which is a proposal to boost economic growth in the North of UK, this would attract investment and create skilled jobs in the area

The **improvement of transport links** to the Northern places in the UK. This improves accessibility, attract new investment and therefore may create a positive multiplier effect (eg. HS2)

Relocation of major business and offices, sometimes head offices in other parts of the UK, such as Manchester. This encourages other businesses to invest in the areas

Local strategies (Newcastle)

Newcastle Enterprise Package - supporting new business

Newcastle Science City - a partnership between Newcastle University, Newcastle City Council and the European Regional Development Fund supporting the innovation and technology sectors

The Millennium Bridge - crossing the river Tyne

Home study questions

DEVELOPING

Outline the measures of economic development **[3 marks]**

Give three reasons why LICs receive less money from international trade **[3 marks]**

SECURING

Analyse the pattern of global water usage (water footprint) (6.3.1) **[6 marks]**

Describe what a water footprint is **[2 marks]**

MASTERING

Evaluate which factor/reason (social, economic or political) is the most significant cause of UK regional inequality **[8 marks]**

Decided whether foreign aid is overall a good or bad thing for LIC development **[8 marks]**

CHALLENGE

Create a concept map to show how MNCs and tourism are linked and how these are also linked to uneven development in LICs/NICs

Research how the High Speed railway 2 (HS2) project will have benefits for the north of England

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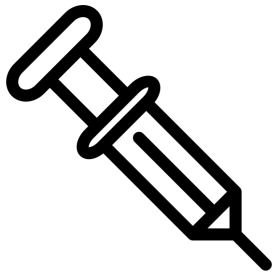
Social development



Geography Knowledge Organiser

7.1.1 - Measuring development

Measures of social development

Life expectancy - The average age a person is expected to live
Literacy rates - % of people in a population that can read or write
Infant mortality rate - Number of babies per 100 live births who die under the age of 1
Average number of people per doctor
Average food (calorie) consumption
Number of homeless people
Deaths from unsafe water and sanitation

Measures of gender development

Gender equality is ways in which a country can be measured through social development. So a comparison between genders is useful, such as:

- **Fertility rate** – The average number of births to a woman in her lifetime
- **Male/female literacy rates**
- **Male/Female life expectancy**
- **Male/female food consumption**
- **Male/female employment rate**
- **Gender development index (GDI)** - measures gender inequalities in three key aspects: *reproductive health, empowerment and economic status*

Human development index (HDI)

A measure of the development in a country taking into account wealth, education and average life expectancy. The human development index (HDI) is calculated from four development indicators and measures a country's progress across a range of factors:

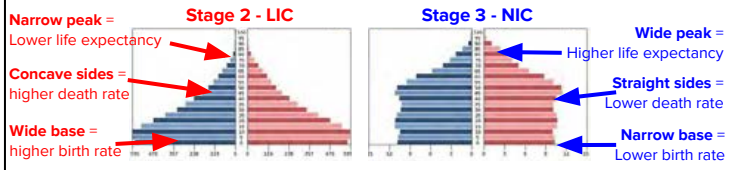
- **Average length of schooling in years**
- **Literacy rates**
- **Gross national income (GNI)** - The average income in a country per person

7.2.1 - Development issues in Africa and Asia

Changing birth rates and death rates

Higher birth rates	Lower birth rates	Higher death rates	Lower death rates
Children provide labour on farms **(E)**	People tend to marry later and therefore have reduced child -bearing years **(S)**	HIV, Ebola and other difficult to control diseases are having an impact on death rates in LICs **(S)**	Better healthcare and vaccination programmes are more available to people **(P)**
Large families are seen as a sign of virility **(S)**	Women are educated and often follow careers which delay starting families **(P)**	In HICs, the increasingly higher proportion of elderly people in ageing societies is leading to an increase in death rates **(S)**	Less physically demanding jobs put less stress on people physically **(S)**
Women may lack education and stay at home to raise a family rather than work **(S)**	The high cost of living means it is expensive to raise children **(E)**		People are educated about health and hygiene **(P)**
A high infant mortality rate encourages larger families to ensure survival of some children **(S)**	Couples prefer to spend money on holidays & cars **(E)**		Water supplies are more reliable and cleaner **(P)**

Population structure



7.2.1 - Development issues in Africa and Asia

Child labour

It is estimated that there is currently 168 million child workers and 73 million of these are children under the age of ten. Sub-Saharan Africa has the highest number of child workers mainly working on farms farming products such as cocoa and cotton.

- **Poverty** - parents need money or their parents have died
- **No (free) education** - have to pay or no formal education
- **AIDS** - Disease means a lot of middle-aged people are too ill or have died - so children are the only option

Primary education challenges

In 2010 there were 4.98 million children in child labour, whereas by 2011 there were 4.35 million child labourers. The lack of education is a key cause of child labour. Out of the 62% of India's children that do not attend school, 62% of those are girls. The reasons for this include:

- **Poor quality of school buildings**, facilities and teaching.
- **Attitude to women in society**: many families still have an oppressive attitude towards women
- **Many girls are expected to marry young** through arranged marriages.
- The **fear that sexual harassment of girls** may bring dishonour to the girl's family.

Responses to child labour

The International Labour Organisation (ILO) - It collects data from different countries and uses this data to set targets which can be used to monitor progress. The ILO then makes recommendation to individual governments as to how this can be achieved in their country which frequently include:

- **Improving access to education** for all children so that they can succeed in life
- **Creating more trade unions** to prevent and protect against child labour
- **Improving social security systems** so that the poorest in society are supported rather than them relying on their children (sick pay & unemployment benefits)

International refugee movements

Forced migrants are those we call refugees and asylum seekers. They have been pushed out of their homes but there aren't pull factors attracting them to somewhere
Refugee - Someone who has fled their home due to serious risk to life or liberty
Asylum seeker - Someone who has applied to another country for protection/support as a refugee

Causes of forced migration

Lack of food/water - often causes by droughts or blights (plant diseases)
Natural disasters -flooding, earthquakes, tsunamis etc.
War & conflict - either between countries or civil war (inside one country)
Persecution - risk to life or liberty due to politics, sexual orientation, religion, ethnicity

Responses to forced migration

National governments in Europe
- Germany and Sweden see the refugees as victims and have welcomed them to their countries and help them to integrate into their societies
- Austria is trying to limit the number of refugees to 80 a day
- The UK has agreed to accept 20,000 refugees from Syria by 2020 and it will accept more unaccompanied Syrian child refugees

International agreements
With an increasing numbers of migrants from Asia and Africa reaching Europe illegally the following changes have been made:

- In 2016 border controls were temporarily introduced to 7 Schengen countries
- An EU naval operation has been put into place to monitor the Mediterranean Sea to prevent human smuggling and trafficking
- EU member states agreed to provide task forces of national experts and support teams to work in hotspots such as Greece and Italy to expedite refugee screening

7.2.2 - Health issues in Africa

High infant mortality rate (IMR)

Neonatal infection - a high rate of infection from the process of delivering the baby
10% of early childhood deaths are caused by diarrhoea
The **lack of skilled birth attendants** leads to many children dying within 24 hours of being born
Lack of vaccinations and mosquito nets to stop diseases

Human immunodeficiency virus (HIV)

HIV is disease which attacks the body's immune system. Over 70% of people who have HIV live in Africa. Infection rates are higher in urban areas

Emotional impact on relatives and families, as well as on the individual **(S)**

Cost involved in treating the disease, eg. drugs means that most people go without treatment **(E)(S)**

Those infected will not eventually be able to work, lowering the productivity and potential wealth of a country **(E)(P)**

Leads to fewer jobs and less wealth in a country **(E)**

Children may be left without parents and brought up by their grandparents **(S)**

Malaria

Malaria is a disease passed on by parasites in mosquitoes. Infection rates are higher nearer water sources like lakes & rural areas. Children and pregnant women are most at risk

Large number of children aged under five die **(S)**

Adults are too weak to work which leads to a loss of productivity **(E)**

People remain poor and do not have a lot to eat **(S)(E)**

A country's limited resources are used up in health care rather than in education or improving services **(E)(P)**

Tourists may be less likely to visit a country so there is less revenue **(E)**

MSN 2020

7.2.2 - Health issues in Africa

Health issues responses
Investment in medical care and treatment in hospitals (**HIV/Mal)**
Health campaigns (adverts) about risks and prevention **(HIV/Mal)**
Free condoms **(HIV)** and mosquito nets for beds **(Mal)**
UN's AIDS Fast Track programme - leading education & funding **(HIV)**
UN's 'roll-back malaria' programme which leads a worldwide government response **(Mal)**
The '**Roll Back Malaria**' initiative had over 500 partners working together to provide a co-ordinated response to the disease. One of the UN's Millennium Development Goals is that the incidence of the disease should have reduced by 2015. Today the UN fast track strategy is aiming to end the epidemic by 2030 through contraception, education and medication.

Top-down approach	Bottom-up approach
Decisions are made at governmental level and usually involve a high cost. Communities likely to be affected by the decisions have no say as to what is done.	Decisions are made by the local communities that they will affect. They try to help communities by helping them to help themselves.
The advantages of these types of schemes are that they may be part of a strategic plan which aims to develop the infrastructure of the country. However, the frequently lead the country into debt and the jobs that are created are often not for the local community.	The advantages of these types of schemes are that they are small scale and so cost much less, are more sustainable and usually meet the needs of the local community better.

Home study questions

DEVELOPING

Describe the economic effects of a low pressure hazard **[3 marks]**

Explain why using HDI is better than GDP or GNI for measuring development **[4 marks]**

SECURING

Analyse the differences between the stage 2 and stage 3 population pyramids (7.2.1) **[6 marks]**

Explain why infant mortality rate (IMR) is an important factor to judge development **[3 marks]**

MASTERING

Evaluate how successful the responses have been in stopping international refugee movements into Europe **[8 marks]**

Discuss why poverty and poor development often leads to more child labour **[6 marks]**

CHALLENGE

Discuss how diseases like HIV and malaria can have significant impacts on a country's social and economic development. Record your discussion as a paragraph or spider diagram

Evaluate whether top-down or bottom-up approaches are better for improving the health development of LICs

Graphic Design

v.certs

The Telford Langley School

Graphic Design: Unit 3

Responding to a graphic design brief

Name .....

Unit 03 Responding to a graphic design brief

You will analyse the requirement of a graphic design brief. You will understand the requirements and develop some possible ideas to meet the brief. You will further develop an idea and present your final graphic design. Finally, you will analyse your work and review how you have met the brief.

Example Design Brief

A new brand of children's toothpaste is being released Called 'Bite White'. It is strawberry flavoured and aimed at children under 10.

The client requires a graphic design for the toothpaste packaging that includes typography and imagery suitable for the target market.

Unit 3 LO1 task Analysis

Your Tasks

- You will need to **research existing products** and analyse them. Find some examples of childrens toothpaste graphics and list things they have in common such as colours used, the kind of lettering/typography and the kind of imagery used.

- You will need to **analyse the brief**, which means re writing it in your own words to show you understand what it is asking you to do. This can be a paragraph or a list of bullet pointed requirements that you need to do in order to complete a successful design and "meet the brief".

- You will need to produce at least 4 **initial ideas** for the design. You don't need to design the box or tube or the toothpaste itself just the graphics that will go on all aspects of the packaging and advertisements, websites etc. these initial designs should be small "thumbnail" sketches, not full page detailed drawings, and should include some annotation/notes to explain how they meet the brief.

Task 1 – Task Analysis

Brief

A new brand of children's toothpaste is being released Called 'Bite White'. It is strawberry flavoured and aimed at children under 10. The client requires a design for the toothpaste packaging graphics that includes typography and imagery suitable for the target market.

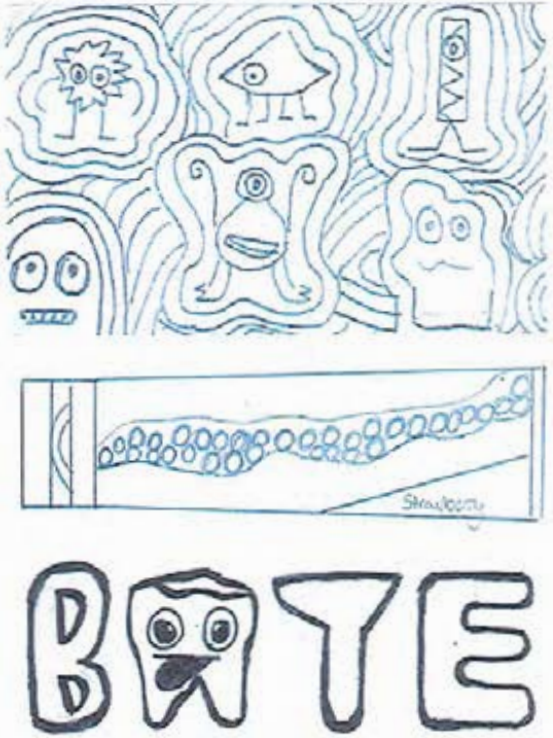
Brief Analysis

The client is a brand of toothpaste called Bite White, I have been given the task of producing graphics suitable to be used on the toothpaste packaging tube and that can be added to any other branding material such as the box it comes in. Within this design I need to include the flavour of the toothpaste which in this case is strawberry. In addition to this I must take into account the target audience which is children under the age of 10, due to this the imagery and typography I use in my design must be aimed at children of this age therefore I know the brand will reach its target market when selling.

Market Research

After a detailed google search of children's toothpastes I compiled some designs I feel have similar aspects and use of graphics my client is looking for. These will help inspire me to include specific elements that were successful and avoid those that I feel are not fit for purpose.

Initial Ideas



In my initial ideas I have included cartoon like characters to appeal to children, soft lettering like on the examples I looked at and imagery/ typography as required in the brief

Learning outcome 1

The learner will:

Understand the requirements of a graphic design brief

The learner must know how to:

- respond to a brief
- develop ideas

Grading descriptors	Example
Pass: Makes accurate conclusions based on some information	Learners will analyse the brief and demonstrate their understanding of its requirements. Their conclusions will be accurate but will only take into account some of the client's requirements. The ideas developed in response to the brief will only be based on some of the client's requirements.
Merit: Makes accurate conclusions based on all the information	Learners will analyse the brief and demonstrate their understanding of its requirements. Their conclusions will be accurate and take into account all of the client's requirements. The ideas developed in response to the brief will be based on all of the client's requirements.
Distinction: Makes accurate conclusions weighing up the all the information	Learners will analyse the brief and demonstrate that their understanding is based on an examination of all of its requirements. Their conclusions will be accurate and effectively balance all of the client's requirements. The ideas developed in response to the brief will successfully resolve all of the client's requirements.

Task	PLC	Teachers ACT Comment
Research Existing Products	I have gathered some images of existing products	
Analyse the brief	I have re written the brief in my own words	
	I have bullet pointed the client requirements	
	I have written a paragraph to confirm the clients requirements.	
Initial ideas	I have drawn one initial idea	
	I have drawn more than one initial idea	
	I have drawn 4 initial ideas	
	I have annotated my ideas to explain how they meet the brief.	

Graphic design Unit 3 LO2

You can now produce your final graphic design based on one of your initial ideas.
You must demonstrate:
- technical skills
- effective use of resources

Refine and fully develop one of your ideas from LO1 to a final design.

You will be assessed on the graphic design. You are not required to produce or mock up any actual packaging but you must explain what you are doing and how you do it as you go.

Tasks:

Planning - Write a step by step plan or draw a flow chart of how you intend to produce your final design weather it is on computer or hand drawn. Explain what problems you expect to run into when you start your design.

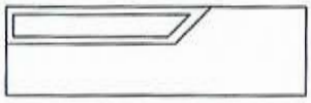
Efficient use of design technology – explain how you intend to go about your design. If you are drawing it by hand say why you chose to do it that way, what equipment you are going to use and why you think it is an efficient way to work. If you are doing your design on computer say what programs you are going to use and why you chose them.

Use of materials and application of processes – Explain what you are doing at every step of the way. Take screenshots on computer or photograph your drawings and explain what your are doing and how you are doing it. This will prove to the examiner that you have the skills needed to be a good graphic designer.

Always refer back to the brief when you are designing and label your designs to highlight the key points you identified in LO 1. this will prove to the examiner that you are responding to the brief.

Design Brief
A new brand of children's toothpaste is being released Called 'Bite White'. It is strawberry flavoured and aimed at children under 10.
The client requires a graphic design for the toothpaste packaging that includes typography and imagery suitable for the target market.

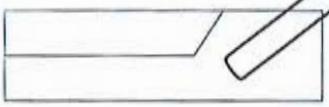
Task 3 – Development



Here is the beginning to my final designs process I drew toothpaste box mockups on 2d design so I could see my graphics on a product.

I then started adding all my graphics onto the designs using a variety of different tools found in photoshop.

I finally saved the file as a png and have the mockup readily available alongside the graphics for my client.



Task 4 – Final Designs

Here are my final graphics I have created alongside how they look on a product by use of mockups I designed myself. I experimented with imagery, colour, composition and typography to reach my final graphics. I paid attention to the brief strictly throughout the design process to ensure that my designs were fit for the client. I used a cartoon strawberry character which I developed to represent the flavor of the toothpaste which was mentioned within the brief, I believe this implementation was successful and shows the products flavoring through use of imagery. I then created typography for the name chosen by the client, I experimented with several font types and colour schemes however white was the one I stuck to because it is a colour which connotates with clean and healthy teeth. Finally the brief made clearly the age demographic for this project therefore I chose a cartoon font, cartoon strawberry and a cartoon effect to compliment the character. These all tied in to create a design with bright colours that pop out that a child will be drawn to with the additional cartoon style it gives them something relatable which they see often which not only intrigues them but makes them trust a brand.

Grading descriptors	Example
Pass: Completes and presents tasks following the brief with some degree of accuracy Selects and uses technical skills	The developed final idea will be accurate and relevant to meeting the brief. The learner will show selection and application of technical skills and effective use of resources in the execution of the final graphic design idea.
Merit: Completes tasks mostly accurately following the brief Selects and uses a combination of the most appropriate technical skills and processes	The developed final idea will be mostly accurate and relevant to meeting the brief. The learner will show effective selection and application of technical skills and effective use of resources in the execution of the final graphic design idea. However, this may not be consistently applied.
Distinction: Completes tasks accurately meeting all of the requirements of the brief Selects and uses a combination of the most appropriate relevant skills, equipment, materials and processes	The developed final idea will be accurate and relevant in meeting all the requirements of the brief. The learner will show the most effective selection and application of technical skills and effective use of resources in the execution of the final graphic design idea. These will be consistently applied throughout the production of the final design idea.

Technical skills	Personal Learning Checklist	ACT Comment
planning a graphic design activity	Write a step by step plan or draw a flow chart of how you intend to produce your final design.	
anticipating difficulties	Explain what problems you expected to run into when you started your design.	
considering the most efficient use of technology	Explain why you chose the software or drawing equipment you used to produce your design.	
Use of materials and application of processes	• Use Photoshop to edit images into your design • Take screen shots that show what you did – step by step. Or • Draw your design by hand. • Take photographs at different stages and explain your techniques	

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Graphic design Unit 3 LO3

You can now review your final graphic design based on the final outcome compared to the brief.

Evaluate:

- the final outcome
- the purpose and impact of the graphic design
- effective use of resources
- what went well and not so well

Grading descriptors	Example
Pass: Describes the processes involved and identifies some aspects of what went well/not so well	Learners can describe the processes used to create their work, the purpose and impact, effective use of resources and how problems were solved in relation to the design brief. Learners can identify some of what went well/not so well in relation to the design brief, although this may not be detailed.
Merit: Describes the processes involved and identifies what went well/not so well	Learners can describe the processes used to create their work, the purpose and impact, effective use of resources and how problems were solved in relation to the design brief. Learners can identify some of what went well/not so well in relation to the design brief, this will be sufficiently detailed.
Distinction: Describes the processes involved and identifies what went well/not so well and any opportunities for development	Learners can describe the processes used to create their work, the purpose and impact and their effective use of resources. The learners describe how they approached and resolved the challenges presented by the brief. Learners can identify some of what went well/not so well in relation to the design brief, this will be sufficiently detailed. The learner describes opportunities for development or improvement of their graphic design.

Design Brief

A new brand of children's toothpaste is being released Called 'Bite White'. It is strawberry flavoured and aimed at children under 10.

The client requires a graphic design for the toothpaste packaging that includes typography and imagery suitable for the target market.

Evaluation

Here are my final graphics I have created alongside how they look on a product by use of mockups I designed myself. I experimented with imagery, colour, composition and typography to reach my final graphics. I paid attention to the brief strictly throughout the design process to ensure that my designs were fit for the client. I used a cartoon strawberry character which I developed to represent the flavor of the toothpaste which was mentioned within the brief, I believe this implementation was successful and shows the products flavoring through use of imagery. I then created typography for the name chosen by the client. I experimented with several font types and colour schemes however white was the one I stuck to because it is a colour which connotates with clean and healthy teeth. Finally the brief made clearly the age demographic for this project therefore I chose a cartoon font, cartoon strawberry and a cartoon effect to compliment the character. These all tied in to create a design with bright colours that pop out that a child will be drawn to with the additional cartoon style it gives them something relatable which they see often which not only intrigues them but makes them trust a brand.

Evaluation PLC

Evaluation point	Personal Learning Checklist	ACT Comment
Describe the processes used to create your final design	Explain how you made you final logo. Detail all software and tools you used to make it as well as your techniques.	
Explain how your work is effective and has impact	Write about how well your logo gets across the theme of children's strawberry toothpaste. How does it stand out?	
Explain how you used resources such as pencils, paints or computers effectively.	Explain how you used the software or drawing equipment you used to produce your design and comment on how effective it was..	
Identify what went well and even better if	• Write a detailed paragraph on good and bad points of the project and your final outcome.	
Identify opportunities for development.	Write about how you would improve your design if you were to continue working on it or if you were to start again.	

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Health and social care

Threshold Concept

- How people's physical, intellectual, emotional and social well-being are linked.
- To recognise what is health and well-being and what influences it.

What are P.I.E.S.:

Physical
Intellectual
Emotional
Social

All of these make up the definition to what is health and well-being.

Physical

Intellectual

Emotional

Social

As we move through the life stages our P.I.E.S. develop. We focus on the three primary life stages:

- Childhood (0-18)
- Adulthood (18-65)
- Old Age (65+)

Using this information you should be able to:

- Define what is health and well-being
- Describe the different life stages.

You should be able to use this knowledge to describe how humans develop physically, intellectually, emotionally and socially across the different life stages.

Humans grow and develop across all life stages. However our growth and development can be influenced by several factors, mainly, healthy eating.

In order to have a healthy balanced diet, you must consume the correct amount of the five food groups. Having a healthy balanced diet can affect your growth and development across all three life stages. A mothers diet can even influence her unborn child's growth and development!

The five food groups!

Fruit and vegetables

Proteins

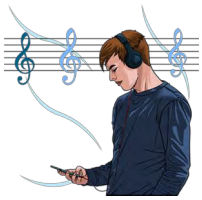
Carbohydrates

Dairy

Fats and sugars

We also experience every day feelings that can impact our growth and development. One of these is stress. Stress is the body's reaction to feeling under pressure.

Stress gets to us all. However, there are plenty of ways we can deal with stress.



There are numerous ways in which we can deal with stress. Some of the most effective are either listening to music or spending time in nature. This helps relax the body and in turn can relax the mind, helping to cope with stress.

Impact of life events on P.I.E.S.

Often life events can have an impact on our health and well-being. This means that certain life events can impact on your physical, intellectual, emotional and social health. There are two types of life events, **expected** and **unexpected**.

These are some examples of different life events that occur across the life stages;

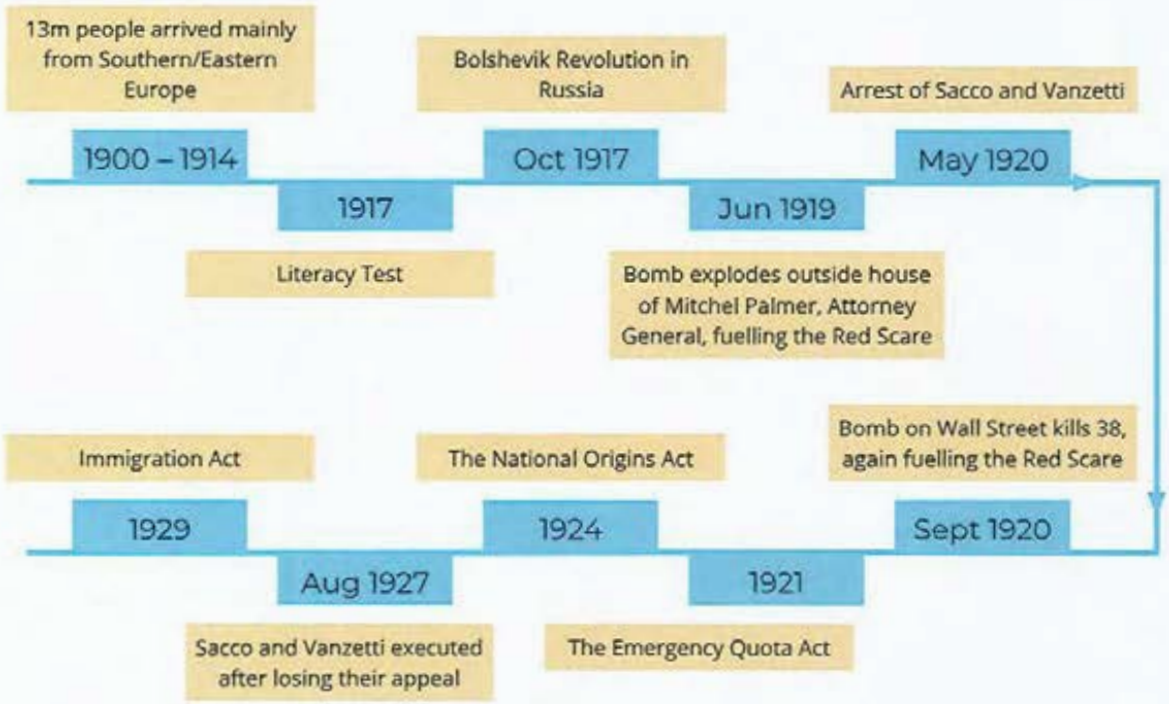
First day of school
First words
First job
Making a friend
Buying a house
Retiring
Getting married
Having a child

History

Knowledge Organiser : The Development of the USA (Unit 2)

Key Question 1 : Why did immigration become such a major issue in American society?

Timeline of events



Key words

Melting Pot	people from different countries 'blending' together
Open Door Policy	accepting immigrants from various countries
Push factors	reasons people want to leave their own countries
Pull factors	factors that attracted people to the USA
Ellis Island	70% of immigrants arrived at Ellis Island near New York
WASP	white Anglo-Saxon Protestant
Red Scare	concern regarding the spread of communist and socialist ideas
Xenophobia	dislike of, or prejudice against people from other countries.
Communism	system where property is owned by community
Palmer Raids	series of arrests of thousands of suspected Communists

The Red Scare

- Many Americans were frightened by the Communist Revolution that had happened in Russia in October 1917.
- Many Americans feared that communist and anarchist ideas would spread. They viewed immigrants with increasing suspicion and became increasingly xenophobic.
- There were over 3,000 cases of industrial strikes in 1919, including the Boston Police force.
- Feelings of anger and animosity arose towards communists and many Americans believed that some of the events of 1919 and 1920 were linked to communism.
- In September 1920, a bomb exploded on Wall Street killing 38 people, and another bomb destroyed the front of the Attorney General, A. Mitchell Palmer's house.
- These events gave rise to the Red Scare and fear that communism was a real danger that threatened the American way of life.

The Palmer Raids

- United States Attorney General, A. Mitchell Palmer organised attacks against left wing organisations. Palmer spread rumours about the **Red Scare** saying that there were around 150,000 communists living in the country (0.1 per cent of the population).
- As many as 6,000 were arrested and held in a prison without a hearing and hundreds were deported. The Palmer Raids were a response to imaginary threats. Eventually they were released and the Red Scare receded.

Knowledge Organiser : The Development of the USA (Unit 2)

Key Question 1 : Why did immigration become such a major issue in American society?

Melting Pot

- The **Open Door policy** hoped America would be a **melting pot** and the immigrants would be workers that would make the country richer. By 1919, more than 40 million people had arrived.
- The aim of the Open Door policy was to make immigration as easy as possible. There was a mixture of people living in America during this period such as the early immigrants, Native Americans, Black Americans, Eastern and southern Europeans, Hispanics and Asian people.
- A combination of **push and pull** factors made people immigrate to the USA. The push factors made people want to leave their own countries, and the pull factors attracted them to the USA. For example; escaping from poverty in their own country, escaping from political and economic persecution, a promise of religious tolerance and a chance to practice their faith safely, a plentiful supply of land and the hope of owning property, creating a better life, a spirit of adventure, going to a country of opportunity and equal opportunity.
- Most of the immigrants travelled by sea, and more than 70 per cent arrived on Ellis Island near New York. During the busiest periods, as many as 5,000 people a day arrived there. Most were young - in 1900 the average age was 24. The first view the immigrants saw as they arrived in America on their way to Ellis Island was the Statue of Liberty.

Important concept

The notion of the 'melting pot' and the 'open door' had served is purpose once the American economy was the strongest in the world. After that, a combination of the Red Scare and immigrants arriving from poorer parts of the world meant that the open door began to close.

Restricting Entry

- With the number of immigrants increasing, some Americans began to question the government's Open Door policy.
- Immigrants had tended to come from northern and western Europe and were White Anglo Saxon Protestants (WASPs). Between 1900 and 1914, 13 million arrived, mainly from southern and eastern Europe – Italy, Austria-Hungary, Russia, Western Poland and Greece.
- People started feeling angry towards these 'new' immigrants because they were often poor, illiterate and many were Roman Catholics or Jews, therefore from a different cultural and religious background.
- The fear of communism spread following the Bolshevik revolution in 1917 which led to the Red Scare.
- As a result, the US Congress passed laws to restrict immigration and each law in turn was more severe than the previous one.
- **Literacy Test, 1917** – a series of reading and writing tests. Many of the poorer immigrants had received no education and therefore failed the tests and were refused entry.
- **The Emergency Quota Act, 1921** - restricted the number of immigrants to 357,000 per year, and also set down a quota - only 3 per cent of the total population of any overseas group already in the USA in 1910 could come in after 1921.
- **The National Origins Act, 1924 –** This law cut the quota of immigrants to 2 per cent of its population in the USA in 1890.
- **Immigration Act, 1929** – This made the quotas of the 1924 act permanent and restricted immigration to 150,000 per year.

Sacco and Vanzetti

- In May 1920, two Italian immigrants, Sacco and Vanzetti, were arrested for armed robbery of a shoe factory, during which two people were killed.
- They had radical anti-government pamphlets in the car when they were arrested and both owned guns. They could not indisputably prove where they had been on the day of the murders.
- From the beginning, public opinion was against them because of their political ideas and because they were immigrants.
- Although 61 witnesses said they had seen them, the defence had 107 witnesses alleging that they had seen them somewhere else when the crime was committed.
- During the court case in May 1921, Judge Webster Thayer was rather openly prejudiced against the two men. They were found guilty.
- Although a man named Celestino Madeiros later admitted that he had committed the crime, Sacco and Vanzetti lost their appeal.
- In August 1927, they were both executed by electrocution in Charlestown prison.
- This case highlighted the attitudes and discrimination immigrants experienced.

Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 2 : Was America a country of religious and racial intolerance?

wjec cbac

Timeline of events

- **1909** – NAACP formed by William du Bois
- **1915** – Revival of KKK following release of film *Birth of a Nation*
- **1916-20** – Over 1m black people went north in the Great Migration
- **1919** – Race riots in 20 US cities
- **1921** – KKK has over 100,000 members
- **Mid 1920s** – KKK at its strongest with over 5 million members
- **Jul 1925** – The Monkey Trial
- **1925** – David Stephenson, a KKK Grand Dragon, was found guilty of causing serious injuries to a woman on a train in Chicago
- **1928** – KKK membership down to just a few hundred thousand

Key words

Bible Belt	a religious area in the southern states of the USA
Evolution	scientific theory of how humans evolved
Rope Law	members of the Ku Klux Klan killed black people by hanging them without trial (lynching) and often took the law into their own hands
Jim Crow Laws	the names of the laws that introduced segregation in the south (the laws which kept black and white people apart)
Segregation	laws separating black and white people in public places in society
WASP	refers to the group known as: White Anglo Saxon Protestants

Important concept

The 'nation of contrasts' is clear within the issues of religion and race. On the one hand, fundamentalism and racism point that America was a nation of intolerance at this time. But organisations such as the American Civil Liberties Union and National Association for the Advancement of Colored People show that determination for a more progressive society was strong. Perhaps geography, age and class are where the contrast were.

The Monkey Trial

- Bible Belt Christian fundamentalists organised a campaign against the teaching of Darwin's theory of evolution in American schools.
- The campaign was a success as in 1925, a new law was passed in six states, including Tennessee, prohibiting the teaching of Charles Darwin's **evolution**.
- The American Civil Liberties Union (ACLU) were outraged by the ban. One Biology teacher – Johnny Scopes, from Dayton Tennessee - ignored the new law and taught his pupils Darwin's ideas, he was taken to court.
- The court case received a great deal of publicity in the media. Clarence Darrow was Scopes' lawyer, while the lawyer for the Fundamentalists was William Jennings Bryan. The case was known informally as the Monkey Trial.
- Scopes was found guilty of teaching the theory of evolution to his pupils and was fined $100 (approximately $1,400 in today's money).
- By 1929, six states in the Bible Belt, in the most southern parts of the country, had passed laws against teaching the theory of evolution. It was now possible that some children in America would grow up not knowing anything about this theory.
- More importantly the case showed a different side to America from the one portrayed in the so called **Jazz Age**.

Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 2 : Was America a country of religious and racial intolerance?

Who were the KKK?

- The Ku Klux Klan were an American White supremist hate group in the southern states in 1865 at the end of the American Civil War. The group believed that white people were better and wanted to see black people remain as slaves.
- The movement was revived in 1915 by William J Simmons following the release of the film *Birth of a Nation*. It grew quickly and by 1921 it had over 100,000 members. By the mid 1920s the movement was at its strongest with 5 million members.
- Only **WASPs** could join the Klan. The KKK discriminated against black people, Roman Catholics, Jews and Mexicans.
- Members of the Klan often killed black people by **hanging without trial** (lynching) – **Rope Law**. Sometimes the local police could not protect the victims and even took part in the killings.
- Those responsible were not brought to justice very often, and Klan members knew that their friends in the courts would not find them guilty.
- It was difficult for the government to change the attitudes of white people in the south and politicians were scared of losing votes.
- In 1925, David Stephenson, the Klan Indiana Grand Dragon, was found guilty of causing serious injuries to a woman on a train in Chicago.
- The membership of the Klan fell to a few hundred thousand by 1928.

Black Communities and other racial minorities

- As a result perhaps of high levels of immigration, at the beginning of the 20th century, there was more racial prejudice towards those who were not considered 'real' Americans.
- In 1900, there were 12 million black people living in the USA and 75 per cent of them lived in the south.
- Although slavery had been abolished in the 1860s, white people controlled southern states using **Jim Crow laws** to **segregate** the black population and discriminate against them. These laws prevented them from voting, gaining a good education and decent jobs.
- The majority of black Americans were not able to profit from the flourishing economy of the 1920s and early 1930s. This was especially true in the southern states where the economy was based on agriculture and crop prices fell throughout the 1920s and early 1930s.
- Industrial development had created a demand for manufactured goods and jobs were created in the industrial cities of the north.
- Between 1916-1920 almost 1 million black people went north in the Great Migration to cities like Chicago, New York and Detroit in search of work. Although there were no Jim Crow laws, black Americans were still treated as second class citizens in the northern cities. Due to low wages they lived in poor neighbourhoods, like Harlem in New York, called **ghettos**.
- In 1919, there were riots in 20 US cities as racial tension between black and white people increased. This was one of the factors that sparked the increase in the membership of the Ku Klux Klan (KKK).

The response of the black people

- Various groups fought for the cause of black people during this period. By 1900, a former slave, **Booker T Washington** opened the **Tuskegee Institute** in Alabama to provide education and training for black people, believing that they had to make economic progress before making political progress.
- The **Harlem Renaissance** in New York developed talented black Americans such as singers, musicians, artists and authors.
- **The National Association for the Advancement of Coloured People (NAACP)**, established in 1909 by **William du Bois**. The NAACP focussed on opposing racism and segregation through legal methods and holding non-violent activities, such as marches and protests.
- **The Universal Negro Improvement Association (UNIA)**, established in 1914 by **Marcus Garvey**. UNIA members were more militant. Garvey encouraged black people to establish their own businesses and to employ black people only. He also encouraged them to return to their homeland, Africa. Black is beautiful was his most famous slogan.
- William du Bois and Marcus Garvey both tried to improve conditions for black people, but their methods were so different that they became sworn enemies.

Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 3 : Was the 1920s a decade of organised crime and corruption?

wjec cbac

Timeline of events

- **16 Jan 1920** – Eighteenth Amendment to the Constitution
- **Mar 1921** – Warren G. Harding becomes President
- **1921** – John F. Kramer appointed as Prohibition Commissioner
- **1924** – Congress begins investigating corruption in the Harding administration
- **1925** – Up to 100,000 illegal bars operating in New York alone
- **1927** – Albert Fall imprisoned for Teapot Dome Scandal
- **Feb 1929** – Saint Valentines' Day Massacre
- **1927-1931** – 227 gangland murders went unpunished
- **1931** – Capone sent to prison for tax evasion

Key words

Prohibition	period of American history where selling alcohol was outlawed
Anti-Saloon League	organisation that pressured for prohibition
Speakeasies	illegal bars
Bootleggers	people who continued to distribute alcohol
Moonshine	homemade, illegal alcohol
Organised crime	organised illegal activities
Corruption	dishonest or fraudulent conduct by those in power, typically involving bribery
Teapot Dome	this was the biggest scandal during Harding's term, politicians leased the government's land to oil companies for money.

Important concept

Behind the glamour and wealth of the 1920s lay an underbelly of corruption. Had the laissez-faire approach towards the economy seeped into a laissez-faire attitude to other aspects of society? Certainly corruption was not dealt with efficiently during this period, especially when it was generating huge sums of money.

Government Corruption

- In 1920 Warren Harding was elected President of the USA. He gained a reputation as a weak manager for giving important and influential posts to friends and peers who were members of his cabinet. The Ohio Gang was a group of politicians who were in positions of power during Harding's administration. They betrayed the public's trust in several scandals.
- At the beginning of 1924, soon after Harding's death, Congress began investigating reports of corruption and bribery during Harding's administration. Several members of the Gang were charged and imprisoned for corruption.
- Charles R. Forbes was found guilty of fraud, conspiracy and bribery in the **Veterans' Bureau**.
- In 1927 Albert B. Fall, who Harding had appointed secretary of the interior, was found guilty, fined $100,000 and imprisoned for his part in the **Teapot Dome scandal** and the **Elk-Hills oil** fund scandal.
- Harry M. Daugherty, who had been Attorney General, was found guilty of selling alcohol illegally and giving licences and pardons to offenders.

Organised Crime

- In every city, gangsters would try to control the supply of alcohol. Groups would fight each other for control of specific areas.
- **Dion O'Bannion** controlled the bootleg business in the south of Chicago and **John Torrio** in the north. **Al Capone** was originally part of Torrio's gang before he took over.
- The mayor of Chicago, 'Big' **Bill Thompson**, was under the influence of Torrio's gang and encouraged others to turn a blind eye.
- Although Chicago was most notorious, **Dutch Schultz** was in control in New York and **Chester La Mare** controlled Detroit.
- The **Saint Valentine's Day Massacre** of 1929 was the climax of the gangster wars between Bugs Moran and Al Capone. Capone's men murdered 7 of Bugs Moran's gang while dressed as police officers. It seemed like things had gone too far.
- The authorities could not find enough evidence to convict Al Capone. He was eventually found guilty of tax evasion in 1931 and sent to prison.

Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 3 : Was the 1920s a decade of organised crime and corruption?

The Age of Prohibition

- A number of organisations, collectively known as 'the dries', for example, the **Anti-Saloon League** and the **Women's Christian Temperance Union**, and some religious groups such as the Methodists and the Baptists put pressure on the government to prohibit the production and sale of alcohol. They claimed that alcohol was the work of the devil and that it disobeyed Christianity. They said it increased crime, days off work, wife-beating and child abuse.
- They were successful as on 16 January 1920 the **Eighteenth Amendment** to the Constitution came into force, making it illegal to sell alcohol in the USA.
- The purpose of the **Volstead Act** of 1919 was to implement the Eighteenth Amendment and to set punishments for breaking the new law.
- However, it was difficult to enforce the Volstead Act. Demand for alcohol remained high so gangsters sold it illegally and made significant money from doing so. As a result, gangs fought to control this, and other trades, such as protection rackets and gambling dens. As gangsters started selling alcohol, **organised crime** started.
- The people who sold alcohol were called **Bootleggers**, e.g. Al Capone.
- **Rum-runners** smuggled alcohol into the USA from Canada and Mexico.
- **Moonshiners** distilled their own alcohol at home.
- Illegal drinking bars called **speakeasies** opened and by 1925 there were over 100,000 of these in New York alone.
- There was more corruption as gangsters bribed police officers, judges and politicians to turn a blind eye to their illegal activities.
- The legal system could not cope and so the government tried to solve the problem by appointing a Prohibition Commissioner, John F. Kramer, in 1921. Before long he established a cohort of 3,000 agents.
- In 1924 the Investigation Bureau (later called the FBI) was established under J. Edgar Hoover. His men had tougher methods.
- Attempts to try to enforce the Prohibition Act failed. There were not enough agents and they were on low salaries and easy to bribe. It was impossible to persuade drinkers to change a habit of a lifetime.

Government Corruption

- In 1920 Warren Harding was elected President of the USA. He gained a reputation as a weak manager for giving important and influential posts to friends and peers who were members of his cabinet. The Ohio Gang was a group of politicians who were in positions of power during Harding's administration. They betrayed the public's trust in several scandals.
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Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 4 : What were the causes of economic boom?

Timeline of events

Important concept

The economic boom was caused by a number of factors combining simultaneously. Some of those factors were based on luck (plentiful natural resources, European contras stalling) but some were down to innovative thinking and decision making (mass production and protectionism). However, some felt this boom was not built on stable foundations.

Key words

Assembly line	a series of workers and machines in a factory by which a succession of identical items are progressively assembled
Boom	a period of prosperity in the economy, the economy was doing well and many people benefited
Fordney McCumber Tariff Act	taxes were imposed on goods from abroad in order to encourage people to buy American goods, this is an example of protectionism
Hire purchase and credit	a way of borrowing money, the ability to get the goods and pay back over a period of time
Laissez-faire	translated as 'leave well alone' or 'let the people choose', a government policy of interfering as little as possible in the economy
Mass production	a method of producing goods on a large scale and quickly
Rugged individualism	personal liberty and free competition and the idea that people should be self-reliant
Trade union	organised associations that protect the interests of workers when negotiating hours, wages, conditions, etc. may also be known as labour unions

America's assets and development

- The USA had a supply of natural resources; timber, iron, coal, minerals, oil and land. Immigrants provided a cheap work force.
- European economies suffered during WWI but the USA experienced significant growth. US banks loaned money to Europe and businesses sold much needed goods. From 1922, the USA experienced an unprecedented economic boom.
- During the 1920s the electricity industry experienced a huge **boom**. By 1929 the majority of houses in America had electricity and 70 per cent of them used it for lighting purposes.
- Electrical power drove machinery in factories making it possible to introduce **mass production** to a number of factories.
- The car industry is the best example of mass production. **Henry Ford** was a pioneer, producing affordable cars for the people of America. As he produced more and more cars, he could reduce his prices. In 1908, the price of a car was $850. By 1925 the price of a car was around $290.
- By 1929, Americans owned 23 million cars. Workers earned good wages ($5 per day), thousands of jobs were created, roads and petrol stations were built, as were hotels and restaurants.
- Systems of **hire-purchase and credit** were introduced. This meant that a person could buy something by paying for it on a monthly basis.
- **Advertisements** were placed on roadsides, on the radio, in newspapers and in cinemas and chain stores appeared for the first time, e.g. J P Penney. Catalogue shopping also became fashionable as it was a convenient way of buying goods.

Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 4 : What were the causes of economic boom?

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New consumer society

- The biggest economic growth was in new industries such as chemicals, electrical goods and cars. The introduction of electricity in the home triggered a huge expansion in the household electrical goods industry.
- In 1919, 60,000 radio sets had been sold, but in 1929, 10 million were sold. There was a similar growth in sales of telephone equipment, from 10 million in 1915 to 20 million in 1930.
- America's building industry was busier than it had ever been during the 1920s. This was partly due to the demand for new factories and new office buildings for banking, insurance and advertising companies. This was the age of the **skyscraper** – companies wanted to demonstrate their power and importance by building the tallest and grandest offices.
- It was Ford's idea to build a car on an electrical **assembly line**. The car would move slowly along the line with each worker only doing one specific task. In this way, it would be possible to build a Ford Model T car in an hour and a half instead of 13.5 hours. By the mid-1920s, 7,500 cars were being produced daily - one car every 10 seconds!
- The car changed America in every way. It led to the construction of new roads and **suburbs**. People's way of life was changing in a big way. The development of the car industry sparked a growth in other industries, e.g. cars used 90 per cent of America's petrol, as well as 80 per cent of the country's rubber and 75 per cent of its glass.

Attitudes and policies of Republican presidents

- There were three Republican presidents during the 1920s. The policy of these Republican presidents was that government should leave the economy alone – they adopted a **laissez-faire** (free market) policy. This meant that big businesses were free to expand without being held back by the government.
- **Warren Harding (1921-23)** promised a return to normality. He reduced taxes to give businesses more money to grow, and in 1922, he introduced the **Fordney-McCumber Tariff Act** which imposed a tax on goods from foreign countries. This made foreign goods more expensive than domestic goods, and so this encouraged Americans to buy American goods only. The name for this policy was **protectionism**.
- 'Business is America's business,' said **Calvin Coolidge (1923-29)**. Although he didn't do much (his nickname was 'Silent Cal'), Americans believed he was a good president because of the strength of the economy. He had a huge respect for businessmen and adhered to the **laissez-faire** policy.
- **Herbert Hoover (1929-32)** became president in 1929 following his promise to put a chicken in every cooking pot, and a car in every garage. Hoover believed in laissez-faire, but also in **rugged individualism**. This meant that people should not depend on the government for help - they should solve their own problems by working harder. Hoover lost the next presidential election in 1932 because of this viewpoint - it was too severe - especially after the Wall Street Crash and Depression.

How did this prosperity affect American society?

- Farmers were producing too many crops causing prices to fall and farmers borrow money from the banks. Eventually many had to sell their farms and go looking for work
- By 1928 half of all USA farmers were living in poverty. 600,000 farmers lost their farms in 1924 alone.
- Black people suffered, especially in the southern states, where the majority worked on small farms as labourers or **sharecroppers** and lived in real poverty.
- Segregation, due to **Jim Crow laws**, and the presence of the **KKK** in the southern states, made life even harder and many black people migrated to northern cities like New York, Detroit and Chicago to find work in the new industries. Conditions remained hard for the majority of those who migrated north as they lived in ghettos and were often "the last hired and first to be fired".
- The unemployment rate amongst new immigrants remained high. Many were willing to work in any kind of job for very low wages.
- The traditional industries failed to respond to the new mass production. Also, following a reduction in the powers of **Labour Unions**, the workers were not in a position to be able to claim better wages and working conditions in the old industries.
- Coal prices fell and thousands had to be made redundant. **Ship building** was another major industry that had to make thousands redundant.
- New synthetic fibres were being developed, such as rayon. This became a very popular substitute to cotton. It was possible to produce rayon in factories where fewer workers were needed. Many textile mills were forced to close down.

Knowledge Organiser : The Development of the USA (Unit 2)

Key Question 5 : What factors led to the end of prosperity in 1929?

Timeline of events

1925 – Value of stock market was $27 billion

1926 – House prices began to fall

1929 – Value of stock market was $87 billion

Sept 1929 – Financial experts warned the economy was slowing down

24th Oct 1929 – Black Thursday – 12.8m shares sold

29th Oct 1920 – 16m shares sold at very low prices

End of 1929 – 2.5m Americans out of work

Important concept

Just as the boom was caused by a number of factors combining, so too was the crash, with some of causes of the boom ended up leading to the crash, over production of goods and rising stock markets being an example. The long term causes were always there, yet only when people began to realise the precarious nature of the economy did the market crash at the end of the peirod. And what a crash it was!

Key words

Black Thursday	24 October 1929 - the start of the Wall Street Crash, a 'black' day economically.
Consumer Goods	goods that are used as an end in themselves and not for the production of other goods, e.g. vacuum cleaner, fridge and radio
Great Depression	a prolonged economic downturn, beginning after the Wall Street Crash, that affected the whole world
On the margin	people borrowing money in order to be able to buy shares
Shares	financial stakes in a company or business
The stock market	a centre where shares are bought and sold
Wall Street crash	the economic downturn on the American stock market in 1929

How did this prosperity affect American society?

- A number of financial experts warned that the American economy was slowing down and in September 1929 some investors started selling **shares** in large numbers. Many people started feeling nervous and investors went into panic and rushed to sell their shares.
- On 24 October 1929, now referred to as **Black Thursday**, 12.8 million shares were sold. Thousands of people saw their fortune, or any money they had in the bank, disappear. On 29 October 1929, 16 million shares were sold at very low prices. **The Stock Market** in New York had collapsed.
- **The Roaring Twenties** came to a sudden end. Investors lost their money in the Crash and could not pay their debts. Many banks closed, ordinary people lost their savings and people lost all hope for the future.
- People could no longer buy consumer goods like cars and clothes. As a result, workers were made redundant, other workers' wages were cut and unemployment rose to very high levels. By the end of 1929, 2.5 million Americans were out of work.
- This was the start of the **Great Depression** of the 1930s.

Knowledge Organiser : The Development of the USA (Unit 2)

Key Question 5 : What factors led to the end of prosperity in 1929?

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Long and short term causes

Longer term causes

- **Overproduction in agriculture** - as farming techniques improved and demand from Europe dropped, farmers were producing too much food. This caused a fall in prices, and drop in profits, so thousands of farmers had to sell their farms.
- **Overproduction in industry/falling demand for goods** - by the end of the 1920s there were too many **consumer goods** unsold in the USA. Not everyone in America was rich. Those that could afford to buy cars, refrigerators etc had already bought one, but approximately 60 per cent of Americans could not. The supply was bigger than the demand.
- **Buying on credit** - some of the country's poorer people bought goods on credit and as a result, a great deal of them owed money to shops and large companies. Many of these companies subsequently went into financial difficulties as the poor failed to pay their debts.
- **Commerce** - by the end of the 1920s, America tried to sell its surplus goods to European countries. But, in response to the **Fordney-McCumber Tariff Act**, European countries had imposed a tax on American goods. So American goods were too expensive to buy in Europe and, as a result, there wasn't much trade between America and European countries.
- **Property prices** - house prices increased a great deal in the early 1920s. But after 1926, house prices fell leaving a number of Americans owning houses that were worth less money than what they had paid (and borrowed from the bank) for it. This is called negative equity.
- **Too many small banks** - due to **laissez-faire** policies banks were not tightly regulated meaning there were only a few rules to follow to run a bank. There were many small banks that did not have the financial resources to cope with the rush for money when the **Wall Street Crash** happened. A number of banks had to close leaving thousands of customers with no money and no confidence in the banking system.

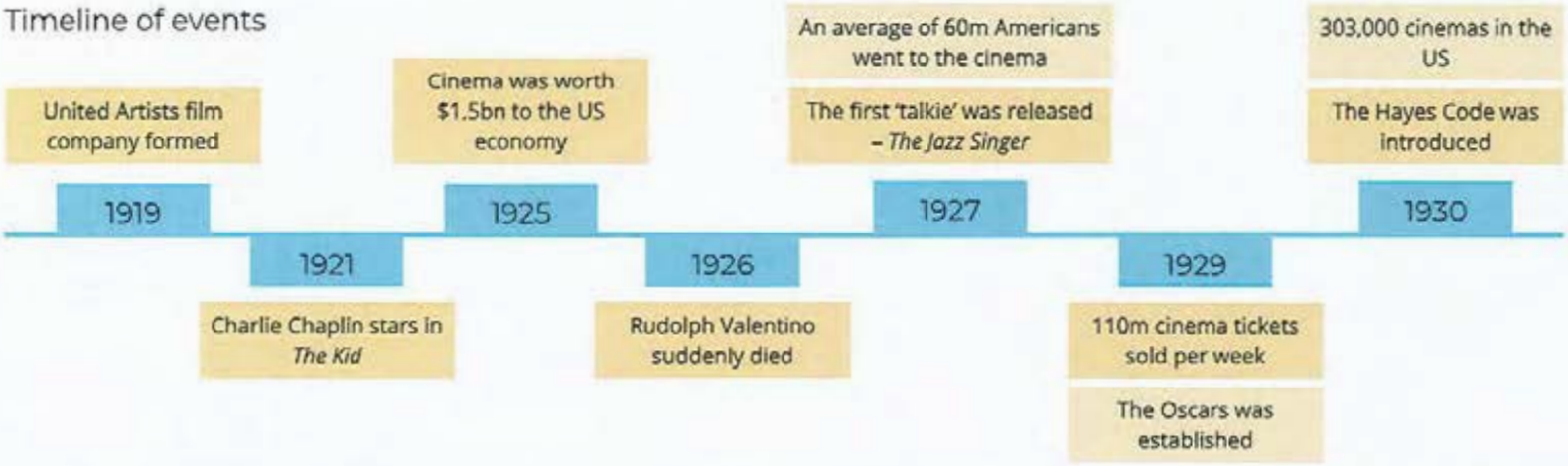
Short term reasons

- **The Stock Market** - throughout the 1920s the prices of shares had increased to unrealistic levels. People continued to buy shares as they were making huge profits from them. By 1929 over 20 million people had invested in shares. The value of the stock market had more than tripled from $27 billion in 1925 to $87 billion in 1929.
- **Over speculation** - as it was easy to borrow money, many people would buy shares **on the margin** - which meant borrowing money to buy shares and then holding on to them until they were worth more than the debt. Approximately 75 per cent of the purchase price of shares was borrowed in 1929. Then they would sell the shares, pay off the original debt and make a profit.
- **Loss of confidence and a sudden fall in prices** - the Wall Street Crash.

KNOWLEDGE ORGANISER: Austerity, Affluence, Discontent UK 1951-1979 (Unit 1)

Key Question 6 : How did popular entertainment develop during this period?

Timeline of events



Important concept

Perhaps the term 'roaring twenties' best applies to popular entertainment of the time. The seemingly strong economy meant that the glamour of cinema could be realised by many through fashion, parties, jazz clubs and dancing. This combination of greater wealth, new fashion, new music and an exciting 'speakeasy' culture certainly changed the cultural landscape for many.

Cinema

- The cinema was the most exciting development of the time. It influenced people in a number of ways - both in terms of fashion and the way in which people behaved.
- Every small town had a cinema and many Americans, with increased leisure time and disposable income due to changes in working patterns, could go several times a week as it was reasonably cheap.
- During the early 1920s, every movie was silent. Cinemas used to employ musicians to play the piano or electric organ during the films.
- **Hollywood** was the perfect place for outdoor filming as it was located near Los Angeles in the heart of a part of America that had a very dry and sunny climate. It also had a variety of landscapes such as mountains and coastline.
- The major movie companies in Hollywood during this period were Paramount, Warner Bros and MGM. By **marketing** their range of different movies extensively – cowboy movies, detective stories, comedies and romantic movies – they succeeded in generating a huge interest in the movie stars.
- The cinemas were luxurious and pleasant places in which Americans could socialise, and they could get to them easily in their cars.
- The stars also contributed to the increase in the popularity of the cinema. The Italian, Rudolph Valentino, was a very popular actor and his role in *The Sheikh* (1921) made him a sex symbol. He was a star and appeared in many of the early films, earning $1 million. When he died suddenly in 1926, his fans were grief-stricken and a number of women committed suicide.
- Charlie Chaplin was a very influential figure and was one of the founders of the United Artists film company with Mary Pickford, Douglas Fairbanks and D W Griffith in 1919. He was also a famous actor, starring in silent films such as *The Tramp* (1915) and *The Kid* (1921). He was instantly recognisable with his tramp-like image and preferred the craft of the silent movie rather than the **talkies** that came later.
- Arguably women like Clara Bow, the original 'It Girl', were the Hollywood stars that had the most influence on society at the time. She played the part of a **flapper** in a number of films, and influenced many young girls to behave in the same way. She was the most popular actress in 1928 and 1929.
- Actors such as Gloria Swanson and Buster Keaton were also influential.

Key words

Flapper	the term used to describe a liberated, young, fashionable woman in 1920s America whose behaviour would have been considered unconventional
Hollywood	a centre in California for film creation and production
Silent Films	films with no sound
Talkies	films with sound
The Roaring Twenties	a period during the 1920s when people enjoyed cultural and economic developments
Flapper	the term used to describe a liberated, young, fashionable woman in 1920s America whose behaviour would have been considered unconventional
Hollywood	a centre in California for film creation and production

KNOWLEDGE ORGANISER: Austerity, Affluence, Discontent UK 1951-1979 (Unit 1)

Key Question 6: How did popular entertainment develop during this period?

The 'Talkies'

- In 1927 an average of 60 million Americans went to the cinema on a weekly basis. This increased to over 100 million by 1929.
- The increase was partly due to the development of audio films in 1927, with Al Jolson starring in *The Jazz Singer* (1927) marking the beginning of the era of the talkies. The increase was also down to Hollywood's success in producing 500 films per year.
- The 1920s was also the era of the cartoon, with *Felix the Cat* (1925) and *Mickey Mouse* (1928) gaining popularity among people of all ages.
- In 1929 The Oscars were established to honour film stars.
- But not every American was happy with the new cinemas.
- The Hays Code was drawn up in 1930. In accordance with this code, scenes of nudity and dancing of a sexual nature were prohibited, a kiss could last for no more than seven metres of film, adultery was not to be portrayed in a good light, clergymen were not to be ridiculed and films should condemn killing.
- Some people, especially religious people, were very concerned about a lack of morals and the influence of the films on young people.

Popular music and culture

- Some referred to the 1920s as **The Roaring Twenties**. People had more money to spend and more time to listen to the music of the time.
- Jazz originated from the southern states of the USA, from the blues and ragtime music of the black people. Jazz was much more rhythmic and lively, and it was easy to dance to. This led to young people smoking, drinking and, according to some, behaving indecently. College students, especially, were willing to challenge their parents' values and lifestyle.
- A number of black musicians became very famous, including Louis Armstrong and Bessie Smith, The Empress of the Blues. But racism was still a major problem during this period. When Bessie Smith had a serious car crash in 1937, she was taken to a hospital that was for white people only. The hospital refused to treat her because she was black and she died.
- Listening to the radio was arguably the most popular form of entertainment. Mass production, the spread of electricity and buying on hire-purchase meant that approximately 50 million people, that's 40 per cent of the population, had a radio set by the end of the 1920s.
- Also, as the popularity of jazz increased, more people bought radios, records and gramophones so that they could listen to jazz any time they wanted to.
- People could also listen to their favourite team taking part in sports matches, The radio was able to grow and succeed because companies paid to advertise their products on the medium.
- More daring dances became popular after World War One. These resulted from swing dancing that developed alongside jazz music, and so black people had a huge influence.
- Dances such as the **Charleston** and the **Black Bottom** became very popular with young people.
- Because many of these new dances were sexually suggestive, parents were shocked by their children's enthusiasm to dance them.
- The Lindy Hop also became a popular dance – this dance honoured **Charles Lindbergh** for crossing the Atlantic in an aeroplane in 1927. Jazz had been prohibited in a number of cities, for example New York and Detroit. So, the performances moved to the speakeasies, making the young people even more determined to rebel.

Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 7: How did the lifestyle and status of women change during this period?

Timeline of events

1920 – Nineteenth Amendment to the constitution became law giving women the right to vote.

1924 – Nellie Tayloe Ross becomes first female governor of Wyoming.

1926 – Joan Crawford stars in *Paris*. Bertha Knight becomes first mayor of an American city.

1927 – Joan Crawford stars in *The Unknown* which influenced fashion and behaviours of many young girls.

1929 – 10.6m women were working, an increase of 25% from 1920.

1930 – 15% of the Us workforce were female.

Key words

Flapper	the term used to describe a liberated, young, fashionable woman in 1920s America whose behaviour would have been considered unconventional
Chaperone	a person who would accompany and look after young women, typically on older relative
'Bob' haircut	short female haircut
National American Woman Suffrage Association (NAWSA)	group campaigning for the rights of women to vote
Anti-Flirt League	group set up to challenge the behaviour of flappers

Important concept

There's no doubt that the status of women changed during the period. Politically, in terms of the vote and greater representation, as well as socially, many women's lives were unrecognisable from those of their mothers' generation. However, this impact was not felt by all. It was certainly a time for change for the middle classes, the young and those in cities but perhaps less so for everyone else.

Changing attitudes towards women

- The general view is that attitudes towards women underwent a significant shift during the 1920s. Before the war, girls were expected to behave modestly and wear long dresses. When they went out, they had to be accompanied by an older woman or a married woman.
- It was totally unacceptable for a woman to smoke in public. Women were employed in jobs that were traditionally associated with women, e.g. servants, seamstresses, secretaries, nursing.
- During the war, women started to be employed in different types of jobs, e.g. factory work, replacing the men who had gone to fight in the war in Europe.
- Organisations such as the **National American Woman Suffrage Association** (NAWSA) had been fighting for decades to get the vote for women. As women had contributed so much to the war effort, it was difficult to refuse their demands for political equality. As a result, the **Nineteenth Amendment** to the constitution became law in 1920, giving women the right to vote. Nellie Tayloe Ross of Wyoming became the first woman to be elected governor of state in 1924.
- There was a change as far as work was concerned too, with an increase of 25 per cent in the number of women working during the 1920s. By 1929, 10.6 million women were working.
- By now, independent women of the middle classes and above had more money to spend. Because of this, advertising companies started targeting women in their campaigns to encourage them to buy their new products.

Knowledge Organiser : The Development of the USA 1910-1929 (Unit 2)

Key Question 7: How did the lifestyle and status of women change during this period?

Changing attitudes to social etiquette

- Women started to smoke in public. It became acceptable for women to drive cars and take part in energetic sports.
- The young women of the 1920s were referred to as **flappers**. Hollywood films of the period characterised them, and as a result, their behaviour and dress sense was imitated by millions around the world.
- In 1919 women's' skirts were about six inches above ground level, but by 1927 the hems of skirts were up to knee-level. Young women rebelled against the old-fashioned clothes of their mothers' era.
- The corset went out of fashion, and it became all the rage for women to cut their hair in a bob and wear a lot of make-up and jewellery.
- One famous flapper of the time was Joan Crawford. She started her career as a dancer on Broadway before moving to Hollywood to make a name for herself. She starred in films such as *Paris* (1926) and *The Unknown* (1927) in which she became famous for her flapper style. She drank, smoked, danced the Charleston and even kissed on screen. Many young girls admired and copied her style.

Influence of jazz culture

- Jazz wasn't just about the music – there was a wider cultural element associated with it.
- The Jazz clubs played a crucial role in allowing the flappers to express themselves. This is where they could smoke and dance. They also drank illegal alcohol in the speakeasies.
- Instead of dancing the waltz that was popular in the period before the war, people started to enjoy more daring dances such as the Shimmy and the Bunny Hug.
- **Petting parties** began where the flappers would kiss men in public.
- The flappers had their own slang. I have to go see a man about a dog was slang for going to buy whiskey, and a 'handcuff' or 'manacle' was an engagement or wedding ring.
- A number of the flappers' terms are still used today, e.g. 'big cheese' for an important person, 'bump off' for killing someone and 'hooch' for alcohol.
- But not every girl enjoyed the flappers' way of life. Poor women could not afford the new fashions and they didn't have the time to go out and enjoy social events. Black women could not benefit from the changing lifestyle either.
- Women in the **Bible Belt** did not adopt the new way of life. Also, many older women were outraged and some formed the Anti-Flirt Club.
- **It was the young and rich women who enjoyed the new way of life. Older people and religious people rejected the changes, and the poor people could not afford them.**

Interactive Media

R093: Health and safety

During all phases of a media production, any health and safety risks and hazards must be considered. Workers need to be mindful of hazards whether they are working at a computer, using photographic equipment or working on a film or television production.

Keywords

- Recce
- Health and safety
- Risk assessment

Location recce

A location recce is a visit to a location that might be used for photography, filming or recording. The purpose of the visit is:

- To check the safety of the site, that the site is accessible and that permission to use the site can be obtained
- Check sound issues—for example, is there any background noise such as heavy traffic
- Check lighting issues—for example, a large building may block the sun from reaching the location, additional lighting will be required
- Check facilities, such as toilets and parking areas
- Decide which shots and camera movement will work with the location

Detailed notes will be made and a series of photographs will be taken to show the potential location from all angles and times of day from reference. This provides information on the suitability of the location and helps to establish if there are any issues with safety and access that need to be incorporated into a risk assessment.

Risk assessment

Anywhere where media people work, including where crew, actors or the public will be affected, must have a risk assessment. This is a document that identifies potential risks, their likelihood, the harm associated with the risk and how each risk will be

Risk Assessment

Site Name		Risk-A number	
Project	Stay With Me – Music Video	Name	Jade Clarke
Location	Outside, school site and James' house.	Assistants	
Date Assessed			

What hazards have been identified?	What are the potential injuries or damage? Severity (1, 2 or 3)	What measures have been taken to prevent injury or damage?	Number of people at risk	What additional measures or actions are required?	Who is responsible for action?	R / A / G
Using a longboard	2, falling off board	Using someone with experience to use this prop	1		Daniel, the main character	

QR codes

R093: Health and safety

During all phases of a media production, any health and safety risks and hazards must be considered. Workers need to be mindful of hazards whether they are working at a computer, using photographic equipment or working on a film or television production.

Examples of risks in television or film production

Moving objects

There are many ways that objects move to create hazards, for example a camera moving through the air or a car chase scene.

How to reduce risk

Get permission to close roads or walkways, make sure operators of cranes are trained and certified

Electrocution

If devices fail or are incorrectly wired, they may create a risk of electrocution.

How to reduce risk

Maintain equipment, only use qualified and trained crew, protect cables from being cut or damaged

Trip hazards

Equipment, such as lighting, will have many electric cables. A track for a dolly camera will also cause a tripping hazard.

How to reduce risk

Cable protectors, mats and ramps over cables, cables will be taped down with gaffer tape (thick strong tape)

Heavy equipment

Care needs to be taken when transporting heavy equipment such as lighting or cameras.

How to reduce risk

Equipment is transported in flight cases that may have wheels, staff are trained in how to safely move equipment

Examples of risks when using computers

Neck/back problems

Having displays at incorrect heights or sitting with bad posture may lead to serious back or neck problems.

How to reduce risk

Have display directly in front of the chair, use a fully adjustable chair, have the display at eye level.

Eye strain

Looking at a display for a long time may result in headaches and aching eyes

How to reduce risk

Look away every 20 minutes, take longer breaks every 2 hours, use the computer in a well lit room.

Keywords

- Health and Safety Act
- Hazard
- Equipment
- Halm
- Reduce
- Risk

QR codes

R093: How style, content and layout are linked to the purpose

A media product usually has a purpose or reason for its development. Some media products will have more than one purpose. The purpose is closely linked to the type of media product.

Advertise

There are a wide range of media products with this purpose including print adverts such as billboards, posters and leaflets, TV/radio advertising as well as online banner advertising on websites and social media.

Educate

Many media products aim to educate. Textbooks combine text, images and photos and are suited to independent study and revision. eLearning products are able to add interaction and video to the learning experience. Apps and games are able to teach through play.

Entertain

Most people spend a large amount of time each day being entertained by media products including TV shows, films, radio broadcasts, books, apps and computer games.

Inform

Posters are often used to display information such as your location on a map in a theme park. Information leaflets on health or financial products also help to inform.

Influence

Media products often aim to influence behaviour. This may be used as part of advertising. It may also be used by governments or schools to promote healthy or safe behaviours.

Keywords

- Purpose
- Advertise
- Entertain
- Educate
- Inform
- Influence

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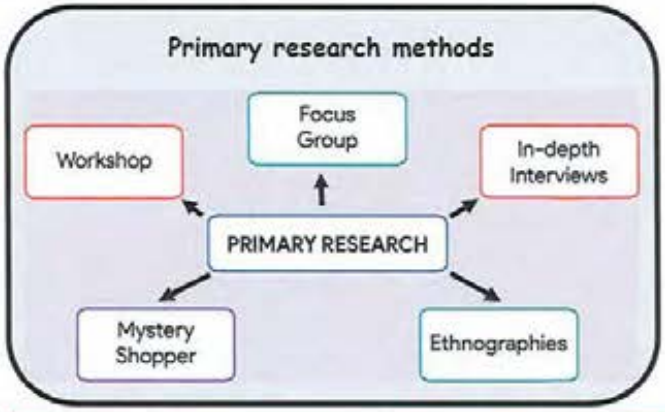
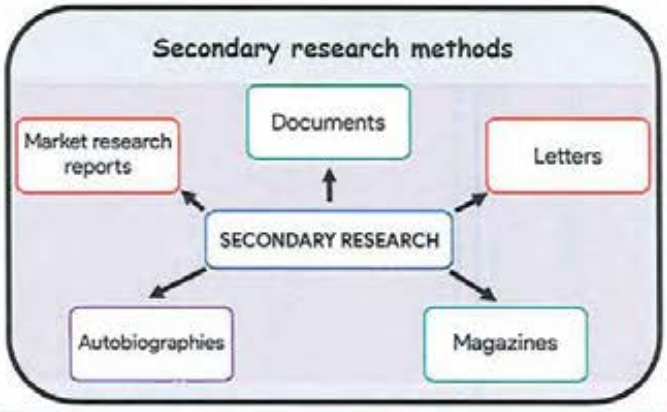
QR codes

R093: Research methods

Research methods are strategies or techniques in the collection of data or evidence to get a better understanding of a topic.





Primary research methods

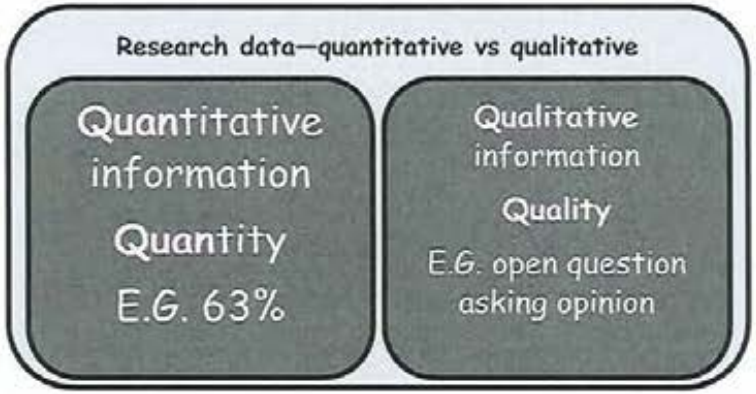
Primary research is data or research that is collected directly from customers surveys or focus groups.

Secondary research methods

Secondary research is the use of data and information that already exists. For instance, when making a documentary, books, archive material, recordings and footage may be used.

Keywords

- Primary research
- Secondary research
- Surveys
- Focus groups
- Quantitative
- Qualitative
- Interviews
- Questionnaires



QR codes

Music

JS Bach: Badinerie

Form and structure:

The piece is in **Binary** form (**AB**).

Section A is 16 bars long.

Section B is 24 bars long.

Each section is repeated (**AABB**).

Harmony:

Diatonic; mixture of root position and inverted chords; uses V7 chords and a Neapolitan sixth chord.

Imperfect and perfect cadences are clearly presented throughout. Both sections end with a **perfect cadence**.

Dynamics:

Mostly ***forte*** throughout, although no markings appear on the score.

On some recordings, **terraced dynamics** (sudden changes) are included.

Metre and rhythm:

Simple duple time – 2/4 – with two crotchet beats in every bar.

Uses **ostinato rhythms** which form the basis of two short musical ideas (X and Y), consisting almost totally of **quavers and semi-quavers**.

Background details:

Composed by **Johann Sebastian Bach** (1685 – 1750), one of the main composers of the **Baroque** era in music.

Badinerie is the last of seven movements from a larger piece called **Orchestral Suite No.2**.

The piece was composed between **1738-1739**.

Instrumentation:

Flute, string orchestra and harpsichord.

The score has five parts (flute, violin 1, violin 2, viola and cello). The harpsichord player reads from the cello line and plays the notes with their left hand whilst filling in the chords with their right hand.

Tonality:

Section A begins in **B minor** (tonic) and ends in **F♯ minor** (dominant minor).

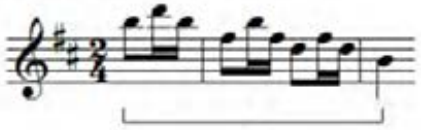
Section B begins in **F♯ minor** (dominant minor) and ends in **B minor** (tonic).

Section A modulates from B minor through **A major** before arriving at F♯ minor.

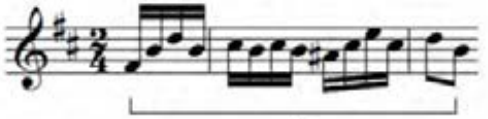
Section B modulates from F♯ minor through **E minor, D major, G major** and **D major** before arriving at B minor.

Melody:

The movement is based on **two musical motifs**.



X



Y

Both motifs begin with an **anacrusis**. Motif X is entirely **disjunct** whilst motif Y **combines disjunct and conjunct** movement.

Typical **ornaments and compositional devices** of the period are used including **trills, appoggiaturas** and **sequences**.

Texture:

Homophonic: melody and accompaniment.

The flute and cello provide the main musical material; however, the 1st violin participates occasionally.

The 2nd violin and viola provide harmony with less busy musical lines.

Tempo:

The tempo is **Allegro** (quick, lively, bright), although not marked on the score.

Toto: Africa

Soft rock

Form and structure:

The piece is in **strophic** or **verse-chorus** form.

Intro	Verse 1 / Verse 2	Chorus 1 / Chorus 2	Link 1 / Link 2	Instrumental	Chorus 3	Outro
1 – 4	5 – 39 / 14 – 39	40 – 57	58 – 65	66 – 82	40 – 92	93 – 96
4 bars	35 bars / 26 bars	18 bars	8 bars	17 bars	22 bars	4 bars

Metre and rhythm:

Simple duple time – 2/2 (split common time) – with two minim beats in every bar.

Uses distinctive **ostinato rhythms** for both riffs, consisting almost totally of **quavers**, with constant use of **syncopation**.

Vocal rhythm looks complex but follows the natural rhythm of the lyrics.

Background details:

Composed by band members **David Paich** and **Jeff Porcaro**.

Recorded by the American rock band Toto in **1981** for their fourth studio album entitled **Toto IV**.

Released in **1982** and reached number one in America on 5 February **1983**.

Genre: **soft rock**.

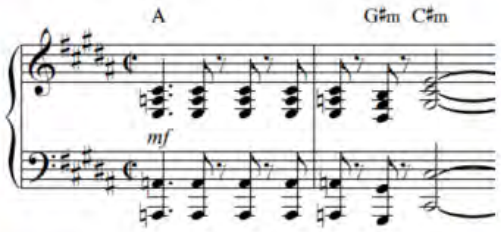
Instrumentation:

Rock band: drum kit with additional percussion, lead and bass guitars, synthesisers, male lead vocals and male backing vocals.

Harmony:

Diatonic; mixture of root position and inverted chords.

Riff a can be heard during the intro, verses, link sections, instrumental and outro. This riff uses a three-chord pattern: **A – G♯m – C♯m**.



Choruses use a standard chord pattern: **vi** (F♯m) – **IV** (D) – **I** (A) – **V** (E).

The **harmonic rhythm** (the rate of chord change) is mostly once per bar.

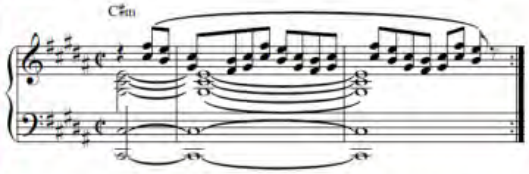
Dynamics:

Most of the song is ***mezzo-forte*** (moderately loud) whilst the choruses are ***forte***.

Melody:

Mostly **conjunct** (moving in step) with a **wide vocal range**.

Riff b uses the **pentatonic scale** (interpreted through E major):



Vocal improvisations occur towards the end of the song.

Texture:

Homophonic: melody and accompaniment.

Tonality:

The majority of the song is in **B major** whilst the choruses are all in **A major**.

Tempo:

The tempo is **moderately fast**.

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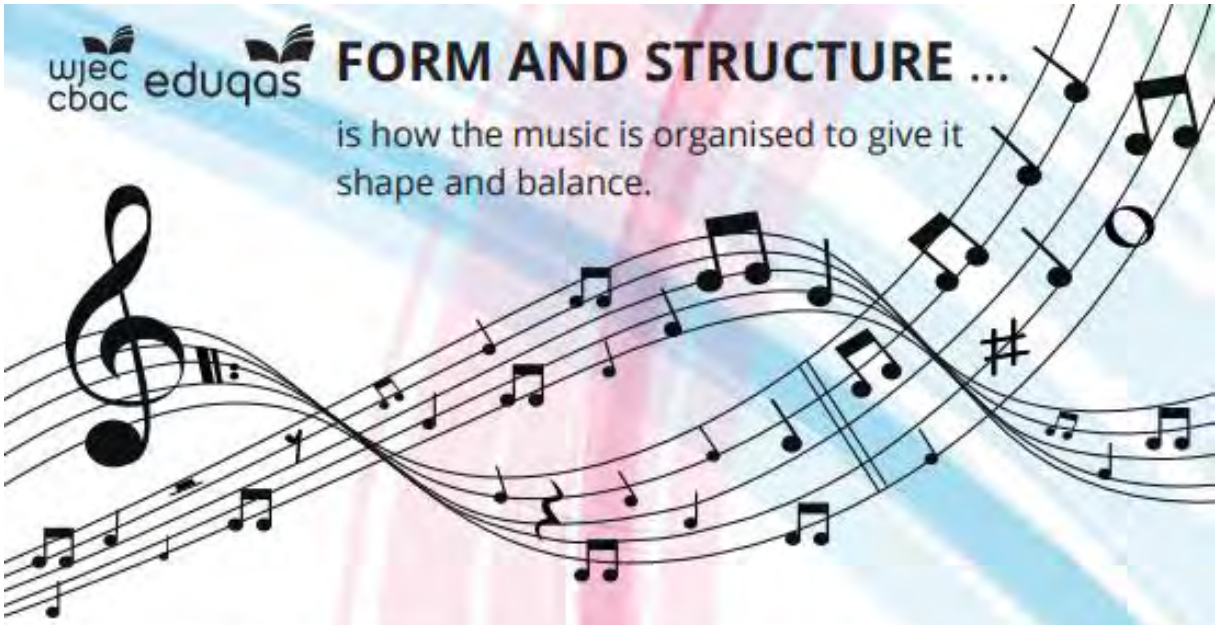
FORM AND STRUCTURE ...

is how the music is organised to give it shape and balance.



Each section in the music is usually labelled with a capital letter, i.e. A, B, C, and so on.

Binary: A B

Strophic: A A A

32 bar song: A A B A

Ternary: A B A

Theme and Variation:

Main theme
Variation 1
Variation 2
Variation 3
etc.

Minuet and Trio:

|: A B :|:C D :|A B

Rondo:

A B A C A

12 bar Blues:
A repeated chordal pattern

I	I	I	I
IV	IV	I	I
V	IV	I	I

Some structural sections:

Introduction (Intro) - Opening of a piece which introduces the main ideas.
Outro - Last part of a piece used in 'pop' music.
Coda - Final section of a piece of music.
Bridge - Piece of music that links two other sections together.
Break - Section that offers a contrast or 'break' from the rest of the piece/song.
Verse - Section of a song which has the same music but different lyrics when repeated.
Chorus - Section of a song which has the same music and lyrics when repeated.
Middle 8 - Eight bars in the middle of a song which provide a contrast.

Some structural devices:

Regular phrasing - Melody divided up into balanced, symmetrical phrases.
Irregular phrasing - Melody divided up into unbalanced phrases.
Riff - Catchy idea in 'pop' music which is repeated.
Fill - Idea that fills in the 'gaps' at the end of phrases.
Ostinato - Continuously repeated phrase or idea.
Call and response - Short musical idea followed by an answering phrase.
Loop - An idea continuously repeated by technical means.
Repetition - When an idea is repeated.
Contrast - A change in the music which offers a difference in the musical elements to provide contrast to the initial material.

HARMONY is...created through chords in music.

CONSONANT HARMONY:

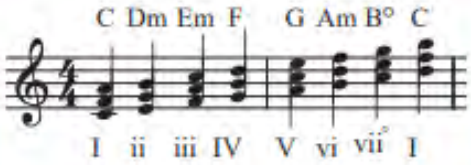
when the notes sound 'good' together.

DISSONANT HARMONY:

when the notes 'clash'.

DIATONIC HARMONY

is based on the major / minor scale system - triads are built on every note of the scale:



CHROMATIC HARMONY

Chromatic harmony is far more complex and includes accidentals not belonging to the home key.

Every one of the 7 notes, (or DEGREES) of the scale is given a name:

7th note: **LEADING NOTE**
6th note: **SUBMEDIANT**
5th note: **DOMINANT**
4th note: **SUBDOMINANT**
3rd note: **MEDIANT**
2nd note: **SUPERTONIC**
1st note: **TONIC**

A CADENCE is a progression of two chords, found at the end of a musical phrase.

PERFECT CADENCE: *Uses chords* **V → I**
Sounds complete and always stops on the tonic chord. Both chords are major.
IMPERFECT CADENCE: *Lands on chord* **V, e.g. I → V; ii → V; IV → V; vi → V**
Sounds incomplete. The 2nd chord is always chord V of the key, which is major.
The chord before may be major or minor.
PLAGAL CADENCE: *Uses chords* **IV → I**
Sounds complete and finishes on chord I. Both chords are major.
It is sometimes known as the 'Amen' cadence because it is often found at the end of a hymn.
INTERRUPTED CADENCE: *Uses chords* **V → vi**
Sounds incomplete. In a major key, it involves a major chord moving to a minor chord. It is sometimes known as a 'surprise' cadence, because it seems as if chord V will resolve to chord I, but it does not - stopping instead on a minor chord.

MELODY is...

a line of musical notes with varying pitches that is satisfying to listen to.

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Anacrusis:
a note (or notes) that come before the first strong beat in a piece. Sometimes called the 'up-beat' or 'pick-up'.

Motif:
a short melodic or rhythmic idea.

Leitmotif:
a recurrent musical idea representing a person, place, feeling or idea.

Countermelody:
a 2nd melody played at the same time as the main theme.

Pitch:
whether the musical notes are high, middle-sounding or low.

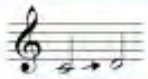
Range:
the distance from the lowest sounding note to the highest sounding note in a piece of music.

Ornaments:
used to 'decorate' the music, e.g. trill, mordent, turn.

Chromatic:
when the tune moves in semitones (like a chromatic scale).

Pentatonic:
a musical scale based on 5 notes.

Intervals:
distance between 2 pitches

Microtone	smaller than a semitone
Semitone	
Tone / major 2nd	
Major 3rd	
perfect 4th	
Perfect 5th	
Major 6th	
Major 7th	
Perfect 8th (Octave)	

Question and answer phrases:
an initial idea (the questioning phrase) balanced by a 2nd idea (the answering phrase).

Theme:
the main musical idea in a piece of music.

Sequence:
repetition of a musical idea at a higher or lower pitch.

Imitation:
when a musical idea is copied in another part.

Repetition:
when musical ideas are repeated.

Contrast:
when there is some type of difference in the music.

Fanfare:
a musical 'announcement', based on the pitches of a chord.

Blue notes:
the flattened notes in a Blues scale.

Types of scales:
Major, Minor, (up to 4 sharps and flats), Pentatonic, Blues.

Useful terms and their meanings

Conjunct:
Stepwise movement in a melody (scalic).

Disjunct:
When the melodic movement includes lots of leaps or intervals.

Arpeggio / broken chord:
When the notes of a chord are played separately and in succession.

Anticipation note:
When a note of the next chord is played early, preparing for the intended pitch in the chord.

Triadic:
Musical movement that uses the notes of a triad.

Pentatonic melody:
Melody based on a 5-note scale.

METRE

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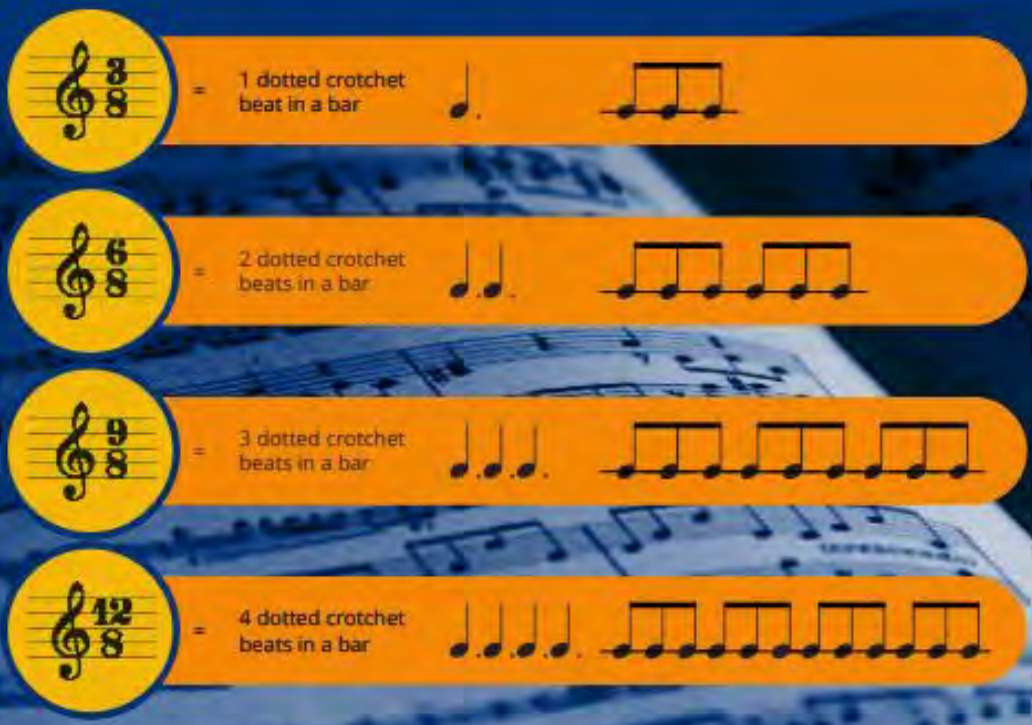
Simple Time

counts crotchet beats in every bar.

Compound Time

counts dotted crotchet beats in every bar.



MUSICAL STYLES

...are the different types of music

AOS 1: Musical Forms and Devices

BAROQUE ERA
(1600 – 1750)

CLASSICAL ERA
(1750 - 1810)

ROMANTIC ERA
(1810 - 1910)

AOS 2: Music for Ensemble

JAZZ AND BLUES

MUSICAL THEATRE

CHAMBER MUSIC

AOS 3: Film Music

Music to accompany film or television scenes - appreciating how musical elements are used to create the mood and atmosphere through engaging with the story.

AOS 4: Popular Music

Rock	Hip-Hop	
Pop	Ballad	
Soul	Reggae	
Fusion	Minimalism	Bhangra

Rhythm is ...

eduqas

the way the time values and patterns of notes are organised and used.

Note	Note name	Rest
	Semibreve (4 crotchet beats)	
	Minim (2 crotchet beats)	
	Crotchet (1 crotchet beat)	
	Quaver (½ crotchet beat)	
	Semiquaver (¼ crotchet beat)	

Syncopation / 'off-beat' ...is when the strong accent is placed on a normally weak beat.

On the beat ...is when the accents are on the strong beats, e.g. the first beat of the bar.

Dotted notes ...a dot placed after a note adds half the original value to the note.

Triplets ...when 3 equal note values are played in the time of 2 note values.

CHAAL is an 8 note dotted rhythmic pattern found in **BHANGRA**.

Tied notes ... *are two notes of the same pitch joined together by a short curved line called a tie.*

Swing rhythms give a dotted / triplet rhythm feel to the beat.

Driving rhythms are energetic, 'driving' the music on.

Dance rhythms are typical rhythms of any kind of dance.

Rock rhythms are rhythmic riffs and patterns associated with 'rock' music.

SCALES

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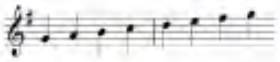
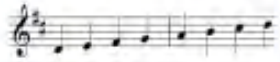
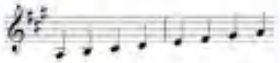
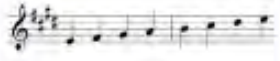
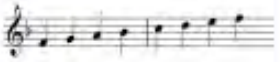
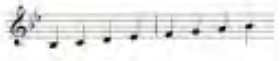
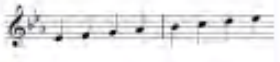
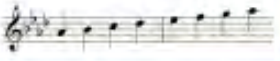
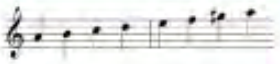
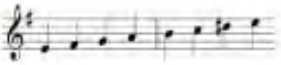
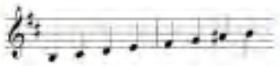
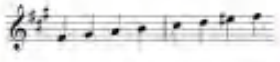
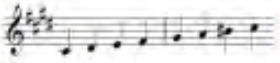
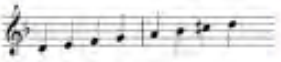
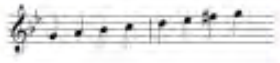
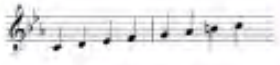
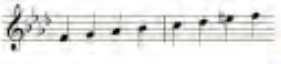
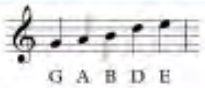
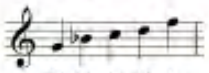
MAJOR sounds are happy / bright.

Key	Scale
C major	
G major	
D major	
A major	
E major	
F major	
B♭ major	
E♭ major	
A♭ major	

MINOR sounds are sad and rather mournful.

Key	Scale
A minor	
E minor	
B minor	
F# minor	
C# minor	
D minor	
G minor	
C minor	
F minor	

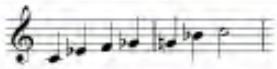




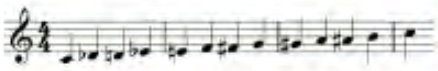
The **major pentatonic** uses notes 1,2,3,5 and 6 of a major scale.

The **minor pentatonic** uses notes 1,3,4,5,7 of the natural minor scale.

Blues scale in C



Chromatic scale on C



SONORITY...

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is all about the quality of sounds in music – the types of voices, instruments and technology and how they are used.

Percussion: Timpani, Drum Kit, Snare Drum, Cymbal, Hand Held Percussion, Glockenspiel, Xylophone, Tabla, Dhol

Rim shot	– when the rim and head of the drum are hit at the same time.
Drum roll	– beats played in a rapid succession.

Brass: Trumpet, French Horn, Trombone, Tuba

Muted	– when mutes are used to 'dampen' the sound.

Woodwind: Flute, Oboe, Clarinet, Saxophone, Bassoon

Slurred	– joining notes 'smoothly'.
Tongued	– notes are separated, sounding 'defined'.

Voices: Soprano, Alto, Tenor, Bass

A cappella	– without accompaniment.
Humming	– vocal sound made with closed mouth.
Syllabic	– one note for each syllable.
Melismatic	– each syllable has a number of notes.
Vibrato	– rapid, slight variation in pitch.
Falsetto	– male voice in a higher range than usual.
Belt	– lower, more powerful part of voice range.
Rap	– words spoken in a rhythmical way.
Scat	– jazz singing, no words or nonsense words.
Backing vocals	– singers providing extra harmonies.

Strings: Violin, Viola, Cello, Double Bass, Harp

Pizzicato	– 'plucked'.
Double stopping	– one instrument playing 2 notes at the same time.
Tremolo	– rapid bowing to give a dramatic effect.
Divisi	– 2 parts in the same musical line.
Arco	– 'bowed'.
Mutes	– used to 'dampen' the sound.

Guitars: Classical / Spanish, Electric + Bass guitars, Sitar, Saranga, Tumbi

Distortion	– effect which 'distorts' notes.
Hammer-on	– finger brought down sharply on a string.
Slap bass	– bouncing strings against the fret board.
Pitch bend	– altering pitch of a note very slightly.

Keyboards: Piano, Organ, Harpsichord

TEMPO is...

the speed of the beat.

wjec eduqas cbac

Allegro Vivace	Fast / Lively / Quick
Moderato Andante	Not too slow / at a moderate pace, a 'walking' speed
Allegretto	Moderately fast
Adagio Lento	Slow / Leisurely

Accelerando gradually getting faster.

Ritardando / Rallentando slowing down.

Rubato a 'freer' interpretation of the tempo.

Pause a symbol which means the note must be held for longer than its original value.

Some other useful terms:

Presto	–	very quick
Largo	–	very slow
A tempo	–	in the original tempo
Ritenuto	–	in slower time

TEXTURE is...

the way that the melody, chords and musical ideas have been woven together to achieve different effects – the 'layers' of music and how they relate to each other.

Monophonic

A single melodic line with no harmonies or other melodies. It may be sung or played by more than one voice or instrument.

Homophonic

A chordal style, or a melody plus chords, which sometimes provide a rhythmic contrast.

Polyphonic

A more complex style which presents the melody (or melodies) in imitation or in counterpoint.

Unison:
When all parts are playing the same music at the same pitch

Chordal:
When parts move together creating a succession of chords

Drone:
Constantly repeated or sustained note(s)

Stab chords:
Short, 'staccato' chords that add impact and 'punch' to the music

Imitation:
When one part 'copies' another

Counter-melody:
A new melody, combined with the theme

Descant:
A decorative (higher) line added to the main tune

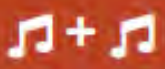
Round:
A short (vocal) canon

Canon:
When the melody is repeated exactly after the first, with some overlapping

Alberti Bass:
A type of accompaniment figure that uses broken chords

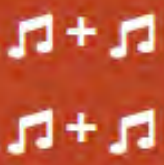
Walking bass:
A steady, continuous, mainly stepwise bass line

2-part texture:
Music written for 2-part voices or instruments



3-part texture:
Music written for 3-part voices or instruments

4-part texture:
Music written for 4-part voices or instruments



Tonality

is... the key of the music – it depends on the types of scales used.

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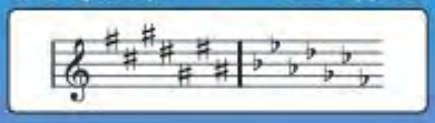
You must know the key signatures in all the major and minor keys up to four flats and four sharps. These scales are what the music is based on.

order of sharps *order of flats*



order of sharps →

F C G D A E B

← *order of flats*

THE PENTATONIC SCALE

This type of scale is made up of five notes within the range of an octave.

For example:

MODULATION is when the music changes key.

Modulation to the dominant is when the music moves from the tonic to the dominant key. The dominant key is based on chord V of the original key, e.g. from C major to G major.

Modulation to the relative minor key is when the music moves from the tonic major key to the relative minor key. The relative minor key is the minor key which shares the key signature with the home key, e.g. the relative minor of C major is A minor.

Modulation to the relative major key is when the music changes from the tonic minor key to the relative major key. The relative major key is the major key which shares the key signature with the home key, e.g. the relative major of A minor is C major.

Key signature	Major keys	Minor keys
No flats or sharps	C major	A minor
1 sharp (F#)	G major	E minor
2 sharps (F#, C#)	D major	B minor
3 sharps (F#, C#, G#)	A major	F# minor
4 sharps (F#, C#, G#, D#)	E major	C# minor
1 flat (B♭)	F major	D minor
2 flats (B♭, E♭)	B♭ major	G minor
3 flats (B♭, E♭, A♭)	E♭ major	C minor
4 flats (B♭, E♭, A♭, D♭)	A♭ major	F minor

Performing Arts

COMPONENT 2 BTEC TECH PERFORMING ARTS (ACTING)

Learning Aim A - To develop skills and techniques for performance

Skills workshops that will teach techniques needed to explore and create short extracts of a play.

Learning Aim B - To apply skills and techniques in rehearsal and performance

Learn 5-15 minutes of a script and perform to an audience.

Learning Aim C – To review own development and performance

Provide a logbook which evidences your progress from first workshops through to performance of script. This will include strengths, targets and reviews.

Evidence needed: teacher observations, recordings of workshops, peer observations, target setting, logbooks.

Vocal	Physical
Types of volume: Whisper, quiet, talking, loud, shouting. **Types of Pitch:** Low, medium, high **Pause:** Stillness in a scene or dialogue **Pace:** Speed of dialogue **Tone:** Emotionally influenced dialogue **Emphasis:** Putting importance on a word	**Gestures:** Using movement to express emotion or direction **Facial expressions:** Used to show emotion **Body language:** Use to show the character profile/emotion **Levels:** Used to show status/hierarchy **Gait:** Character walk **Eye contact:** Between actors/audience **Proxemics:** Space between actors/audience

Skills workshops to include:

Vocal warm up, Physical warm up, Tableaux, Freeze frames, Thought tracking/tunnel, Hot seating, Multi-role playing, Rhythm-Pace-Tempo, Choral work, Movement and Gesture

Key vocabulary

Naturalism – a style of performance where actors and designers try to create the illusion that what is happening on stage is 'reality'
Epic Theatre – Political theatre created by Brecht
Levels - the height you perform a movement – low, medium or high.
Proxemics - distance between characters to show a relationship
Improvisation – performing in an unrehearsed and spontaneous way
Characterisation - creating a character through your movement and dynamic choices
Stereotype-
Use of voice – adapting your voice to suit a character requirement. Volume, tone, pitch pace, intonation
Tableaux - a silent and motionless depiction of a scene created by actors (plural)
Hot seating – an in-depth questioning of a character
Though tracking – internal thoughts of a character spoken aloud
Thought tunnel – inner thoughts of a character considering moral decisions
Stage fighting – rehearsed and realistically represented fight sequence
Multi-role playing – an actor plays multiple characters
Rehearsal – a practice of the play
Blocking – deciding where an actor should stand during a scene
Colloquial language – words used in everyday language that are time specific (e.g. "current")

PE

Year 10 PE Summer Knowledge Organiser

In the summer, students will explain the long term effects of exercise on the body, demonstrate resilience in a variety of sports, and show improvements in components of fitness.

Head

Explain

Long term effects on the body become apparent after a consistent period of exercise. Below are some of the effects you might see:

- Higher muscle mass
- Stronger cardiac muscle
- Lower resting heart rate
- Improved physical appearance
- Reduced risk of diseases

Can you think of any other effects of exercise?

Heart

Resilience

Resilience is about continuing to try, persevering and not giving up on something.

During PE, there is a likely possibility students will not succeed at everything on the first try.

Think about how you could show resilience in PE – what might it look like?

Hands

Components of Fitness

<u>Balance</u>

The ability to keep the body in line, and centre of gravity over a base of support (feet in most cases).

<u>Agility</u>

The ability to change direction quickly and under control.

<u>Speed</u>

The time is takes to cover a certain distance.

How could you improve these 3 components of fitness?

Sports Studies

Year 10 CNAT Sport Summer Knowledge Organiser

Performance in 2 activities: (Team Sport)

- Perform a range of skills in selected sports
- Perform a range if techniques in selected sports
- Demonstrate the ability to use tactics, strategies, creativity to outwit opponents
- Decision making during performance
- Ability to maintain own performance
- Perform a specific role within a team sport.
- he suitability of activities for the group

Practical Logbook to record each sport/activity: (Team Sport)

Record evidence in a log book to recording how you have got on at each sport/activity this must include:

- At least 20 entries for each sport
- The skills that you performed
- How well you performed the skills
- How well you performed in the game (Win, lose, Draw)
- What do you still need to work on

Year 10 CNAT Sport Summer Knowledge Organiser

Review Practical Performance :

- **Review strengths and weaknesses**
  - Level of ability
  - Why skills are strengths/weaknesses
  - Type of skill
  - When these skills are important in the chosen sport
  - How they will impact on your performance or during training

- **Methods to improve**
  - Progressive practices/drills
  - Different types of practice, fixed/variable/whole or part practice
  - Could play with more or against better players

- **Measuring Improvement**
  - Video analysis
  - Activity tracker
  - Monitoring competition results over a period of time

Types of skills:

Open Skills:
An open skill is usually affected by the environment as this is something that can be ever changing, this meaning that how the skill is performed will have to be adapted when performing it.

Closed Skills:
Closed skills are skills that are predictable in a stable environment where it doesn't change.

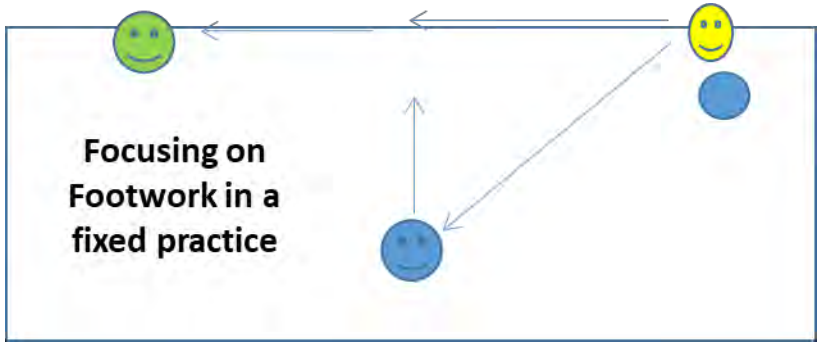
Simple/basic skills:
Simple skills are those that don't require much processing or thinking about. The skill will only have a small number of parts.

Complex Skills
Complex skills are those that are made up of sub-routines and require lot of decisions to be made.

Year 10 CNAT Sport Spring Knowledge Organiser

There are 4 types of practices that will support your weaknesses when creating drills;

1. **WHOLE** – The whole skill is performed at once (e.g. triple jump)
2. **PART** - The skill is broken down into parts which are practised separately (e.g. front landing in trampolining)
3. **VARIABLE** – The skill is practised in the range of different situations that could be experienced in a performance (e.g. short corners in Football)
4. **FIXED** – Specific skill or technique is repeatedly practised in the same way.



Statistics

GCSE STATISTICS FORMULAE (9-1 EDEXCEL)

Formula in green boxes are given in exam.

Refer to your Revision Guide for all topics.

Petersen capture-recapture $\frac{M}{N} = \frac{m}{n}$

M = original marked

m = new marked

n = new population

$N = total\ population$

Mean $(\bar{x}) = \frac{\sum x}{n}$

Weighted mean = $\sum(value \times weight)$

Skew = $\frac{3(mean - median)}{standard\ deviation}$

Standard deviation (not table):

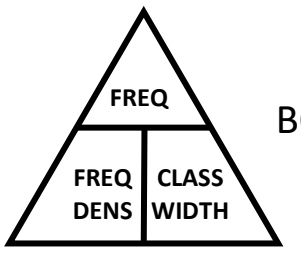
$= \sqrt{\frac{\sum(x-\bar{x})^2}{n}}$ or $= \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$

Standard deviation (frequency table):

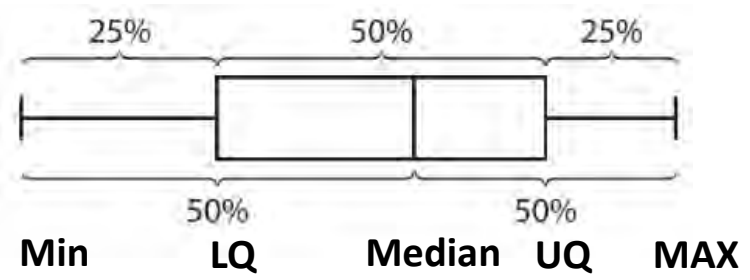
$= \sqrt{\frac{\sum f(x-\bar{x})^2}{\sum f}}$ or $= \sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2}$

Histograms →frequency is area of the bar

Frequency density = $\frac{frequency}{class\ width}$



BOX PLOT



For a set of data:

- mean > median > mode = positive skew
- mode > median > mean = negative skew

Spearman's rank correlation coefficient:

$$r_s = 1 - \frac{6\sum d^2}{n(n^2-1)}$$

Small **outlier** is less than LQ – (1.5 x IQR)
Large outlier is greater than UQ + (1.5 x IQR)
OR mean $+3\sigma$ (σ = standard deviation)

Line of best fit should go through the mean point $(\bar{x}, \bar{y})$

The equation of the line $y = ax + b$

- has gradient a
- intercept on the y axis is (0, b)

Seasonal variation at a point = actual value – trend value
Estimated mean seasonal variation for any season = mean of the seasonal variations for that season
Predicted value = trend line value + estimated mean seasonal variation

Probability of an event (if possible outcomes are equally likely)

= $\frac{number\ of\ successful\ outcomes}{total\ number\ of\ possible\ outcomes}$

Expected frequency of event A = P(A) x number of trials

Estimated probability = $\frac{number\ of\ trials\ with\ successful\ outcomes}{total\ number\ of\ trials}$

Risk of event = $\frac{number\ of\ trials\ in\ which\ event\ happens}{total\ number\ of\ trials}$

Relative risk for the group= $\frac{risk\ for\ those\ in\ the\ group}{risk\ for\ those\ not\ in\ the\ group}$

Mutually exclusive, A and B: P(A∪B) = P(A) + P(B)
Exhaustive events: P(A) + P(not A) = 1 or P(not A) = 1 – P(A)
General addition law (for not mutually exclusive):
P(A∪B) = P(A) + P(B) – P(A∩B)
Independent events, A and B:
P(A∩B) = P(A) x P(B); P(A∩B∩C) = P(A) x P(B) x P(C)
Conditional probability, probability of B given A:

$P(B|A) = \frac{P(A \cap B)}{P(A)}$

$P(A \cap B) = P(B|A) \times P(A)$

Two independent events A and B: P(A) = P(A|B)

Index numbers = $\frac{price}{base\ year\ price} \times 100$

Weighted index numbers = $\frac{current\ weighted\ mean\ price}{base\ year\ weighted\ mean\ price} \times 100$

Chain base index numbers = $\frac{price}{last\ year's\ price} \times 100$

Normal distribution:
68% ± one standard deviation of the mean
95% ± two standard deviation of the mean
99.8% ± three standard deviation of the mean

Normal distribution N(μ, σ^2)
Mean (μ) and variance (σ^2)
Variance = $(standard\ deviation - \sigma)^2$

Warning limits set at $\mu \pm 2\sigma$
Action limits set at $\mu \pm 3\sigma$

Standardised score = $\frac{score - mean}{standard\ deviation}$

Binomial distribution = B(n, p)
Binomial expansion = $(p+q)^n$
Mean of binomial expansion = np

Travel and Tourism

Component 3 – The Scale of the Travel and Tourism Industry / Factors affecting the travel and tourism

C1 Importance of the UK as a global destination

Tourist numbers – world ranking, tourist arrivals, main generating areas.

Economic importance – value of inbound tourism, tourism receipts and employment, contribution of tourism to UK balance of payments and gross domestic product (GDP), the UK's role in international tourism.

C2 Employment in travel and tourism

Direct employment in travel and tourism: transport principles, transport hubs and gateways, tour operators, travel agents, visitor attractions, accommodation, trade associations and regulatory bodies, information and promotional services.

Indirect employment in organisations that support travel and tourism: insurance companies, brochure and website content researchers and maintenance, suppliers for retail, catering and hospitality, souvenir shops and manufacturers, travel journalism.

Roles: customer-facing (telephone and web -based roles), support or administration, graduate programmes or trainees, managerial and supervisory.

C3 Visitor numbers

Visitor numbers by type of tourism – Inbound, outbound, domestic, business, VFR, day trips.

Visitor numbers by other factors – type of transport, country of origin or destination, accommodation type, region or city visited, by types of activities carried out.

Trends: growth areas of origin and destination, changing purpose of visit, transport type used, length of stay, increase and decline in popularity of destinations, tourism types.

Define the term GDP.

C4 Income and spending

Income and turnover – contribution to GDP (defined as the value of a country's economy), leakage (defined as tourist income that comes into a country but is not retained by that country), multiplier effect (defined as direct spending by tourists, which is circulated through the economy on indirect products and services), profit margins and commission levels.

Spending on – accommodation by type, food, drink, souvenirs by type, transport (local and arrival), entertainment, admission fees to attractions.

In its article, Love2Travel has included VisitBritain™ data, shown in Table 1 below.

The table is missing some data.

(b) Complete the table by filling in the **three** blank boxes.

3 marks

Table 1 – Inbound UK visits and spend in 2014

Purpose of travel to the UK	Visits in millions	Spend in £ billions	Nights stayed in millions	Average number of nights stayed per visit
Holiday	13.58	8.66	83.31	6.13
Business	8.28	5.02	34.28	[1]
VFR	9.76	4.62	101.11	10.36
Study	[1]	1.71	27.14	43.21
Other	2.13	1.70	18.73	8.79
Total	34.38	21.71	[1]	

(Source: adapted from http://www.visitbritain.org/nations-region-country-data#sthash.XOAQNBXW.dpuf)

The data in Table 1 is produced and used by the travel and tourism sector information and promotional service providers.

(c) Explain how **one** other travel and tourism sector could use this data.

2 marks

Component 3 – The Scale of the Travel and Tourism Industry / Factors affecting the travel and tourism

D1 Product development and innovation

Development and innovation – larger and faster transportation; airport growth; improved accessibility to destination; improved facilities both on transport and in terminals, hubs and gateways, increased range of choice in accommodation and increased variety of attractions, booking systems, computers, online, mobile, rise of call centres, advances in Computer Reservation System (CRS) and Global Distribution System (GDS) for agents and operators, comparison websites, technology, including potential hackers and system failures and maintaining security of data.

Media factors – increased TV coverage, film locations, adverts, social media usage, by organisations and customers, influence of social media in research and customer reviews and opinions, media coverage of events, importance of managing – bad and good press, incidents, image

D2 Other factors affecting organisations in the travel and tourism industry

Economic factors – recession or growth, currency exchange rates and fluctuations, available disposable income as a result of changes to mortgage rates, inflation and unemployment rates, world oil prices.

Social and lifestyle factors – changing family structure, one parent families, rise of the 'grey' market – increased proportion of retired people, changing working patterns, current fashions and trends, holiday allowance and amount of holiday with pay.

Government legislation: health and safety, airport tax/APD (air passenger duty), passport and visa requirements, data protection requirements.

Safety and security – terrorist attacks, war, civil unrest, security measures – on transport, at terminals, at destinations, at events, transport disasters and crashes and safety concerns, health – reactions to disease outbreaks and prevalence of disease, e- safety

Environmental and climatic: climate change, the importance of sustainability, extreme weather events (floods, landslides, hurricanes, cyclones), natural disasters (volcanic eruptions, earthquakes, tsunami).



D3 Responses of travel and tourism organisations to external and internal factors

Competitive pricing
Increased range and new products and services to match changing and emerging markets.
Membership of trade organisations for financial protection and repatriation.
Fuel surcharges on holidays and flights.
Increased security measures for maintaining security of data and prevention of hacking and system failures.
Product diversification or specialisation.
Increased research – local, national and international.
Updated technology and staff training on legislation, compliance and new systems.
Public relations management.
Investment or upgrading facilities or introducing new facilities.
Variable opening times and flexible staffing arrangements.
Crisis management and major incident plan.