



WOOTTON PARK

*'Ipsum quod faciendum est diutius'*

# Knowledge Maps

## Year 11: Term 3

GCSE Target Grades 4-9

## Core subjects

Subject	Click the link to the pages
English	<a href="#">3-9</a>
Maths- 11 (D) Higher	<a href="#">10- 14</a>
Maths- 11 (DAB) Higher	<a href="#">15- 19</a>
Maths- 11 (CE) Foundation	<a href="#">20- 24</a>
Separate Sciences	<a href="#">25- 27</a>
Trilogy Sciences	<a href="#">28- 31</a>
Geography	<a href="#">32- 35</a>
History	<a href="#">36</a>
Spanish	<a href="#">37- 40</a>

## Optional subjects

Subject	Click the link to the pages
Business Studies	<a href="#">41- 43</a>
Design and Technology	<a href="#">44- 50</a>
Drama	<a href="#">51- 52</a>
Fine Art	<a href="#">53- 58</a>
Health and Social Care	<a href="#">59- 61</a>
iMedia	<a href="#">62- 64</a>
Photography	<a href="#">65- 66</a>
Psychology	<a href="#">67- 75</a>
Sports Studies	<a href="#">76-78</a>

### Poetry of Power and Conflict

When using this knowledge map for the Power and Conflict poetry cluster, please ensure that you download your own copy of the 'detailed knowledge map' as well as watch the 'additional revision' to support your understanding. **You should use this information to help complete your 'Knowledge Retrieval Booklet'**

Poem	Basic Overview	Detailed Knowledge Map to Download	Additional Revision
<b>Checking Out Me History by John Agard</b>	Content, Meaning and Purpose -Represents the voice of a black man who is frustrated by the Eurocentric history curriculum in the UK – which pays little attention to the black history. -Black history is quoted to emphasise its separateness and to stress its importance	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EVlgL2JR2HJEq0qItA9C6-4BNzdP2lWSr7Qlwxpvy1Yt4A?e=rxNrz_b">https://woottonparkschool.sharepoint.com/:w:/s/English/EVlgL2JR2HJEq0qItA9C6-4BNzdP2lWSr7Qlwxpvy1Yt4A?e=rxNrz_b</a>	<a href="https://www.youtube.com/watch?v=Mj1bMk_E7GQ">https://www.youtube.com/watch?v=Mj1bMk_E7GQ</a>
<b>London by William Blake</b>	Content, Meaning and Purpose -The narrator is describing a walk around London and how he is saddened by the sights and sounds of poverty. -The poem also addresses the loss of innocence and the determinism of inequality: how new-born infants are born into poverty. -The poem uses rhetoric (persuasive techniques) to convince the reader that the people in power (landowners, Church, Government) are to blame for this inequality.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EfKyL3F8bhpDsJlq-C8n3pQBgXJl7XtpeqK12VwirB4MuQ?e=DgBtkk">https://woottonparkschool.sharepoint.com/:w:/s/English/EfKyL3F8bhpDsJlq-C8n3pQBgXJl7XtpeqK12VwirB4MuQ?e=DgBtkk</a>	<a href="https://www.youtube.com/watch?v=zHp8eVi27Nw">https://www.youtube.com/watch?v=zHp8eVi27Nw</a>
<b>My Last Duchess by Robert Browning</b>	Content, Meaning and Purpose -The Duke is showing a visitor around his large art collection and proudly points out a portrait of his last wife, who is now dead. He reveals that he was annoyed by her over-friendly and flirtatious behaviour. -He can finally control her by objectifying her and showing her portrait to visitors when he chooses. - He is now alone as a result of his need for control. -The visitor has come to arrange the Duke's next marriage, and the Duke's story is a subtle warning about how he expects his next wife to behave.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EZVDxGORGj9DvUWwrepc2bIBc5X6JxjoTvWevZQsqBYqVw?e=C5DLlb">https://woottonparkschool.sharepoint.com/:w:/s/English/EZVDxGORGj9DvUWwrepc2bIBc5X6JxjoTvWevZQsqBYqVw?e=C5DLlb</a>	<a href="https://www.youtube.com/watch?v=T9h_csKEwxg">https://www.youtube.com/watch?v=T9h_csKEwxg</a>

Subject: English

Term: 3

Topic: AQA English Literature Paper 2 – Poetry of Power and Conflict


**WOOTTON PARK**
*'Ipsum quod faciendum est diutius durat'*

Poem	Basic Overview	Detailed Knowledge Map to Download	Additional Revision
<b>Ozymandias by Percy Shelley</b>	Content, Meaning and Purpose -The narrator meets a traveller who tells him about a decayed stature that he saw in a desert. -The statue was of a long forgotten ancient King: the arrogant Ozymandias, 'king of kings.' -The poem is ironic and one big metaphor: Human power is only temporary – the statue now lays crumbled in the sand, and even the most powerful human creations cannot resist the power of nature.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EQIE4L17YIBGjWRRP6NcheEBCiOFL-kTD95aKlOp7xD1_g?e=JYacBa">https://woottonparkschool.sharepoint.com/:w:/s/English/EQIE4L17YIBGjWRRP6NcheEBCiOFL-kTD95aKlOp7xD1_g?e=JYacBa</a>	<a href="https://www.youtube.com/watch?v=d_Egz2bDQ0o">https://www.youtube.com/watch?v=d_Egz2bDQ0o</a>
<b>The Emigree by Carol Rumens</b>	Content , Meaning and Purpose -'Emigree' – a female who is forced to leave their county for political or social reasons. -The speaker describes her memories of a home city that she was forced to flee. The city is now "sick with tyrants". -Despite the cities problems, her positive memories of the place cannot be extinguished.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EYLtzuex6QpPhijP9DU57JYBxLKTkJgJSXvTvUv5rvr2wA?e=2XkW7g">https://woottonparkschool.sharepoint.com/:w:/s/English/EYLtzuex6QpPhijP9DU57JYBxLKTkJgJSXvTvUv5rvr2wA?e=2XkW7g</a>	<a href="https://www.youtube.com/watch?v=RfJ8iXLfLc">https://www.youtube.com/watch?v=RfJ8iXLfLc</a>
<b>Prelude by William Wordsworth</b>	Content, Meaning and Purpose -The story of a boy's love of nature and a night-time adventure in a rowing boat that instils a deeper and fearful respect for the power of nature. -At first, the boy is calm and confident, but the sight of a huge mountain that comes into view scares the boy and he flees back to the shore. -He is now in awe of the mountain and now fearful of the power of nature which are described as 'huge and mighty forms, that do not live like living men.' -We should respect nature and not take it for granted	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/ESbkHBm4qTJHIYmB2Pyx4N8BzAyC7dM3R73HuGO-map90Q?e=vDU8GE">https://woottonparkschool.sharepoint.com/:w:/s/English/ESbkHBm4qTJHIYmB2Pyx4N8BzAyC7dM3R73HuGO-map90Q?e=vDU8GE</a>	<a href="https://www.youtube.com/watch?v=5g3l1E1gHiM">https://www.youtube.com/watch?v=5g3l1E1gHiM</a>
<b>Tissue by Imtiaz Dhaker</b>	Content, Meaning and Purpose -Two different meanings of 'Tissue' (homonyms) are explored: firstly, the various pieces of paper that control our lives (holy books, maps, grocery receipts); secondly, the tissue of a human body. -The poet explores the paradox that although paper is fragile, temporary and ultimately not important, we allow it to control our lives. -Also, although human life is much more precious, it is also fragile and temporary.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EfupBCQjJmVAr3PN6kEEXNUBAAtBRWr3obUsSjcxqVupvrQ?e=OP5TXY">https://woottonparkschool.sharepoint.com/:w:/s/English/EfupBCQjJmVAr3PN6kEEXNUBAAtBRWr3obUsSjcxqVupvrQ?e=OP5TXY</a>	<a href="https://www.youtube.com/watch?v=wVjZpi9lkl">https://www.youtube.com/watch?v=wVjZpi9lkl</a>

Subject: English

Term: 3

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Poem	Basic Overview	Detailed Knowledge Map to Download	Additional Revision
Charge of the Light Brigade by Tennyson	Content, Meaning and Purpose - Published six weeks after a disastrous battle against the Russians in the (unpopular) Crimean War -Describes a cavalry charge against Russians who shoot at the lightly-armed British with cannon from three sides of a long valley. -Of the 600 hundred who started the charge, over half were killed, injured or taken prisoner. -It is a celebration of the men's courage and devotion to their country, symbols of the might of the British Empire.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EncouBI-eSxJDmA5lylL4dNUBThV07zVKK9V_h1C-s2mv7g?e=BoFM9h">https://woottonparkschool.sharepoint.com/:w:/s/English/EncouBI-eSxJDmA5lylL4dNUBThV07zVKK9V_h1C-s2mv7g?e=BoFM9h</a>	<a href="https://www.youtube.com/watch?v=OXVs8KydoNY">https://www.youtube.com/watch?v=OXVs8KydoNY</a>
Bayonet Charge by Ted Hughes	Content, Meaning and Purpose -Describes the terrifying experience of 'going over the top': fixing bayonets (long knives) to the end of rifles and leaving a trench to charge directly at the enemy. -Steps inside the body and mind of the speaker to show how this act transforms a soldier from a living thinking person into a dangerous weapon of war. -Hughes dramatises the struggle between a man's thoughts and actions.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EncGRRjKpa5JnC2bIVIJt_QBM1T0BYzkm0kO03wBen2xvQ?e=EXV1aX">https://woottonparkschool.sharepoint.com/:w:/s/English/EncGRRjKpa5JnC2bIVIJt_QBM1T0BYzkm0kO03wBen2xvQ?e=EXV1aX</a>	<a href="https://www.youtube.com/watch?v=6AMuwf9zzKM">https://www.youtube.com/watch?v=6AMuwf9zzKM</a>
War Photographer by Carol Ann Duffy	Content, Meaning and Purpose -Tells the story of a war photographer developing photos at home in England: as a photo develops he begins to remember the horrors of war – painting a contrast to the safety of his dark room. -He appears to be returning to a warzone at the end of the poem. -Duffy conveys both the brutality of war and the indifference of those who might view the photos in newspapers and magazines: those who live in comfort and are unaffected by war.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/Encfi-9PJXQstPvKLNAau4cugB7Tu-E1rte19mTYcY55ajDw?e=jQsXRv">https://woottonparkschool.sharepoint.com/:w:/s/English/Encfi-9PJXQstPvKLNAau4cugB7Tu-E1rte19mTYcY55ajDw?e=jQsXRv</a>	<a href="https://www.youtube.com/watch?v=HeZCQIUMQxl">https://www.youtube.com/watch?v=HeZCQIUMQxl</a>
Kamikaze by Beartice Garland	Content, Meaning and Purpose -In World War 2, Japanese Kamikaze pilots would fly manned missiles into targets such as ships. -This poem explores a kamikaze pilot's journey towards battle, his decision to return, and how he is shunned when he returns home. -As he looks down at the sea, the beauty of nature and memories of childhood make him decide to turn back.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/Encfym2L1ZNDxMp2RXsISG1R4Bl_inwOV22kYP3QFIBahOgg?e=gbqKDN">https://woottonparkschool.sharepoint.com/:w:/s/English/Encfym2L1ZNDxMp2RXsISG1R4Bl_inwOV22kYP3QFIBahOgg?e=gbqKDN</a>	<a href="https://www.youtube.com/watch?v=9zwoe5twfd4">https://www.youtube.com/watch?v=9zwoe5twfd4</a>

Poem	Basic Overview	Detailed Knowledge Map to Download	Additional Revision
<b>Remains by Simon Armitage</b>	Content, Meaning and Purpose -Written to coincide with a TV documentary about those returning from war with PTSD. Based on Guardsman Tromans, who fought in Iraq in 2003. -Speaker describes shooting a looter dead in Iraq and how it has affected him. -To show the reader that mental suffering can persist long after physical conflict is over.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/Eazm73w0NmNDjImGAD76UCIBWg_17V790H4P1Kv3mi0egw?e=rzLXae">https://woottonparkschool.sharepoint.com/:w:/s/English/Eazm73w0NmNDjImGAD76UCIBWg_17V790H4P1Kv3mi0egw?e=rzLXae</a>	<a href="https://www.youtube.com/watch?v=vmUCX-dSb9E">https://www.youtube.com/watch?v=vmUCX-dSb9E</a>
<b>Exposure by Wilfred Owen</b>	Content, Meaning and Purpose -Speaker describes war as a battle against the weather and conditions. -Imagery of cold and warm reflect the delusional mind of a man dying from hypothermia. -Owen wanted to draw attention to the suffering, monotony and futility of war.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EYm1DShhk9tDj-mB8oeMKjwB-zeow_G0ufoZApRUEH2JLw?e=O3EzwN">https://woottonparkschool.sharepoint.com/:w:/s/English/EYm1DShhk9tDj-mB8oeMKjwB-zeow_G0ufoZApRUEH2JLw?e=O3EzwN</a>	<a href="https://www.youtube.com/watch?v=64FESmLvQEes">https://www.youtube.com/watch?v=64FESmLvQEes</a>
<b>Poppies by Jane Weir</b>	Content, Meaning and Purpose -A modern poem that offers an alternative interpretation of bravery in conflict: it does not focus on a soldier in battle but on the mother who is left behind and must cope with his death. -The narration covers her visit to a war memorial, interspersed with images of the soldier's childhood and his departure for war.	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EWIGNmB86GJDnDwSQT6tvDABzB6h1eYtW1Kmj31SAHDD5Q?e=Y8yRki">https://woottonparkschool.sharepoint.com/:w:/s/English/EWIGNmB86GJDnDwSQT6tvDABzB6h1eYtW1Kmj31SAHDD5Q?e=Y8yRki</a>	<a href="https://www.youtube.com/watch?v=FEqSAT77SDQ">https://www.youtube.com/watch?v=FEqSAT77SDQ</a>
<b>Storm on the Island by Seamus Heaney</b>	The narrator describes how a rural island community prepared for a coming storm, and how they were confident in their preparations. ☑ When the storm hits, they are shocked by its power: its violent sights and sounds are described, using the metaphor of war. ☑ The final line of the poem reveals their fear of nature's power	<a href="https://woottonparkschool.sharepoint.com/:w:/s/English/EX_d8EtM4VhJtg5xyfS6xowBa1JrKRTFJDQgGxGAIISPZw?e=rRhv1O">https://woottonparkschool.sharepoint.com/:w:/s/English/EX_d8EtM4VhJtg5xyfS6xowBa1JrKRTFJDQgGxGAIISPZw?e=rRhv1O</a>	<a href="https://www.youtube.com/watch?v=Sgsu_WgO9GY">https://www.youtube.com/watch?v=Sgsu_WgO9GY</a>

**Language for comparison****When poems have similarities**

Similarly, ...

Both poems convey / address...

Both poets explore / present...

This idea is also explored in...

In a similar way, ...

Likewise, ...

**When poems have differences**

Although...

Whereas...

Whilst...

In contrast, ...

Conversely, ...

On the other hand, ...

On the contrary, ...

Unlike...

**Assessment Objectives**

Ensure that your answer covers all of these areas:

**AO1**

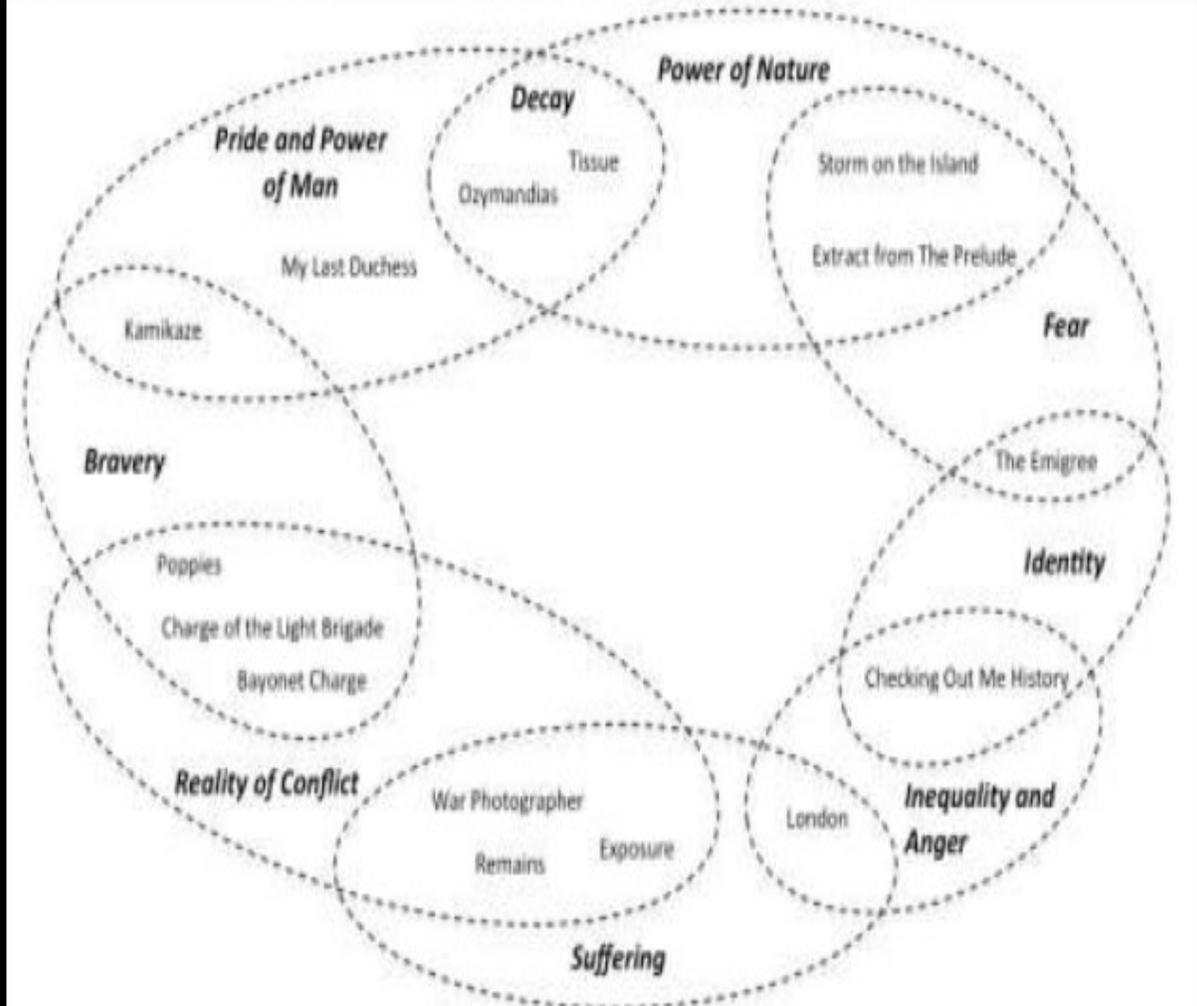
- Write a response related to the key word in the question.
- Use comparative language to explore both poems.
- Use a range of evidence to support your response and to show the meaning of the poems.

**AO2**

- Comment on the effect of the language in your evidence, including individual words.
- Identify any use of poetic techniques and explain their effects.

**AO3**

- What might the poet's intentions have been when they wrote the poem?
- Comment on the historical context – when was the poem published and what impact might it have had then, and today?

**Key themes and connections: poems that you might choose to compare**

### Thematic Links Between Poems

Conflict	Remains, Exposure, Charge of the Light Brigade, Bayonet Charge, War Photographer, Kamikaze, The Emigree,
Suffering	Remains, Exposure, Poppies, Charge of the Light Brigade, War Photographer
Reality of War	Remains, Exposure, Poppies, Charge of the Light Brigade, Bayonet Charge, War Photographer
Nature	Exposure, Bayonet Charge, Kamikaze
Patriotism	Exposure, Charge of the Light Brigade, Bayonet Charge, Kamikaze
Bravery	Poppies, Bayonet Charge, The Emigree
Childhood	Poppies, Kamikaze, The Emigree, Checking Out Me History, Extract from The Prelude
Power	Bayonet Charge, Kamikaze, The Emigree, Checking Out Me History, My Last Duchess, London
Shame	Kamikaze
Identity	The Emigree, Checking Out Me History, Tissue
Protest	The Emigree, Checking Out Me History
Power of Nature	Ozymandias, Tissue, Extract from The Prelude, Storm on the Island
Decay	Ozymandias
Pride	Ozymandias, My Last Duchess
Control	My Last Duchess, Tissue
Jealousy	My Last Duchess
Status	My Last Duchess
Fear	Extract from The Prelude, Storm on the Island
Inequality	London
Loss	London
Anger	London

### Revision Websites and Additional Reading

GCSE Bitesize:

<https://www.bbc.co.uk/bitesize/topics/zprysg8>

YouTube Revision:

[https://www.youtube.com/watch?v=d\\_Egz2bDQ0o&list=PLqGFsWf-P-cAO64lBHZTFwTz2X0DD\\_Cxk](https://www.youtube.com/watch?v=d_Egz2bDQ0o&list=PLqGFsWf-P-cAO64lBHZTFwTz2X0DD_Cxk)

AQA:

<https://www.aqa.org.uk/subjects/english/gcse/english-literature-8702>

**Key Vocabulary**

Throughout this unit, you should dedicate a portion of your learning time to learning the spellings and definitions of the following key vocabulary. You should use the 'look, cover, write, check' technique to ensure you are ready for your weekly tests.

A	Language and tone	
1	Simile	Figurative language / imagery using 'like' or 'as'
2	Metaphor	Figurative language / imagery that directly compares two things
3	Onomatopoeia	A word that resembles the sound it makes when said aloud
4	Alliteration	The repetition of the same sound or letter at the beginning of words
5	Plosive	A harsh consonant sound (t, k, p, b, g, t)
6	Sibilance	The repetition of 's' sounds, e.g. sly, venomous serpent
7	Assonance	The repetition of vowel sounds, e.g. crumbling thunder
9	Juxtaposition	Two things placed closely together for contrasting effect
10	Oxymoron	A figure of speech where two contradictory words are placed together, e.g. 'friendly fire'
12	Ambiguity	A word or phrase with two possible meanings but it is unclear which is the correct one
13	Cliché	An overused phrase or saying
14	Hyperbole	Exaggeration
15	Irony	A use of words to mean something very different from what they appear to mean
16	Tone	The general feeling or mood of the poem
17	Symbolism	The use of symbols to represent bigger ideas / qualities
18	Motif	A recurring idea or symbol in a text
19	Pattern of language	Words used throughout a poem that are similar in meaning

B	Form and structure	
1	Rhyme	Repeated sounds, usually at the end of a line
2	Rhythm	A repeated or sequenced pattern of sound in a poem
3	Couplet	A pair of rhyming lines which follow placed together
4	Stanza	A group of lines separated from another in a poem
5	Enjambment	When a sentence runs from one line to next without punctuation at the end of the line
6	Caesura	A stop or pause in a line of poetry, usually caused by punctuation
7	Blank verse	Poetry written in non-rhyming, ten-syllable lines
8	Dramatic monologue	A poem in which an imagined speaker addresses the reader
9	Elegy	A form of poetry which is about the death of its subject
10	Quatrain	A four-line stanza
11	Sestet	A six-line stanza
12	Sonnet	A fourteen-line poem with a clear rhyme scheme, usually on the topic of love
13	Free verse	Non-rhyming, non-rhythmical poetry
14	Pathetic fallacy	When a character's feelings, thoughts or emotions are displayed through the environment around them, e.g. when a character is depressed and it is raining
15	Speaker/ persona	The person speaking in the poem (not the poet)
16	Protagonist	The main character in the poem
17	Volta	A turning point in the line of thought / argument of the poem
18	Shift	A change from one place or thing to another

## Sampling

### Key point

- A **population** is the set of items that you are interested in.  
 A **census** is a survey of the whole population.  
 A **sample** is a smaller number of items from the population.  
 A good-sized sample is at least 10% of the population.  
 In order to reduce **bias**, a sample must represent the whole population.  
 In a **random** sample every item is equally likely to be chosen.

The process of capturing and then recapturing can help us to estimate the size of a population.

To estimate the size of the population  $N$  of an animal species:

- Capture and mark a sample size  $n$ .
- Recapture another sample of size  $M$ . Count the number marked ( $m$ ).

$$\frac{n}{N} = \frac{m}{M}$$

$$\text{So, } N = \frac{n \times M}{m}$$

This is the **Petersen capture–recapture method**.

Assumptions:

- The population has not changed between the release and recapture times.
- The probability of being captured is the same for all individuals.
- Marks or tags are not lost.

A stratified sampling considers the proportion of each naturally occurring group out of the whole population. This means that each group can be fairly represented in the sample.

### Exam-style question

- 8 Last year Alexis sold holidays in Greece to 2400 people. He takes a sample of 300 of these people. He asks each person to choose their favourite type of holiday in Greece. The table shows the results.

Type of holiday	Number of people
city hotel	63
beach hotel	120
city self catering	52
beach self catering	65

### Exam tip

For part **b** you need to write one assumption and **explain** how it affects your answer.

This year Alexis expects to sell 3000 holidays in Greece.

- a** Work out how many of the 3000 holidays you think will be beach hotel holidays. (2 marks)

Type of holiday	Number of people	Amount in sample
City hotel	63	$\frac{63}{300} \times 2400 = 504$
Beach hotel	120	$\frac{120}{300} \times 2400 = 960$
City self catering	52	$\frac{52}{300} \times 2400 = 415.99999$ <b>416</b>
Beach self catering	65	$\frac{65}{300} \times 2400 = 520.00$
Total	2400	2400

## Cumulative Frequency

### Key point

A **cumulative frequency table** shows how many data values are less than or equal to the **upper class boundary** of each data class.

The upper class boundary is the highest possible value in each class.

Mass, $m$ (kg)	Frequency
$3 < m \leq 4$	4
$4 < m \leq 5$	12
$5 < m \leq 6$	17
$6 < m \leq 7$	10
$7 < m \leq 8$	7

Mass, $m$ (kg)	Cumulative frequency
$3 < m \leq 4$	4
$3 < m \leq 5$	$4 + 12 = 16$
$3 < m \leq 6$	$16 + 17 = 33$
$3 < m \leq 7$	$33 + 10 = 43$
$3 < m \leq 8$	$43 + 7 = 50$

### Key point

For a set of  $n$  data values on a cumulative frequency graph

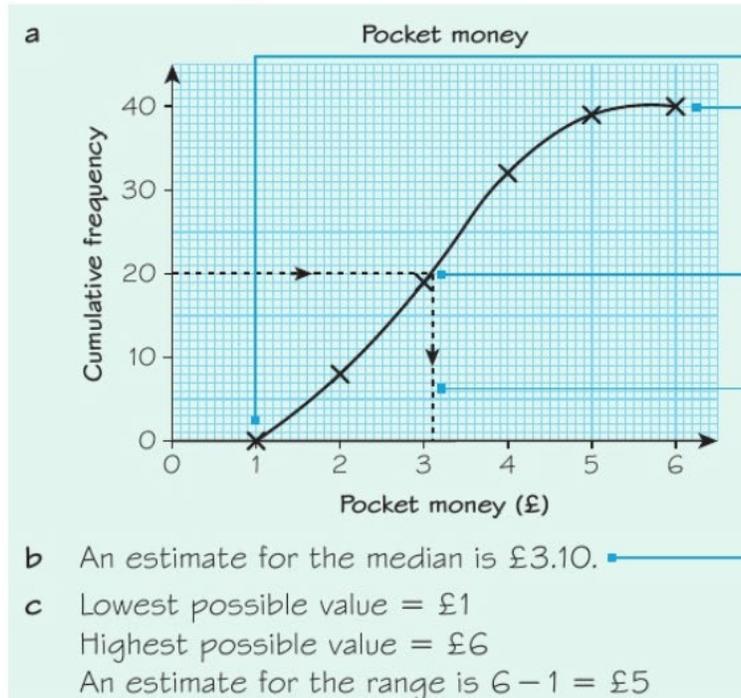
- the estimate for the median is the  $\frac{n}{2}$ th value (for a large data set, this is close enough to the  $\frac{n+1}{2}$ th value to use in an estimate)
- the estimate for the **lower quartile** (LQ) is the  $\frac{n}{4}$ th value
- the estimate for the **upper quartile** (UQ) is the  $\frac{3n}{4}$ th value
- the **interquartile range** (IQR) = UQ – LQ measures the spread of the middle of the data

### Example

The cumulative frequency table shows the amount of pocket money for 40 teenagers.

- Draw a cumulative frequency graph.
- Use the cumulative frequency graph to find an estimate for the median amount of pocket money.
- Estimate the range.

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



Plot (1, 0). There are no people with less than £1 pocket money.

Plot each frequency at the upper class boundary: (2, 8), (3, 19), etc. Draw a smooth curve through the points.

To estimate the median, draw a line from the halfway cumulative frequency value,  $\frac{n}{2} = \frac{40}{2} = 20$

Draw a line down to the  $x$ -axis and read off the value.

This is an estimate because it depends on how the curve is drawn. Also, you don't know the exact values in the class containing the median.

## Box plots

### Key point 9

A **box plot**, sometimes called a **box-and-whisker diagram**, displays a data set to show the median and quartiles.



**Summary statistics** for a set of data are the averages, ranges and quartiles.

### Example 3

The table shows **summary statistics** from a data set of the lengths of ladybirds.

Minimum	Lower quartile	Median	Upper quartile	Maximum
3 mm	5 mm	8 mm	9 mm	11 mm

Draw a box plot for the data.



The median and quartiles form the box. The minimum and maximum values form the 'whiskers'.

Draw a continuous scale.

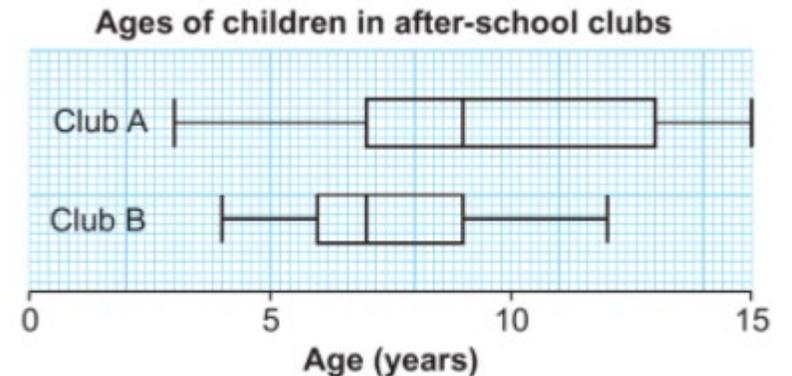
### Key point 10

For a set of  $n$  data values

- the lower quartile (LQ) is the  $\frac{n+1}{4}$ th value
- the upper quartile (UQ) is the  $\frac{3(n+1)}{4}$ th value.

### Key point 11

**Comparative box plots** are box plots for two different sets of data drawn in the same diagram.



## Histograms

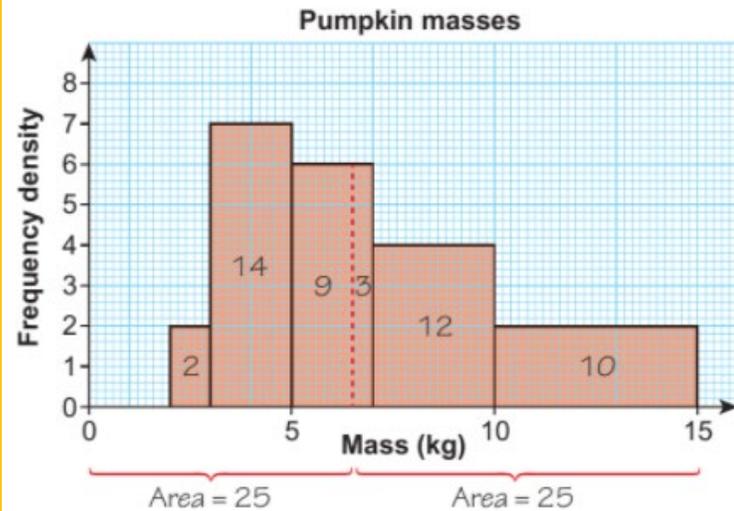
### Key point 12

A **histogram** is a type of frequency diagram used for grouped continuous data. In a histogram for unequal class intervals the area of the bar represents the frequency. The height of each bar is the frequency density.

$$\text{Frequency density} = \frac{\text{frequency}}{\text{class width}}$$

#### Example 5

The histogram shows the masses of pumpkins in a farm shop.



Work out the areas of all the bars to find the total frequency.

Work out which class contains the median.

Use frequency density  $= \frac{\text{frequency}}{\text{class width}}$  to find class width of class from 5 to median.

Work out an estimate for the median mass.

$$\text{Total frequency} = 1 \times 2 + 2 \times 7 + 2 \times 6 + 3 \times 4 + 5 \times 2 = 50$$

The median is the 25.5th value and lies in the class  $5 < m \leq 7$ .

$$\text{Frequency} = \text{area} = 9, \text{ frequency density} = 6. \text{ Class width} = 9 \div 6 = 1.5$$

An estimate for the median is  $5 + 1.5 = 6.5 \text{ kg}$

Add the class width to the lower class boundary.

#### Example 4

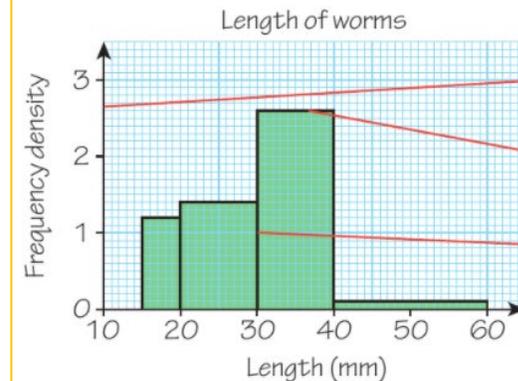
The lengths of 48 worms are recorded in this table.

Length, $x$ (mm)	$15 < x \leq 20$	$20 < x \leq 30$	$30 < x \leq 40$	$40 < x \leq 60$
Frequency	6	14	26	2

Draw a histogram to display this data.

$$6 \div 5 = 1.2, 14 \div 10 = 1.4, 26 \div 10 = 2.6, 2 \div 20 = 0.1$$

Work out the frequency density for each class



Label the  $y$ -axis 'Frequency density'.

The height of each bar is the frequency density for each class.

Draw the bars with no gaps between them.

## Comparing distributions

The interquartile range measures the spread of the middle 50% of the data.

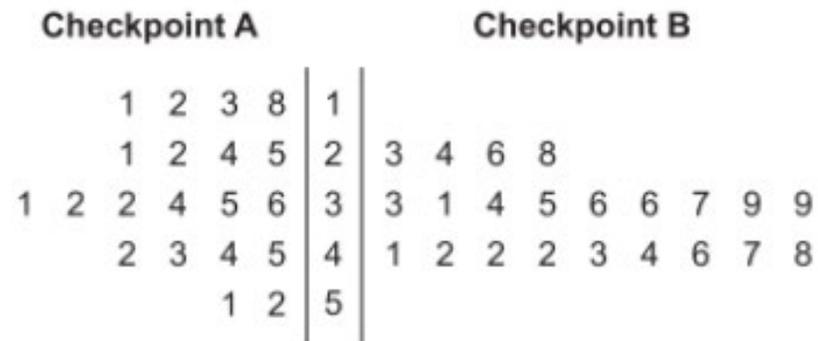
To describe a data set (or population) give a measure of average and a measure of spread.

To compare data sets, compare a measure of average and a measure of spread.

The median and interquartile range are not affected by extreme values or **outliers**.

### Worked example

**Real / Problem-solving** This back-to-back stem-and-leaf diagram shows the average speeds, in miles per hour, of cars passing two checkpoints.



Key: 5 | 2 | 3 represents 25 mph and 23 mph

At checkpoint B, the average speed is higher, with a median of 38, compared to a median of 32.

The speeds at checkpoint A are more spread out, with an IQR of 21, compared to an IQR for checkpoint B of 11.

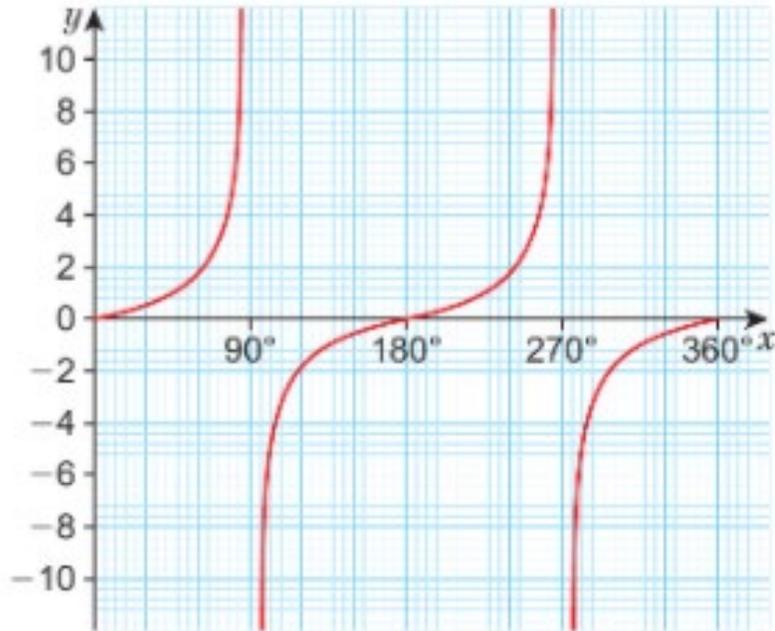
- a Describe the speeds at the two check points.
- b Compare the speeds at the two checkpoints.

When comparing the **spread** of the data, the bigger the number for the **IQR**, the more spread out (and sometimes less consistent) the data is.

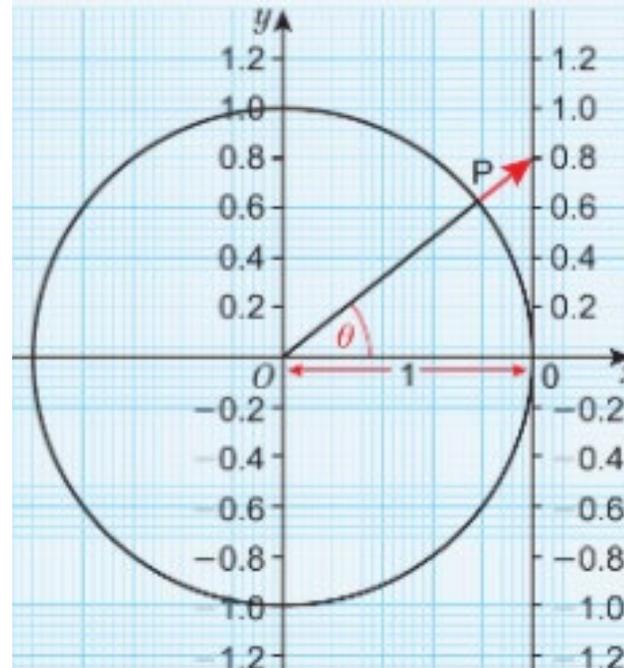
When describing the data, it depends on the particular situation as to whether you would want a higher **median** or not. If the data is about how long a battery lasts, you want the median to be higher; when comparing the time it takes to run 100m, you want the median to be lower

## Week 1: The tangent function

Here is the graph of  $y = \tan x$  for  $0^\circ \leq x \leq 360^\circ$ .



- The tangent graph repeats every  $180^\circ$  in both directions
- There are asymptotes at  $90^\circ$ ,  $270^\circ$  and every  $180^\circ$  onwards. (This is where there are no values for the tangent graphs)



The diagram shows a circle of radius 1 unit with centre at  $(0, 0)$ .

$$\tan \theta = \frac{0.8}{1} = 0.8$$

Extending  $OP$  to hit the vertical tangent line gives the value of  $\tan \theta$ .

You can find the **tangent** of any angle using this method except for angles of the form  $90^\circ \pm 180n^\circ$

Unlike sine and cosine, the tangent can take *any* value, positive or negative, not just values between  $-1$  and  $1$ .

Key word: **Asymptote**

A straight line that approaches a curve, but does not actually meet the curve.

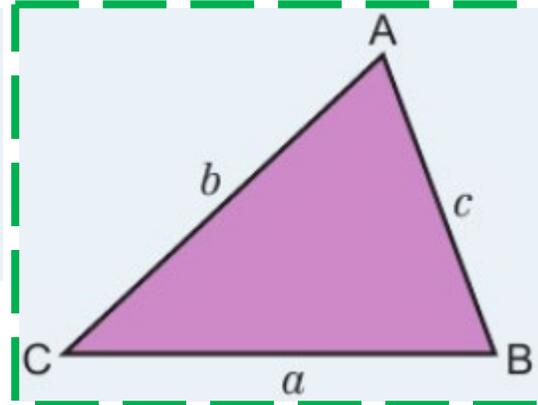
## Week 2: Area of a non-right angles triangle and the Sine rule

The **sine rule** can be used in any triangle.

- $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$  Use this to calculate an unknown *side*.
- $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$  Use this to calculate an unknown *angle*.

To use the sine rule you need to know one angle and the opposite side. Then:

- If you know another **angle** you can work out the length of the opposite side
- If you know another **side**, you can work out the size of the opposite angle

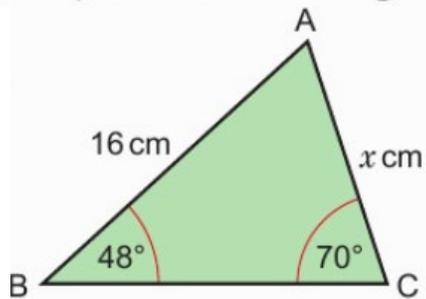


The **area** of this triangle =  $\frac{1}{2}ab \sin C$ .  
 $a$  is the side opposite angle A.  
 $b$  is the side opposite angle B.

### Worked example 1

Find the value of  $x$ .

Give your answer to 3 significant figures.



$$\frac{x}{\sin 48^\circ} = \frac{16}{\sin 70^\circ}$$

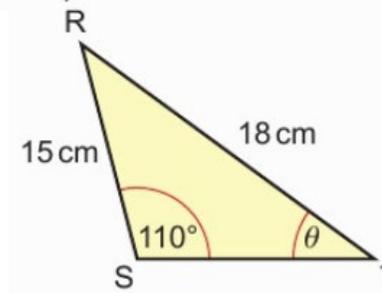
$$x = \frac{16 \sin 48^\circ}{\sin 70^\circ} = 12.653\dots$$

$$= 12.7 \text{ cm (3 s.f.)}$$

### Worked example 2

Find the value of  $\theta$ .

Give your answer to 1 decimal place.



$$\frac{\sin \theta}{15} = \frac{\sin 110^\circ}{18}$$

$$\sin \theta = \frac{15 \sin 110^\circ}{18}$$

$$\theta = \sin^{-1}\left(\frac{15 \sin 110^\circ}{18}\right)$$

$$= 51.5^\circ \text{ (1 d.p.)}$$

## Week 3: Cosine rule

The **cosine rule** can be used in any triangle.

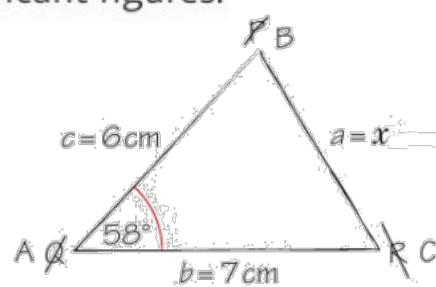
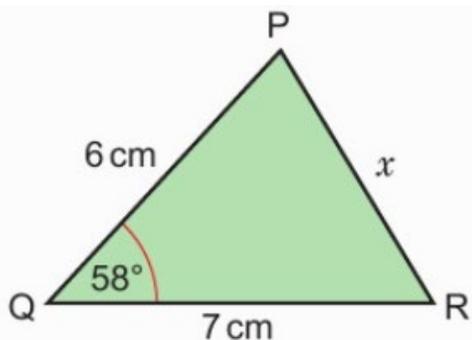
- $a^2 = b^2 + c^2 - 2bc \cos A$  Use this to calculate an unknown *side*.
- $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$  Use this to calculate an unknown *angle*.

You can use the cosine rule to find:

- the length of a *side* if you know two sides and the included angle
- an unknown *angle* if you know all three sides.

### Worked example 1

Work out the length of the side labelled  $x$ .  
Give your answer correct to 3 significant figures.



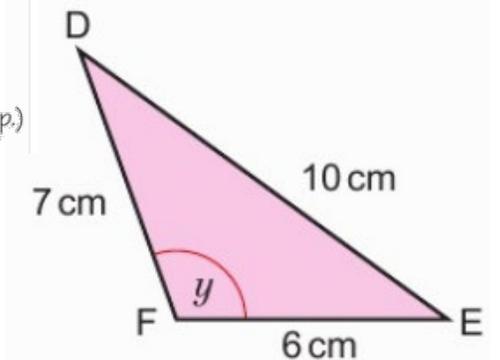
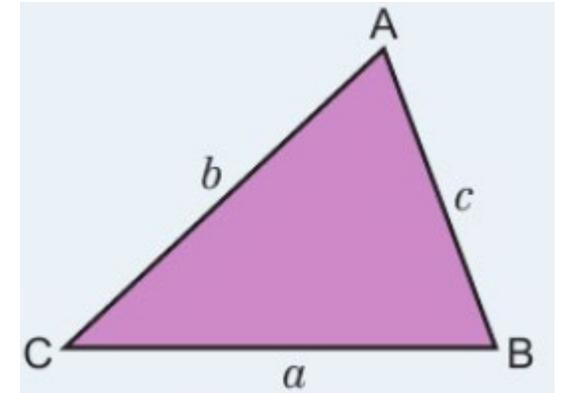
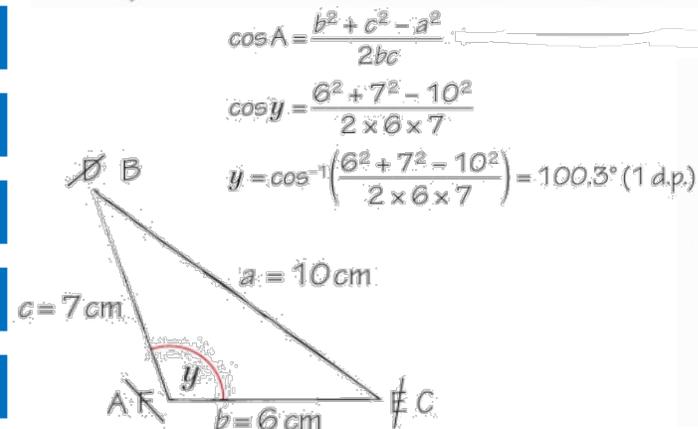
$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$x^2 = 7^2 + 6^2 - 2 \times 7 \times 6 \times \cos 58^\circ = 40.486\dots$$

$$x = \sqrt{40.486} = 6.3629\dots = 6.36 \text{ cm (3 s.f.)}$$

### Worked example 2

Work out the size of angle  $y$ .  
Give your answer correct to 1 decimal place.



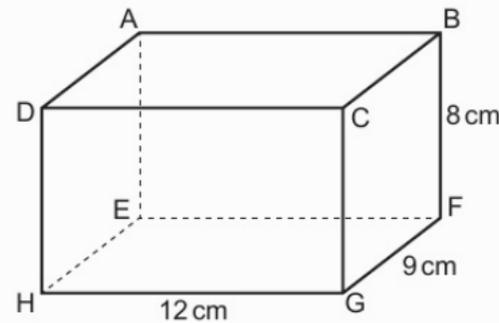
## Week 4: Problems in 3-D and transforming trigonometry graphs

A **plane** is a flat surface. For example, the surface of your desk lies in a **horizontal** plane. The wall in a classroom lies in a **vertical** plane. A diagonal is a line joining one **vertex** to another.

Work out the length of the diagonal, AG, of this cuboid.

The base EFGH is in a horizontal plane and triangle AEG is in a vertical plane. The length of the diagonal AG is  $x$ . The angle that AG makes with EFGH is  $\theta$ .

Find the angle that AG makes with the plane EFGH.

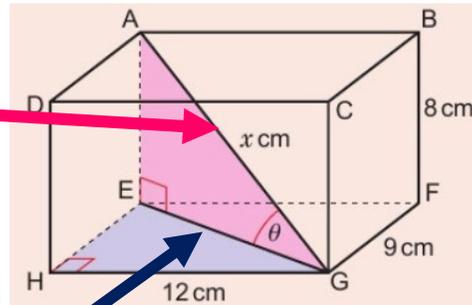


Use the lengths given in the question when you can.

$$x^2 = 8^2 + 15^2 = 289$$

$$x = \sqrt{289} = 17$$

The diagonal AG is 17 cm long.



$$\tan \theta = \frac{8}{15}$$

$$\theta = \tan^{-1}\left(\frac{8}{15}\right)$$

$$= 28.1^\circ (1 \text{ d.p.})$$

$$EG^2 = 9^2 + 12^2 = 225$$

$$EG = \sqrt{225} = 15 \text{ cm}$$

The graph of  $y = f(x) + a$  is the translation of the graph of  $y = f(x)$  by  $\begin{pmatrix} 0 \\ a \end{pmatrix}$ .

The graph of  $y = f(x + a)$  is the translation of the graph of  $y = f(x)$  by  $\begin{pmatrix} -a \\ 0 \end{pmatrix}$ .

The graph of  $y = -f(x)$  is the reflection of the graph of  $y = f(x)$  in the  $x$ -axis.

The graph of  $y = f(-x)$  is the reflection of the graph of  $y = f(x)$  in the  $y$ -axis.

The graph of  $y = f(ax)$  is a horizontal stretch of the graph of  $y = f(x)$ , with scale factor  $\frac{1}{a}$ , parallel to the  $x$ -axis.

The graph of  $y = af(x)$  is a vertical stretch of the graph of  $y = f(x)$ , with scale factor  $a$ , parallel to the  $y$ -axis.

The graph of  $y = -f(-x)$  is a reflection of the graph of  $y = f(x)$  in the  $x$ -axis and then the  $y$ -axis, or vice versa. These two reflections are equivalent to a rotation of  $180^\circ$  about the origin.

## Week 5: Simultaneous equations graphically and algebraically

**Simultaneous equations** are equations that are both true for a pair of variables (letters)

To find the solution to simultaneous equations:

- draw the lines on a coordinate grid
- find the point where the lines cross (the point of **intersection**).

### Exam-style question

Solve the simultaneous equations

$$3x + y = 11 \quad (1)$$

$$2x - 3y = -11 \quad (2)$$

(3 marks)

$$(1) \times 3 \quad 9x + 3y = 33 \quad (3)$$

$$(2) \quad 2x - 3y = -11$$

To solve simultaneous equations by the elimination method, add or subtract the equations to eliminate either the  $x$  or the  $y$  terms.

$$(3) + (2) \quad 11x = 22 \quad \div 11$$

$$x = 2$$

Sub  $x = 2$  in to (1)

$$3(2) + y = 11$$

$$6 + y = 11$$

$$y = 5$$

$$x = 2 \text{ and } y = 5$$

Solve these simultaneous equations algebraically:  $3x + 2y = 9$  and  $x - 2y = -1$

$$3x + 2y = 9 \quad (1)$$

$$x - 2y = -1 \quad (2)$$

$$4x = 8 \quad (1) + (2)$$

$$x = 2 \quad \text{Solve for } x.$$

$$3 \times 2 + 2y = 9 \quad (1)$$

$$6 + 2y = 9 \quad \text{Substitute the } x\text{-value into one of the equations.}$$

$$2y = 3$$

$$y = 1.5$$

$$x = 2, y = 1.5$$

$$x - 2y = 2 - 3 = -1 \quad \checkmark \quad \text{Check the solutions satisfy the other equation.}$$

Write the equations one above the other and number them. The  $y$  terms have coefficients 2 and  $-2$ . Add the two equations together to eliminate the  $y$  term.

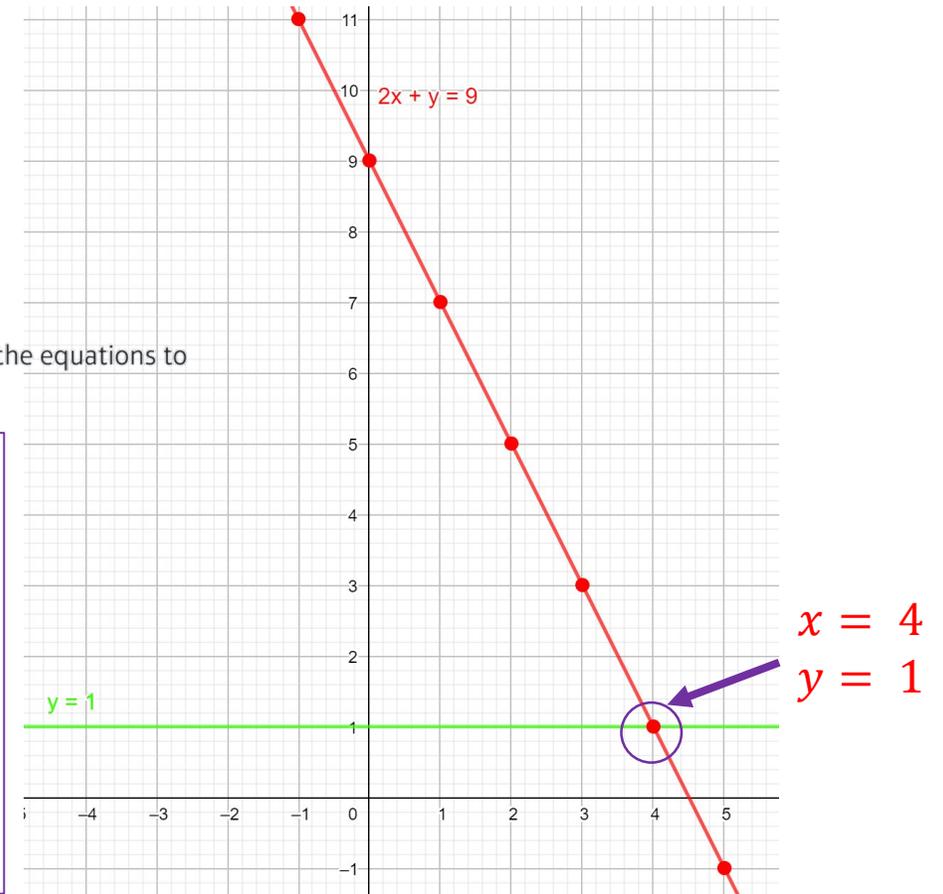
Solve for  $x$ .

Substitute the  $x$ -value into one of the equations.

Write both the solutions.

Check the solutions satisfy the other equation.

- Draw the graph of  $2x + y = 9$ .
- Draw the graph of  $y = 1$  on the same axes.
- Write the solution to the simultaneous equations  $2x + y = 9$  and  $y = 1$ .



## Factorising quadratics

**Factorise-** To put back into brackets

**Quadratics-** Are written in the form of  $ax^2 + bx + c$

**Perfect square-**  $(x + a)^2 = (x + a)(x + a) = x^2 + 2ax + a^2$

Factorise  $x^2 + 7x + 10$ .

$$x^2 + 7x + 10 = (x + 5)(x + 2)$$

$$x^2 + 7x + 10 = (x + 5)(x + 2)$$

$$\begin{aligned} \text{Check: } (x + 2)(x + 5) &= x^2 + 5x + 2x + 5 \times 2 \\ &= x^2 + 7x + 10 \end{aligned}$$

The **factor pairs** of 10 are  $1 \times 10$  and  $2 \times 5$ .  
Only the 2 and 5 add together to make 7 so these are the numbers that go in the brackets.

Check your answer by expanding.

Factorise  $x^2 + 5x + 6$

$$x^2 + 5x + 6$$

$$(x + 2)(x + 3)$$

$$1 \times 6 \quad 2 \times 3$$

$$1 + 6 = 7 \quad 2 + 3 = 5$$

$$(x + 2)(x + 3)$$

$$\text{Check: } (x + 2)(x + 3) = x^2 + 5x + 6$$

Write a pair of brackets with  $x$  in each one. This gives the  $x^2$  term when multiplied.

Work out all the factor pairs of 6, the number term.

Work out which factor pair will **add** to give 5, the number in the  $x$  term.

Then write each number in each of the brackets with  $x$ .

The expression is now factorised. Expand the brackets to check it is correct.

Check  $(x - 3)(x + 3)$   
 $= x^2 - 3x + 3x - 9$   
 $= x^2 - 9$  ✓

With two squares  $4x^2 - 25$   
 $(2x - 5)(2x + 5)$

General Form  $a^2x^2 - b^2$   
 $(ax - b)(ax + b)$

## Difference of two squares

$$a^2 - b^2$$

$$(a + b)(a - b)$$

Subtraction

$$\begin{aligned} 64 - 9 \\ 8^2 - 3^2 \\ (8 + 3)(8 - 3) \end{aligned}$$

For example  
81 is a square  
number

## Expanding quadratics

$$(n + 4)(n + 7) = n^2 + 7n + 4n + 28$$

$$= n^2 + 11n + 28$$

When you **expand** double brackets, you multiply each term in one set of brackets by each term in the other set of brackets.

$$(a + b)(c + d) = ac + ad + bc + bd$$

Expand and simplify  $(w + 6)(w + 12)$ .

$$(w + 6)(w + 12) = w^2 + 12w + 6w + 72$$

$$= w^2 + 18w + 72$$

## Worked example

**Expand** and simplify  $(x + 2)(x + 4)$ .

$$(x + 2)(x + 4) = x^2 + 4x + 2x + 8$$

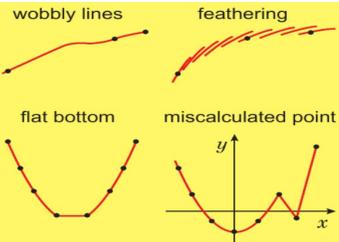
$$= x^2 + 6x + 8$$



## Solving and using quadratic graphs

A **quadratic function** contains a term in  $x^2$  but no higher power of  $x$ .  
 $y = x^2$ ,  $y = 5x^2$ ,  $y = x^2 + 5$  and  $y = x^2 + 3x + 2$  are all quadratic.  
 The graph of a quadratic function is called a **parabola**.

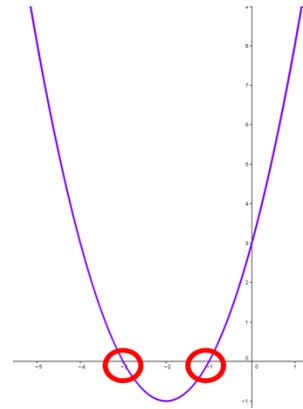
### Common mistakes:



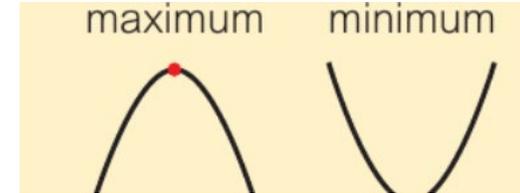
The point where the parabola crosses the  $x$  axis is the solution to the equation for  $x$ .

We would refer to this as 'the solution' to  $x^2 + 4x + 3$

So therefore,  
 $x = -3$  or  $x = -1$



Quadratics can be solved by making them **equal to zero** then factorising



A **turning point** of a graph is where its direction changes. A turning point can be a **maximum** or **minimum** point. A maximum is the point on the graph with the greatest  $y$ -coordinate. A minimum is the point on the graph with the lowest  $y$ -coordinate.

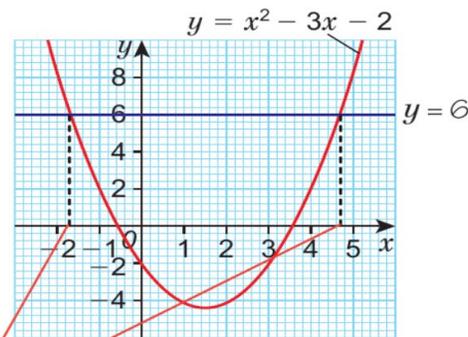
Here is the graph of  $y = x^2 - 3x - 2$ .  
 Use the graph to solve the equation  $x^2 - 3x - 8 = 0$ .  
 Give your answers correct to 1 decimal place.

Rearrange the equation so that one side is  $x^2 - 3x - 2$ .

$$\begin{aligned} x^2 - 3x - 8 &= 0 \\ +6 & \quad +6 \\ \hline x^2 - 3x - 2 &= 6 \end{aligned} \quad \begin{aligned} -8 + 6 &= -2 \end{aligned}$$

Find where  $y = x^2 - 3x - 2$  intersects  $y = 6$ .

$$\begin{aligned} x &= -1.7 \\ x &= 4.7 \end{aligned}$$



Read off the  $x$ -values.

Solve  $x^2 + 6x = 27$ .

$$x^2 + 6x = 27$$

$$x^2 + 6x - 27 = 0$$

$$(x + 9)(x - 3) = 0$$

$$x + 9 = 0 \quad x = -9$$

$$x - 3 = 0 \quad x = 3$$

$$x = -9 \text{ or } x = 3$$

Check by substitution:

$$x = -9$$

$$(-9)^2 + (6 \times -9) = 27$$

$$81 - 54 = 27 \quad \checkmark$$

$$x = 3$$

$$3^2 + (6 \times 3) = 27$$

$$9 + 18 = 27 \quad \checkmark$$

Rearrange the equation so it equals 0.

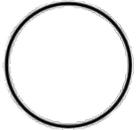
Factorise the quadratic expression.

0 multiplied by any number is 0.  
 So either  $x + 9 = 0$   
 or  $x - 3 = 0$ .

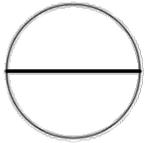
### Circles

### Circles Properties

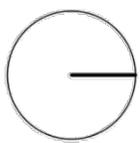
Circumference



Diameter



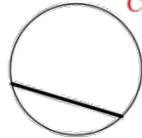
Radius



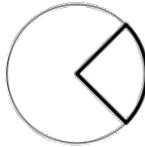
Arc



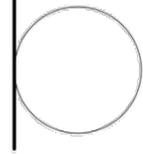
Chord



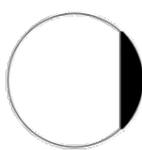
Sector



Tangent



Segment



$$\text{Area} = \pi r^2$$

$$\text{Circumference} = \pi d$$

A circle has area 50 m<sup>2</sup>. Find its radius, to the nearest cm.

$$50 = \pi r^2$$

Substitute  $A = 50$  into the area formula.

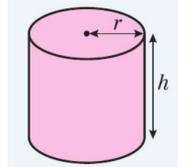
$$\frac{50}{\pi} = r^2$$

Rearrange to make  $r^2$  the subject.

$$\sqrt{\frac{50}{\pi}} = r$$

Square root both sides to find  $r$ .

$$r = 3.99 \text{ m} = 399 \text{ cm}$$



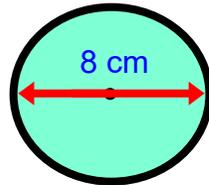
Calculate the **circumference** correct to 1 decimal place.

$$\text{Circumference} = \pi d$$

$$C = \pi \times 8$$

$$= 25.13274123 \text{ cm}$$

$$= 25.1 \text{ cm (1dp)}$$



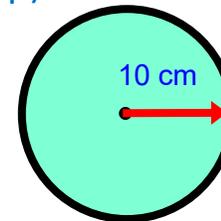
Calculate the **area** correct to 1 decimal place.

$$\text{Area} = \pi r^2$$

$$C = \pi \times 10^2$$

$$= 314.1592654 \text{ cm}^2$$

$$= 314.2 \text{ cm}^2 \text{ (1dp)}$$



$$\text{Volume of a cylinder} = \pi r^2 l$$

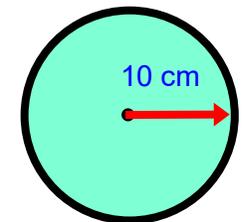
$$\text{Surface area of a cylinder} = \pi dh + 2\pi r^2$$

Calculate the **Volume**  $\text{Volume} = \pi r^2 l$

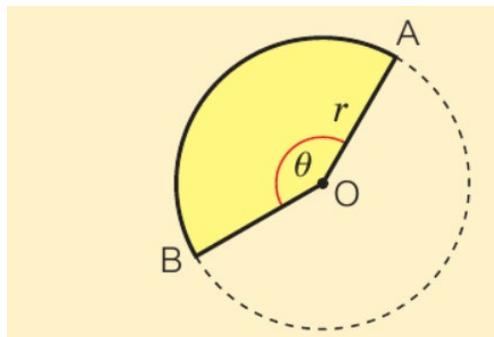
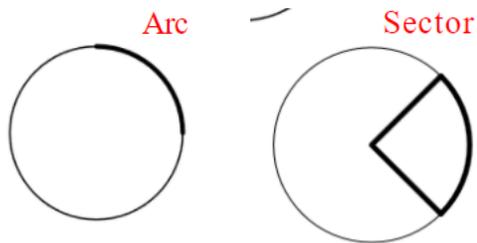
$$V = \pi \times 10^2 \times 5$$

$$= 1570.796327 \text{ cm}^3$$

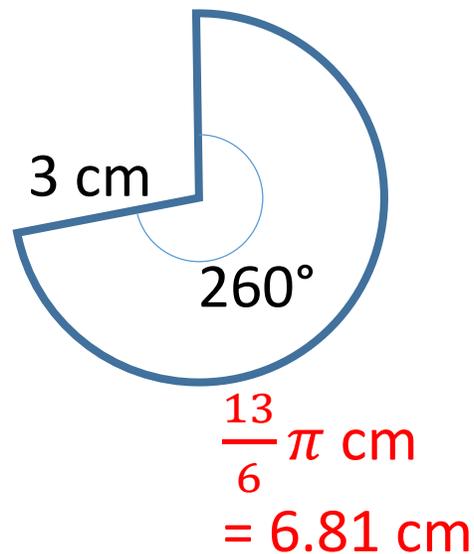
$$= 1570.8 \text{ cm}^3 \text{ (1dp)}$$



## Arcs and sectors



Example length  
of an arc



Example area  
of a sector

$$\begin{aligned}
 & \frac{36}{360} \times \pi \times 9^2 \\
 &= 8.1\pi \text{ cm} \\
 &= 25.4 \text{ cm}^2
 \end{aligned}$$

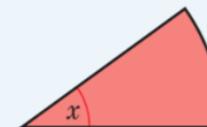
$$\text{Area of sector} = \frac{\theta}{360} \times \pi r^2$$

$$\text{Length of arc} = \frac{\theta}{360} \times 2\pi r$$

For a sector with angle  $x^\circ$  of a circle  
with radius  $r$

$$\text{Arc length} = \frac{x}{360} \times 2\pi r$$

$$\text{Area of sector} = \frac{x}{360} \times \pi r^2$$



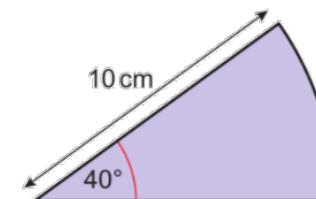
**Communication hint**  
An **arc** is part of a circle.

### Example 4

Work out

- the arc length
- the perimeter
- the area of this sector.

Give your answers to 3 s.f.



$$a \text{ Arc length} = \frac{x}{360} \times 2\pi r$$

$$\begin{aligned}
 &= \frac{40}{360} \times 2 \times \pi \times 10 \\
 &= 6.98 \text{ cm (3 s.f.)}
 \end{aligned}$$

Write the formula, substitute the angle  $x$  and radius.

$$b \text{ Perimeter} = 6.98 + 10 + 10 = 27.0 \text{ cm (3 s.f.)}$$

Perimeter = arc length + 2 radii

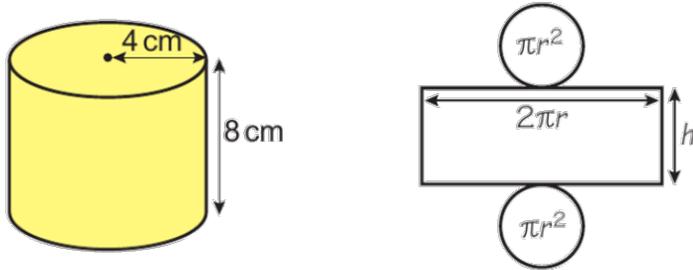
$$c \text{ Area} = \frac{x}{360} \times \pi r^2$$

$$\begin{aligned}
 &= \frac{40}{360} \times \pi \times 100 \\
 &= 34.9 \text{ cm}^2 \text{ (3 s.f.)}
 \end{aligned}$$

Write the formula, substitute the angle  $x$  and radius.

## Spheres, Pyramids and cones

Calculate the total surface area of this cylinder. Give your answer to 1 d.p.



$$\text{Area of each circle} = \pi \times 4^2 = 16\pi$$

$$\text{Area of rectangle} = 2\pi r h = 2 \times \pi \times 4 \times 8 = 64\pi$$

$$\text{Surface area} = 2 \times 16\pi + 64\pi$$

$$= 32\pi + 64\pi$$

$$= 96\pi$$

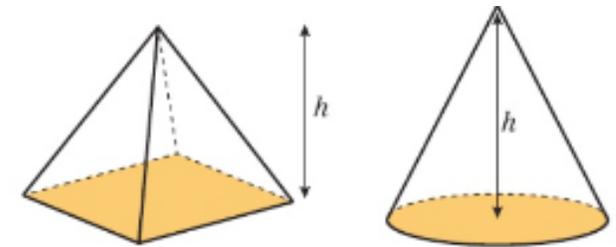
$$= 301.6 \text{ cm}^2$$

Two circles plus rectangle.

Sketch a net.  
Each circle has area  $\pi r^2$ .  
The length of the rectangle is the circumference of the circle,  $2\pi r$ .  
The width of the rectangle is the height of the cylinder,  $h$ .

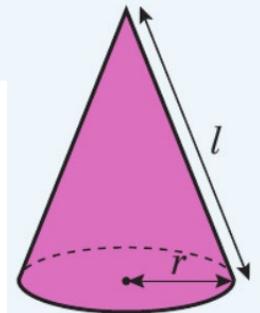
Volume of pyramid =  $\frac{1}{3}$  area of base  $\times$  vertical height

Volume of cone =  $\frac{1}{3}$  area of base  $\times$  vertical height  
 $= \frac{1}{3} \pi r^2 h$



Curved surface area of a cone =  $\pi r l$ , where  $r$  is the radius and  $l$  is the slant height.

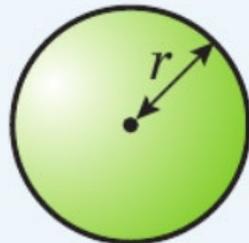
Total surface area of a cone =  $\pi r l + \pi r^2$



For a sphere of radius  $r$

$$\text{Surface area} = 4\pi r^2$$

$$\text{Volume} = \frac{4}{3} \pi r^3$$



## Week 1

### Biodiversity

**Biodiversity** – the variety of different species on Earth, or within an ecosystem.

**High biodiversity**  
(lots of different species)



**Reduced dependence** of one species on another for things like food, shelter and the maintenance of the physical environment



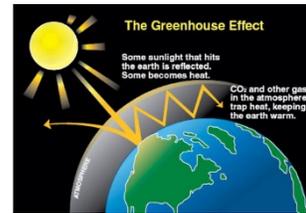
**Stable ecosystems**

### Global warming

The Earth is gradually being heated up as a result of increasing levels of greenhouse gases in the atmosphere.

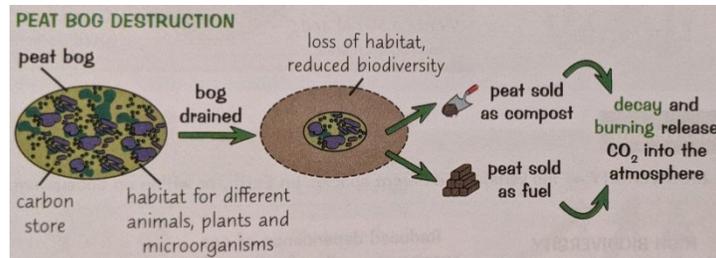
Three consequences of global warming could be:

1. **Rising sea levels** (so low-lying places may flood)
2. **A change in the distribution** of some organisms
3. **A decrease in biodiversity** (as some species may become extinct)



### Land use and deforestation

Humans use land for things like building, quarrying, farming and dumping waste. This means there's less land available for other organisms.



**Deforestation** – the cutting down of forests. It has been done on a large-scale in tropical areas in order to:

- Clear land for rice fields and farming cattle
- Grow crops to make biofuels

## Week 2

### Pollution

An increasing human population and standard of living

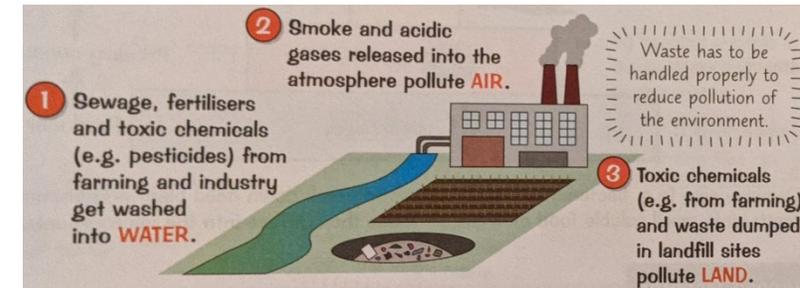
More resources used more quickly

More waste produced

More pollution

More plants and animals killed, so **less biodiversity**

These are three ways we pollute the environment:



### 5 Programmes to protect ecosystems

1. **Breeding programmes** – endangered species are bred in captivity to make sure the species survives.
2. **Habitat restoration** – rare habitats like mangroves, heathland and coral reefs are protected and regenerated.
3. **Hedgerows and field margins** – these are reintroduced around fields where only a single crop type is grown, creating habitats for more organisms
4. **Government regulations** – e.g. to reduce deforestation and CO<sub>2</sub> emissions
5. **Recycling** – reduces the amount of waste going to landfill sites.



## Week 3

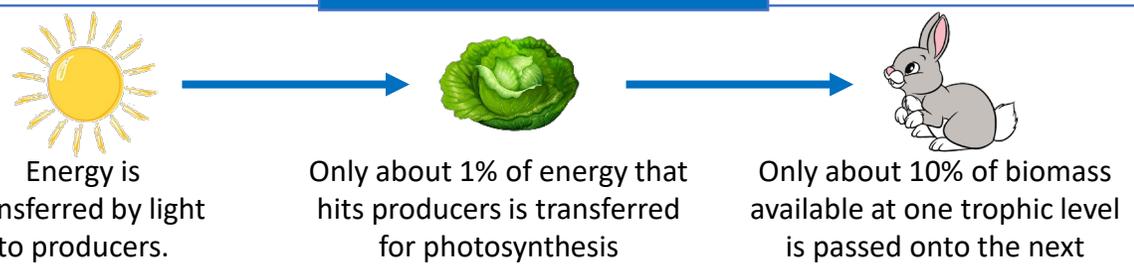
### Trophic levels

**Trophic level** – as stage in a food chain  
**Pyramid of biomass** – a diagram showing the relative amounts of biomass at each trophic level.



**Decomposers** – e.g. bacteria, secrete enzymes to break down dead plant and animal matter into small soluble food molecules. These then diffuse into the microorganisms

### Biomass transfer



Here are three reasons why biomass is lost between trophic levels:

1. Not all of the material ingested by an organism is absorbed, some is lost as faeces
2. Some biomass is lost as waste substances (e.g. CO<sub>2</sub> and water in respiration, water and urea in urine) rather than being used to build new biomass
3. Lots of glucose is used for respiration rather than being used to build new biomass

$$\text{Efficiency of biomass transfer (\%)} = \frac{\text{biomass transferred to the next level}}{\text{biomass available at the previous level}} \times 100\%$$

## Week 4

### Food security threats

**Food security** – having enough food to feed a population. It's threatened by 6 things:

1. **Increasing birth rate**
2. **Changing diets** in developed countries
3. **New pests and pathogens** that affect crops and livestock
4. **Environmental changes** that affect farming
5. **Cost of farming**
6. **Conflict**

### Increasing Efficiency

Food can be produced more efficiently by reducing the energy transferred from livestock to the environment, for example:

- **By restricting movement**
- **By keeping animals in temperature-controlled environments**

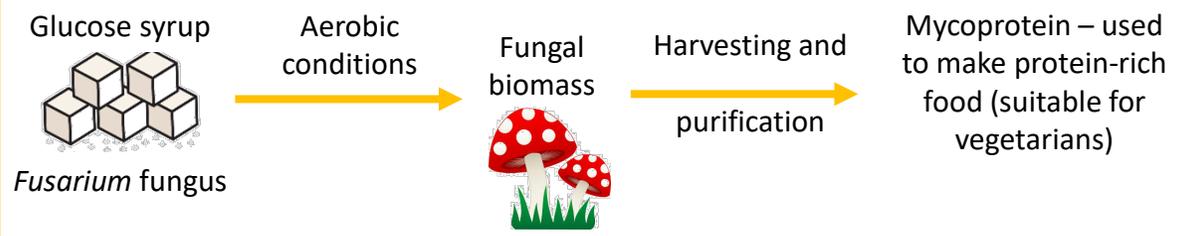
### Overfishing

Fish stocks are declining due to overfishing. We need to maintain stocks at a level where the fish continue to breed. This can be done by:

- **Introducing fishing quotas**
- **controlling net size**

### Biotechnology

**Biotechnology** – where living things and biological processes are used and manipulated to produce a useful product. It can be used to produce food for the growing human population (e.g. microorganisms can be cultured for use as a food source).



**Genetically modified** crops produce more food or food with a greater nutritional value – e.g. 'golden rice' produces a chemical that's converted into vitamin A in the body.

## Week 5

### Food security threats

**Food security** – having enough food to feed a population. It is threatened by these six things:

1. **Increasing birth rate**
2. **Changing diets** in developed countries (meaning they take scarce food resources from other countries)
3. **New pests and pathogens** that affect crops and livestock
4. **Environmental changes** that affect farming (e.g. changes in rainfall patterns)
5. **Cost of farming**
6. **Conflict**

### Increasing efficiency

Food can be **produces more efficiently** by reducing the energy transferred from livestock to the environment, for example:

- **By restricting movement**
- **By keeping animals in temperature-controlled environments**

### Overfishing

Fish stocks are declining due to **overfishing**. We need to **maintain** stocks at a level where the fish continue to breed. This can be done by:

- **Introducing fishing quotas**
- **Controlling net size**

### Biotechnology

**Biotechnology** – where living things and biological processes are used and manipulated to produce a useful product. It can be used to produce food for the growing human population (e.g. microorganisms can be cultured for use as a food source).



**Genetically modified** crops can produce more food or food with a greater nutritional value – e.g. 'golden rice' produces a chemical that's converted into vitamin A in the body.

## Week 6

### Exam technique

The **basics**:

1. The **number of marks** gives you an idea of **how much to write**
2. The **space** provided gives us an idea of **how much to write**

1 (b) All organisms compete for resources to survive.

Give three factors plants compete for.

1 .....

2 .....

3 ..... (3 marks)

This is a 3 mark question and all it is asking for is **3 correct one word answers**

We know this because there is only a small amount of space to write. If there was more lines the examiner is looking for a more in-depth answer.

3. **Don't write in blank spaces** – your papers are scanned and marked, if the examiner can't see it, it won't be marked.
4. **Write very clearly** – examiners will give you 0 for any answers they cannot read quickly and easily.

**Tip 1:** Familiarise yourself with the command terms in questions

**Tip 2:** Read the question. Re-read the question and highlight key words and information that they have provided you with

**Tip 3:** 6 mark question advice: for the 9-1 GCSE, bullet points are now acceptable, you will be marked on what you write and if it is correct or not.

**Tip 4:** Given a graph or data? Then use it!

**Tip 5:** Questions with lots of information, often means you need to carry information from one question to the next.

**Tip 6:** They may give you examples and information that you are unfamiliar with – **do not panic** – there **must** be a link to something you know

**Tip 7:** You **will** be asked about core practicals and how to do them!

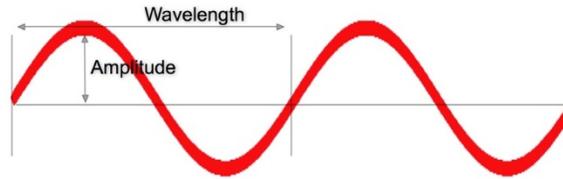
## Week 1-2

### Wave Basics

When waves travel through a medium, they transfer energy (and not matter).

**Frequency** – number of complete waves passing a certain point each second.

**Period** – amount of time it takes for a complete wave to pass a point.

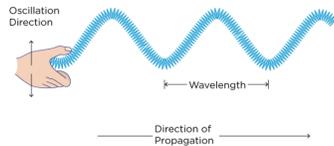


**Amplitude** – maximum displacement of a point on a wave from its rest position.

**Wavelength** – amount of time it takes for a complete wave to pass a point

### Transverse waves

Oscillations **perpendicular** (at 90°) to direction of energy transfer.

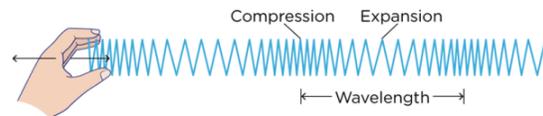


3 types of transverse waves:

1. Ripples in water
2. Electromagnetic waves (e.g. light)
3. Waves on a string

### Longitudinal waves

Oscillations **parallel** to direction energy transfer.



1 type of longitudinal wave:

1. Sound waves

### The wave equation

**Wave speed** – speed at which a wave transfers energy (or speed the wave moves at).

$$v = f\lambda$$

Where:

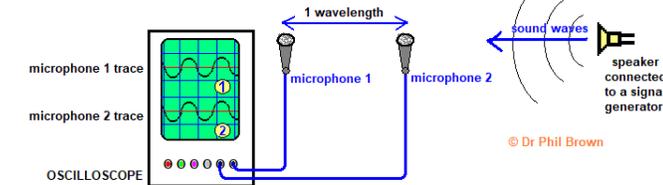
- $v$  = wave speed in m/s
- $f$  = frequency in hertz, Hz
- $\lambda$  = wavelength in m

### Measuring the speed of sound

Speaker attached to signal generator of specific frequency.

Move one microphone until waves line up. Distance between microphones is now equal to **one wavelength**.

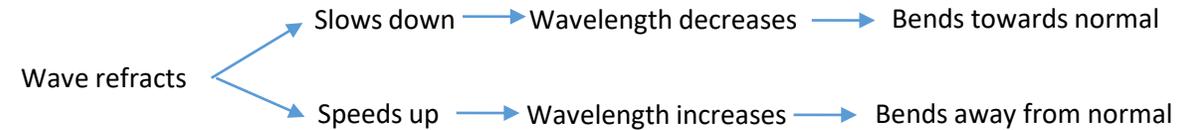
Experiment to measure the speed of sound



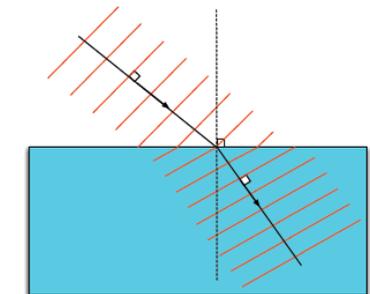
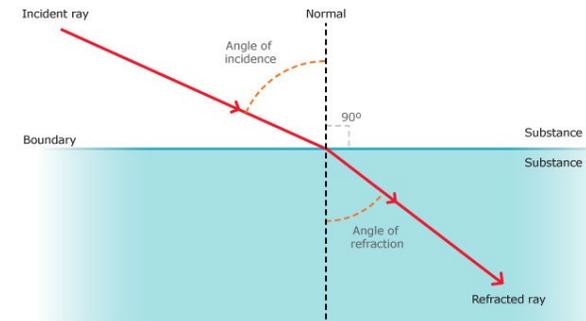
Use the wave equation to calculate speed

### Refraction

**Refraction** – when a wave change direction as it crosses a boundary between two materials at an angle to the normal.



Refraction of light

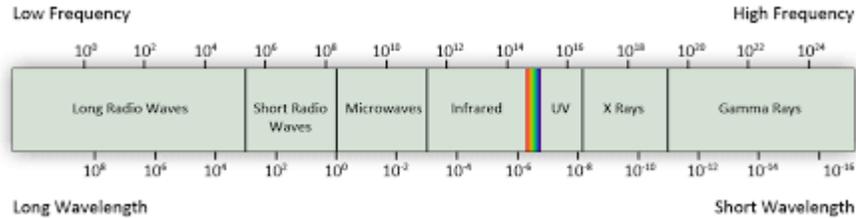


## Week 3

### The Electromagnetic (EM) Spectrum

EM waves are

- Transverse
- Transfer energy from source to absorber
- Travel at the same speed in air or a vacuum



### Uses of EM Waves

Electromagnetic radiation	Uses	
Radio waves	Broadcasting and communications – their longer wavelength means they travel further in the Earth's atmosphere, reflecting off hills and the upper atmosphere.	
Microwaves	Cooking food – microwaves are absorbed by water molecules causing them to vibrate (heat up). Satellite transmissions – their wavelength penetrates our atmosphere.	
Infrared	Heater and night vision equipment – all objects, including people, give out infrared rays which can be detected even at night. It's also used for television remote controls.	
Visible light	Human vision, photography and optical fibres – it's the only part of the spectrum we can see.	
Ultraviolet	Fluorescent lamps – they have chemicals inside them which absorb ultraviolet rays and convert the energy to visible light.	
X-rays	Medical equipment – they enable us to see the internal structure of objects and materials by passing through some substances (eg body tissue) but being absorbed by others (eg bone).	
Gamma rays	Sterilising food and medical equipment – they are highly penetrative and can kill.	

### Dangers of EM Waves

**Radiation dose** – measure of the risk of harm to body tissues due to exposure to radiation. It is measured in Sieverts.

Risk depends on:

- Size of dose
- Type of radiation

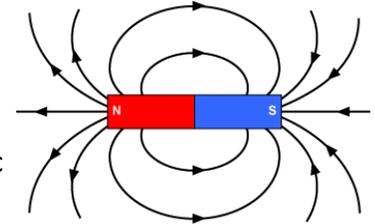
Types of radiation:

- UV: can prematurely age skin and increase the risk of skin cancer
- X-rays and gamma rays: can cause gene mutation and cancer

### Magnets

**Permanent magnet** – produces its own magnetic field. A magnetic field;

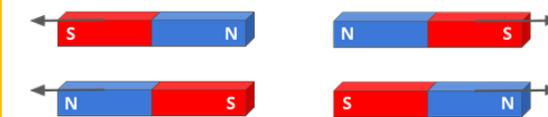
- Is strongest at the poles
- Strength of the field decreases with distance from magnet
- Has lines that show directions force would act



**Magnetic field** – the region where other magnets or magnetic materials experience a force.

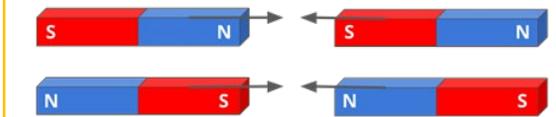
### Repulsion

Like poles repel



### Attraction

Unlike poles attract



### Magnetic materials

**Induced magnet** – a magnetic material that turns into a magnet when it's put into a magnetic field.

Four magnetic materials are:

1. Iron
2. Steel
3. Nickel
4. Cobalt



A permanent magnet and an induced magnet are always attracted to each other.

When the induced magnet is moved away from the permanent magnet, it quickly loses all (or most) of its magnetism.

### Week 4

#### Compasses

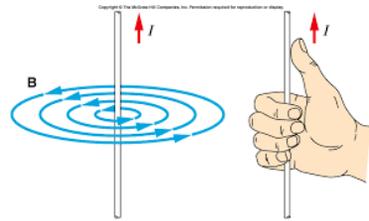
Compass needles point in the direction of the magnetic field it's in. When a compass isn't near a magnet, its needle points North to line up with the Earth's magnetic field.



#### Current-Carrying Wire

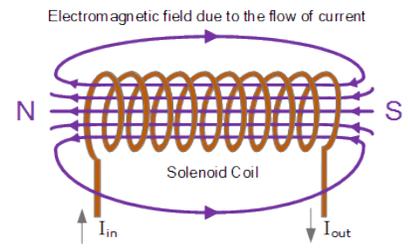
Two factors of the magnetic field strength depends on:

1. Size of current
2. Distance from the wire

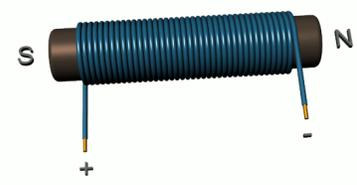


#### Solenoids and Magnetic fields

Twisting a wire into a solenoid increases the magnetic field strength around the wire. Magnetic fields of each turn of wire add together, So magnetic field inside solenoid is **strong** and **uniform**.



**Electromagnet** – is a solenoid with an iron core. It is a magnet that can be turned on and off.

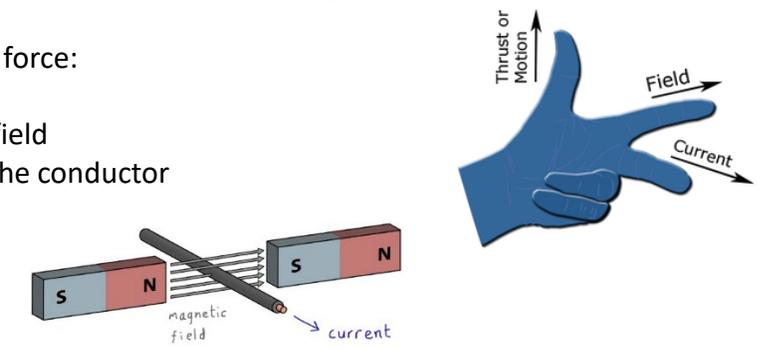


#### Force on a conductor

**Motor effect** – when a magnet and a current-carrying conductor exert a force on each other.

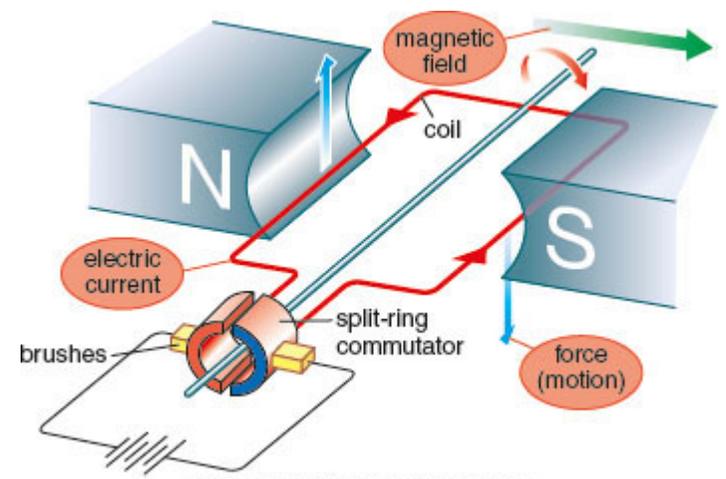
Three ways to increase the force:

1. Increase the current
2. Increase the magnetic field
3. Increase the length of the conductor



#### Electric motors

Direct current is passed through wire → Each side of the coil experiences opposite forces → Coil rotates



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### Energy changes

Week 1

[BBC Bitesize](#)  
[Free Science Lessons YouTube](#)  
[Physics and math's tutor](#)  
[SharePoint Revision](#)  
Kerboodle textbook: Pages 112-125

### Rates of reaction

Week 2

[BBC Bitesize](#)  
[Free Science Lessons YouTube](#)  
[Physics and math's tutor](#)  
[SharePoint Revision](#)  
Kerboodle textbook: Pages 128-147

### Organic chemistry

Week 3

[BBC Bitesize](#)  
[Free Science Lessons YouTube](#)  
[Physics and math's tutor](#)  
[SharePoint Revision](#)  
Kerboodle textbook: Pages 148-177

### Chemical analysis

Week 4

[BBC Bitesize](#)  
[Free Science Lessons YouTube](#)  
[Physics and math's tutor](#)  
[SharePoint Revision](#)  
Kerboodle textbook: Pages 180-193

### Chemistry of our atmosphere

Week 5

[BBC Bitesize](#)  
[Free Science Lessons YouTube](#)  
[Physics and math's tutor](#)  
[SharePoint Revision](#)  
Kerboodle textbook: Pages 194-205

### Using our resources

Week 6

[BBC Bitesize](#)  
[Free Science Lessons YouTube](#)  
[Physics and math's tutor](#)  
[SharePoint Revision](#)  
Kerboodle textbook: Pages 206-237

### Required practical's

Week 7

[Paper 1](#)  
[Paper 2](#)  
[Practical skills](#)  
[Physics and math's tutor](#)  
[SharePoint Revision](#)

### Specification

<https://filestore.aqa.org.uk/resources/chemistry/specifications/AQA-8462-SP-2016.PDF>

## Week 1- Physical Geography of the UK

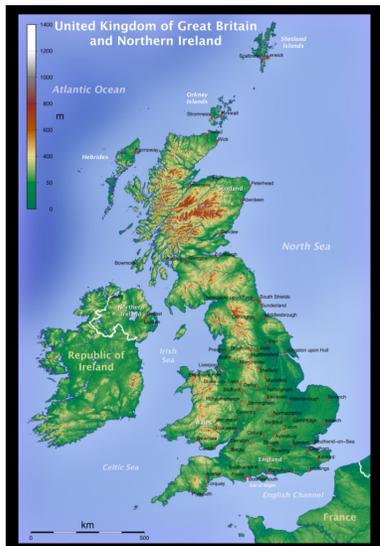
### Physical Geography of the UK

The UK has some of the most diverse environments for its size. The physical geography of the UK was formed through **geological, fluvial, glacial, erosional and tectonic processes**.

The majority of the UK's upland areas are located in the north and west of the country. These areas are mainly formed from **igneous** (volcanic) and **metamorphic** rock. Lowlands are typically found around the coast and in the south and east. These areas are mainly made up of **sedimentary** rock.

### Rivers

The UK consists of a number of **river basins**. These are large areas of land drained by a river and its tributaries. At 220 miles the longest river in the UK is the River Severn.

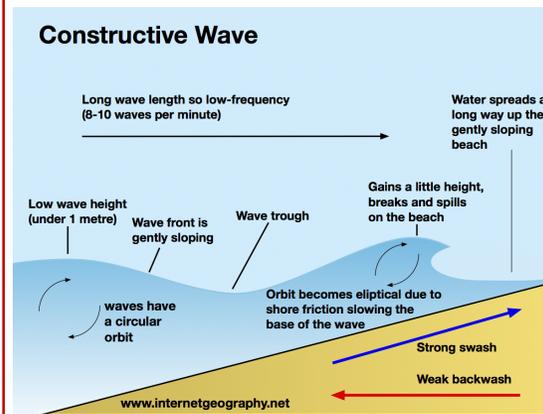


## Week- 2 What are constructive waves?

### What are Constructive waves?

**Constructive waves** build beaches. These waves are more common in summer than in winter. **Constructive waves** are mainly found in calmer weather conditions when less energy is being transferred to the water. Each wave is low. As the wave breaks it carries material up the beach in its swash. The beach material will then be **deposited** as the **backwash** soaks into the sand or slowly drains away. When the next wave breaks its **swash** will **deposit** more material without it being 'captured' by the backwash of the preceding wave. **Constructive waves** have a long **wavelength** and a low-**frequency** (8–10 waves per minute). They have a low wave height (typically under 1 metre). The **wavefront** is gently sloping and gains a little height, breaks and spills onto the beach. Water spreads a long way up the gently sloping beach. Constructive waves are typically found in sheltered **bays** and **spits** where they build up sandy beaches

Watch some **constructive waves** here <https://youtu.be/ghAHQyPONRI>



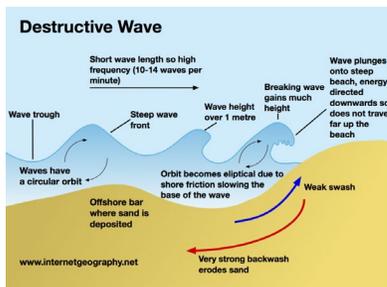
## Week 2 What are destructive waves?:

### What are destructive waves?

**Destructive waves** are usually found in more exposed bays, where they build pebble beaches. Although a destructive wave's **swash** is much stronger than that of a constructive wave, its **swash** is much weaker than its **backwash**. This means that these waves can **transport** beach material back into the sea and lower the height of beaches in winter.

Destructive waves destroy beaches. The waves are usually very high, have a short **wavelength** and are very frequent. The wave has a steep **front** and is typically over 1 metre high. The **backwash** has less time to soak into the sand. As waves continue to hit the beach there is more running water to **transport** the material out to sea. As the wave approaches the beach it gains height and **plunges** onto a steep beach so does not travel far up the up it. The force generated by a breaking destructive wave can also **erode** a headland.

They are more common in winter than in summer.



## Week 3: What is chemical and mechanical weathering?

### What is weathering?

Weathering is the break down of rock in-situ by the action of rainwater, extremes of temperature, and biological activity.

**Mechanical weathering** is the breakdown of rock without changing its chemical composition. This means the rock breaks up without its chemical makeup changing.

**Freeze-thaw weathering** is the main type of mechanical weathering that affects coasts.

**Freeze-thaw weathering** occurs when rocks are **porous** (contain holes) or permeable (allow water to pass through). Water enters the rock and freezes. The ice expands by around 9%. This causes pressure on the rock until it cracks. Repeated **freeze-thaw** can cause the rock to break up.

Recently **weathered** rock can be seen at the foot of chalk and limestone cliffs and is easily identified because it is angular. Over time it will become smoother, forming peddles and then eventually sand.

**Salt weathering** is when salt spray from the sea gets into a crack in a rock. It may evaporate and **crystallise**, putting pressure on the surrounding rock and weakening the structure.

**Chemical weathering** is the breakdown of rock through changing its chemical composition. When rainwater hits rock it **decomposes** it or eats it away. This is known as **carbonation**. This occurs when slightly acidic (**carbonic**) rain or sea water comes into contact with **sedimentary rock**, such as limestone or chalk, it causes it to dissolve. A chemical reaction occurs between the acidic water and the **calcium carbonate** and forms **calcium bicarbonate**. This is **soluble** and is carried away in **solution**. **Carbonation** weathering occurs in warm, wet conditions.

**Hydrolysis** is when acidic rainwater breaks down the rock, causing it to rot.

**Oxidation** is when rocks are broken down by oxygen and water.

**Weathering** weakens cliffs and this then speeds up rates of erosion.

## Week 4- What is mass movement?

### What is Mass Movement?

**Mass Movement** is the downhill movement of cliff material under the influence of gravity. There are a range of different types of mass movement.

#### Slumping/rotational slip

Cliffs formed from **boulder clay**, material **deposited** by **glacial periods**, are **susceptible** to high rates of coastal **erosion**. The Holderness Coast is an example of a coastline formed from **boulder clay** and is the fastest eroding coastline in Europe. The soft boulder clay is quickly **eroded** through **hydraulic action** and **abrasion**. However, this is not the only way it is being **eroded**. **Sub-aerial processes**, such as rainfall, also cause **erosion**. This often happens where layers of **boulder clay**, left behind by melting **glaciers**, become **saturated** and cause the cliff to **slump**. The **debris** on the beach is then **eroded** by the sea leaving the cliff exposed once more.

#### Landslides

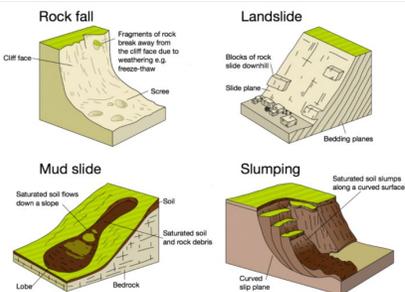
In areas of more **resistant** cliff material erosion is greatest when waves break at the **foot** of a cliff. This causes **erosion** at the base of the cliff. This creates a **wave-cut notch** in the base of the cliff. As the notch increases in size, the weight of the cliffs above become too much to support which leads to a landslide. This material will provide temporary protection for the cliff behind. However, once it has been removed by the sea this process will occur again. Where cliffs are made of more **resistant** material, **wave-cut platforms** will be created.

#### Rockfall

A **rockfall** involves fragments of rock breaking away from the cliff face, often due to **freeze-thaw weathering**.

#### Mudslides

Mudslides occur when **saturated** soil and weak rock flows down a slope. These typically occur where cliffs are made up of **boulder clay**.



## Week 5- What is coastal erosion?

**Coastal erosion** is the wearing away of the land by the sea often involves **destructive waves** wearing away the coast (though **constructive waves** also contribute to coastal erosion).

### What are the processes of coastal erosion?

There are four main processes of coastal erosion. These are **corrosion**, **abrasion**, **hydraulic action** and **attrition**.

Waves hitting the base of a cliff causes air to be **compressed** in cracks, joints and folds causing repeated changes in air pressure. As air rushes out of the cliff when the wave retreats it leads to an explosive effect as pressure is released. This process is supported further by the weakening effect of **weathering**. The material breaks off cliffs, sometimes in huge chunks. This process is known as **hydraulic action**.

**Attrition** is when waves cause rocks and pebbles to bump into each other and break up.

**Abrasion** occurs as breaking waves, concentrated between the high and low **watermarks**, which contain sand and larger fragments wear away the base of a cliff or **headland**. It is commonly known as the sandpaper effect. This process is particularly common in high-energy storm conditions.

### What factors affect the rate of coastal erosion?

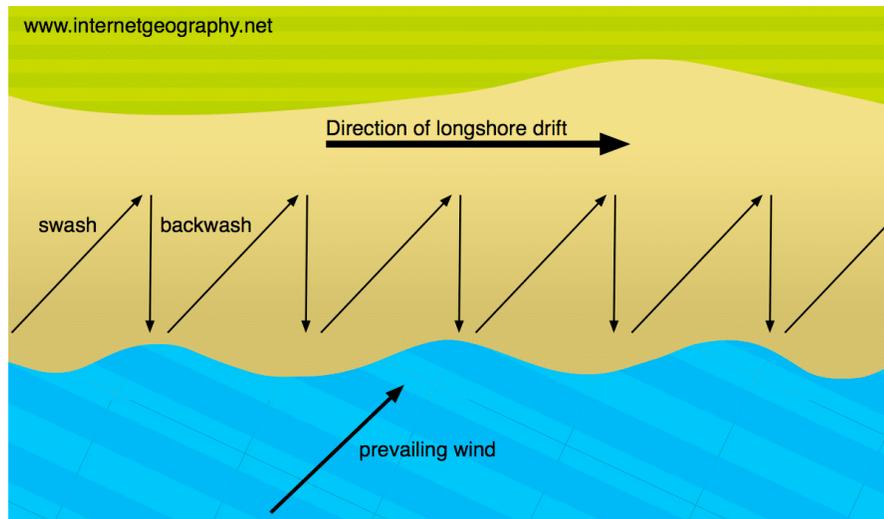
Coastal erosion is most significant when:

- waves have a large **fetch**, e.g. the south-west coast has an 8000 kilometre fetch across the Atlantic Ocean;
- strong winds blow for a long time creating **destructive waves**;
- an area of coastline has no beach to buffer the waves;
- the cliff material is soft, e.g. soft boulder clay along the Holderness Coast means it experiences the highest rate of **erosion** in Europe;
- cliffs made from rock have many joints;
- a headland sticks out into the sea and waves converge on it (**wave refraction**).

## Week 6- What is longshore drift??

**Longshore drift** is the movement of material along the shore by wave action. It happens when waves approach the beach at an angle. The **swash** (waves moving up the beach) carries material up and along the beach. The **backwash** (waves moving back down the beach) carries material back down the beach at right angles. This is the result of gravity. This process slowly moves material along the beach and provides a link between **erosion** and **deposition**.

**Longshore drift** contributes towards the formation of a range of **depositional landforms** such as **spits** and **onshore bars**. Spurn Point is a coastal **spit** formed by the transportation of coastal sediment by **longshore drift** along the Holderness Coast. This material is then **deposited** at the mouth of the Humber **Estuary**.



## Week 7- What is coastal deposition?

### What is coastal deposition?

**Deposition** is when material that is being **transported** is dropped by **constructive waves**. It happens because waves have less energy.

**Deposition** happens when the swash is stronger than the **backwash** and is associated with **constructive waves**.

### So, where does **deposition** happen?

**Deposition** is likely to occur when:

- waves enter an area of shallow water;
- waves enter a sheltered area, eg a **cove** or **bay**;
- there is little wind;
- a river or **estuary** flows into the sea reducing wave energy;
- there is a good supply of material and the amount of material being **transported** is greater than the wave energy can **transport**.

### Beaches

The beach is the area between the lowest **spring tide level** and the point reached by the storm waves in the highest tides. Every beach is different but they are usually made up of material deposited on a **wave-cut platform**. Beaches are formed from sand, sand and **shingle** or pebbles. They can also be formed from mud and **silt**.

A sandy beach is usually formed in a sheltered bays, where low energy, **constructive waves transport** material onto the shore. The **swash** is stronger than the **backwash**, so the material is moved up the beach. Below is an image of a sandy beach forming in a sheltered bay.



## Week 1-3

### Key question 1: What was American society like during the Depression?

During the 1920s, many of Americans **played the stock market**. This meant that share prices rose and banks would be willing to lend people more money.

This caused a problem:

- American factories were overproducing and profits began to fall
- Companies struggled to sell good abroad



In September 1929, many people started to sell their shares as they were concerned about whether the 'boom' situation would last – **the market collapsed and banks went bankrupt (Black Thursday)!**

Impact:

**Shareholders:** They lost a lot of cash. Many faced homelessness as they struggled to pay rent

**Factory workers:** Many lost their jobs. Many lose their savings as banks went bankrupt.

**Factory owners:** They struggled to sell their goods as less people had cash to buy products (underconsumption)

**Bank managers:** Many lost their jobs when banks went bankrupt.

**The very rich:** Many have to sack staff and reconsider spending. They have property to fall back on.

**Farmers:** Many faced losing their farms and sacking their workers.

Overall there were **violence, protests, camps for the homeless (Hooverville) and breadlines.**



### Key question 2: How effective was the New Deal?

Franklin D Roosevelt (FDR, a Democrat) won the 1932 election and promised America a 'New Deal' out of the Depression.

Changes:

1. Emergency Banking Act to help the banks/ cash flow in the US
2. Economy Act, which cut public spending
3. Beer Act, which made it legal to buy and sell alcohol again

There was also help for farmers, industry and workers, unemployed and homeless people.

However there was also opposition to the New Deal, for example:

1. The rich did not like the tax increases
2. Business people did not like the changes to employment law
3. Republicans complained that the New Deal was ruling peoples lives and FDR was a dictator!

Overall the New Deal created jobs and for some groups, e.g. Native Americans, life improved. However, most Americans were poor throughout the 1930s.

**Popular culture** (books, music, movies etc) also did quite well in the 1930s and FDR was keen to support the Arts.



## Week 4-6

### Key question 3: What was the impact of WW2?

American had followed a policy of **Isolationism in the 1920s**. This came to an end when the war broke out in 1939 and American sold weapons to Britain and France. America entered the war in 1941 after the Japanese attack at Pearl Harbour.

- The Neutrality Act from 1935 had banned the sale of weapons so far
- The Cash and Carry Plan from 1939 allowed Britain and France to buy weapons from the US. This created jobs.
- In 1941, FDR agreed the Lend Lease Deal with Britain for weapons.

Impact of war:

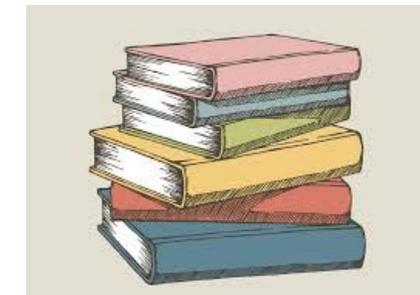
- America set a target of building weapons at a record rate.
- Unemployment dropped due to rearmament
- War changed the role of women with many now working in stereotypically male jobs
- African-Americans first faced discrimination in the forces, however this broke down after while.

Overall, America financially benefitted from the war. People also trusted that the government could solve 'big issues'.



### Further reading and research:

- <https://www.youtube.com/watch?v=62DxEIjuRec>
- <https://www.youtube.com/watch?v=Sv7IP2qL0gg>
- <https://www.youtube.com/watch?v=c0tPZoPWgBI>
- <https://www.bbc.co.uk/bitesize/guides/zxy3k2p/revision/8>



## Term 3 Week 1 &amp; 2 -

- Describing different sorts of houses.
- Saying where you live and comparing different cultural living styles

## ¿Cómo es tu casa?

Vivo en...  
 un bloque de pisos  
 una casa individual  
 una casa adosada  
 un piso / apartamento  
 una granja

Está en...  
 el centro de la ciudad  
 un barrio en las afueras  
 las afueras  
 el campo  
 un pueblo en la costa  
 la montaña  
 abajo / arriba  
 en la planta baja

## What is your house like?

I live in...  
 a block of flats  
 a detached house  
 a semi-detached / terraced house  
 a flat / apartment  
 a farmhouse

It is in...  
 the centre of city  
 a district in the suburbs  
 the outskirts / suburbs  
 the country  
 a village on the coast  
 the mountains  
 downstairs / upstairs  
 on the ground floor

This is CORE  
 vocabulary for this  
 topic.



- Using prepositions, describing rooms in houses and furniture
- Recapping content from Y7

en la primera planta  
 en el primer piso  
 fuera...  
 hay...

un aseo  
 un comedor  
 un cuarto de baño  
 un despacho / estudio  
 un dormitorio  
 un salón  
 un garaje  
 un jardín  
 una cocina  
 una terraza  
 una mesa  
 unas sillas

on the first floor  
 on the first floor  
 outside...  
 there is...

a toilet  
 a dining room  
 a bathroom  
 a study  
 a bedroom  
 a living room  
 a garage  
 a garden  
 a kitchen  
 a terrace / balcony  
 a table  
 some chairs



ALL MODULE  
8 VOCAB -  
Quizlet Link

## Term 3 Week 3 &amp; 4 -

- Talking about world problems with the environment
- Talking about what you do to help the environment

## ¿Cómo cuidas el medio ambiente en casa?

Apago / Apagamos  
 la luz  
 la lámpara

Desenchufa / Desenchufamos  
 los aparatos eléctricos  
 el equipo de música  
 el ordenador  
 la televisión

Prefiero usar...  
 la ducha / la bañera

Ahorramos agua.

Separamos...  
 Reciclamos...

la basura  
 el papel  
 el plástico  
 el vidrio

los cubos de basura

Cerramos...

las ventanas  
 la puerta

Compramos productos verdes.

el armario  
 el sofá  
 la cama  
 la lavadora  
 la calefacción  
 Malgastamos energía.  
 hacer todo lo posible  
 ser verde

## How do you look after the environment at home?

I turn off / We turn off  
 the light  
 the lamp

I unplug / We unplug  
 electric devices  
 the stereo  
 the computer  
 the television

I prefer using...  
 the shower / the bath

We save water.

We separate...  
 We recycle...

the rubbish  
 paper  
 plastic  
 glass

rubbish bins

We shut...

the windows  
 the door

We buy green products.

the cupboard  
 the sofa  
 the bed  
 the washing machine  
 the heating  
 We waste energy.  
 to do everything possible  
 to be green



This is CORE  
 vocabulary for this  
 topic.



Make sure you practise to be able to **use** and **recognise** the vocab. Practise using 'look, cover, write, check'. Add other things you may wish to say to your lists – of furniture, rooms, materials etc.

- Using the 'I' and 'We' forms of the verb
- Using infinitive structures, imperative forms and the conditional



## Term 3 Week 5 & 6 -

- Talking about other global problems and social issues
- Discussing cultural approaches
- Talking about healthy living, drugs, crime, obesity, smoking, poverty, inequality... Giving and understanding viewpoints

This is CORE vocabulary for this topic.

### ¿Cuál es el problema global más serio?

El mayor problema global es...  
 el paro / desempleo  
 el medio ambiente  
 el hambre  
 los sin hogar / techo  
 los animales en peligro de extinción  
 la desigualdad social  
 la salud  
 la crisis económica  
 la contaminación... de los ríos / mares  
 la pobreza  
 la drogadicción  
 los drogadictos  
 los obesos  
 los animales amenazados  
 la tasa de desempleo

### What is the most serious global problem?

The greatest global problem is...  
 unemployment  
 the environment  
 hunger  
 the homeless  
 the animals in danger of extinction  
 social inequality  
 health  
 the economic crisis  
 the pollution... of the rivers / seas  
 poverty  
 drug addiction  
 drug addicts  
 obese people  
 endangered animals  
 the unemployment rate



### ¡Actúa localmente!

Hay demasiada basura.  
 El aire está contaminado.  
 la sequía  
 el calentamiento global  
 la destrucción de los bosques  
 Para...  
 limpiar las calles  
 proteger el medio ambiente / los ríos y mares  
 reducir la contaminación  
 luchar contra el calentamiento global

### Act locally!

There is too much rubbish.  
 The air is polluted.  
 drought  
 global warming  
 destruction of woodland / forest  
 In order to...  
 clean (up) the streets  
 protect the environment / the rivers and seas  
 reduce pollution  
 combat global warming

### Se debería...

ducharse  
 plantar más árboles  
 usar productos ecológicos

### You should...

shower  
 plant more trees  
 use environmentally-friendly products  
 save energy at home  
 use public transport  
 recycle everything possible  
 use renewable energies  
 do environmental projects

ahorrar energía en casa  
 usar el transporte público  
 reciclar todo lo posible  
 usar energías renovables  
 hacer proyectos medioambientales  
 apagar la luz  
 reciclar el papel y el vidrio  
 desenchufar los aparatos eléctricos

switch off the light  
 recycle paper and glass  
 unplug electronic devices

### No se debería...

tirar basura al suelo  
 usar bolsas de plástico  
 malgastar el agua / la energía

You should not...  
 throw rubbish on the ground  
 use plastic bags  
 waste water / energy



- Discussing a range of problems
- Using specific topic related vocab
- Giving solutions
- Using modal verbs – se puede (you can), se debe (you must), no se debe (you must not), se debería (you should)...

## Term 4 Week 1 & 2 -

- Discussing problems and injustices in the past tense
- Saying future solutions and responses.
- Using tenses together
- Using complex features – si fuera ministro haría... (if I were the minister I would do...)

This is CORE vocabulary for this topic.

### ¿Qué hay que hacer?

Hay que...

cuidar el planeta  
 crear más empleos  
 reducir el consumo  
 apoyar a proyectos de ayuda  
 usar productos verdes  
 hacer campañas publicitarias  
 Me quedé sin hogar  
 Perdí mi trabajo

### What must be done?

One / We must...

look after the planet  
 create more jobs  
 reduce consumption  
 support aid projects  
 use green products  
 do publicity campaigns  
 I ended up homeless  
 I lost my job



Sufrí agresiones  
 Pasé una semana...  
 Encontré un centro de ayuda  
 el alquiler  
 Si tengo éxito...  
 una organización humanitaria  
 actualmente  
 por ciento  
 la edad media

I suffered attacks  
 I spent a week...  
 I found a help centre  
 the rent  
 If I am successful...  
 humanitarian organisation  
 currently  
 per cent  
 average age

- Using and understanding facts and figures
- Practising comprehension skills of authentic materials including news reports, articles and broadcasts
- Reading and listening for gist and detail.
- Talking about charity work and social justice.



## Term 4 Week 3 & 4 -

- Talking about healthy living and eating
- Discussing different diets
- Revising foods
- Understanding authentic materials – articles, recipes etc.

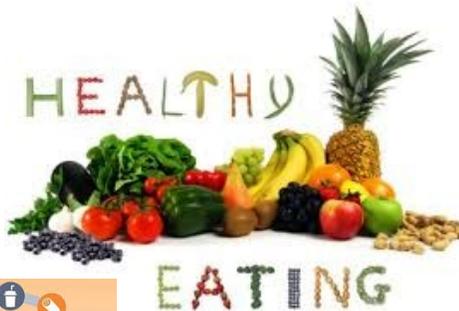
This is CORE vocabulary for this topic.

### Una dieta sana

los alimentos  
lácteos  
carne, pescados y huevos  
frutas y verduras  
cereales  
fideos  
grasas  
dulces  
los nutrientes  
proteínas  
minerales  
grasa  
sal  
vitaminas  
azúcar  
gluten  
Llevo una dieta sana.  
Mi dieta es poco variada.  
Suelo comer / beber...  
porque contiene(n)...

### A healthy diet

foods  
milk products  
meat, fish and eggs  
fruit and vegetables  
cereals  
noodles  
fats  
sugars / sweet things  
nutrients  
proteins  
minerals  
fat  
salt  
vitamins  
sugar  
gluten  
I have a healthy diet.  
My diet is not very varied.  
I usually eat / drink...  
because it contains (they contain)



- Making recommendations
- Giving and understanding advice
- Talking about illnesses and revising body parts – adding to knowledge from other modules.



la fibra...  
combate la obesidad  
el sabor  
sano / malsano  
No puedo...  
llevar una dieta sana  
evitar la comida basura  
dormir  
comer sano  
porque...  
soy adicto/a a  
soy alérgico/a a  
(No) Voy a...  
cambiar mi dieta  
mejorar mi dieta  
evitar comer / beber...  
comer más / menos...  
preparar comida en casa  
practicar más deporte  
buscar recetas en línea

fibre...  
combats obesity  
taste  
healthy / unhealthy  
I can't...  
have a healthy diet  
avoid junk food  
sleep  
eat healthily  
because  
I'm addicted to  
I'm allergic to  
I'm (not) going to...  
change my diet  
improve my diet  
avoid eating / drinking...  
eat more / less...  
prepare food at home  
do more sport  
look for recipes online

## Term 4 Week 5 & 6 -

- Giving and understanding different viewpoints
- Discussing drugs, smoking and alcohol
- Talking about mistakes
- Talking about healthy future plans
- Understanding news reports



This is CORE vocabulary for this topic.

### ¡Vivir a tope!

Beber alcohol  
Fumar cigarrillos / porros  
Tomar drogas blandas / duras  
Emborracharse  
(no) es...  
ilegal / peligroso  
una pérdida de dinero  
una tontería  
bueno/malo para la salud  
No me parece...  
tan malo

### Live life to the full!

Drinking alcohol  
Smoking cigarettes / joints  
Taking soft / hard drugs  
Getting drunk  
is / isn't...  
illegal / dangerous  
a waste of money  
stupid  
good/bad for your health  
It doesn't seem... (to me)  
so bad



- Explaining advantages and disadvantages – talking about positive and negative
- Discussing reasons for choices
- Understanding cultural approaches



porque / ya que...  
te relaja  
causa el fracaso escolar  
te hace sentir...  
bien / más adulto  
Es fácil engancharse.  
¡Qué asco!  
Decidí...  
cambiar mi vida / dieta  
dejar de fumar  
evitar la grasa  
A partir de ahora

because / as...  
it relaxes you  
it causes failure at school  
it makes you feel...  
good / more grown up  
It is easy to get hooked.  
How disgusting!  
I decided...  
to change my life / diet  
to give up smoking  
to avoid fat  
From now on



## Term 4 Week 5 &amp; 6 -

- Talking about the Olympics.
- Discussing benefits and disadvantages of international events.
- Talking about charity and helping others.

**¿Por qué son importantes los eventos deportivos internacionales?**

los Juegos Paralímpicos  
 los Juegos Olímpicos  
 la Copa Mundial de Fútbol  
 Promueven...  
 la participación en el deporte  
 el turismo  
 Unen a la gente.  
 Elevan el orgullo nacional.  
 Transmiten los valores de  
 respeto y disciplina.  
 Una desventaja es...  
 el riesgo de ataques terroristas

**Why are international sporting events important?**

the Paralympics  
 the Olympics  
 the Football World Cup  
 They promote...  
 participation in sport  
 tourism  
 They unite people.  
 They increase national pride.  
 They transmit the values of  
 respect and discipline.  
 A disadvantage is...  
 the risk of terrorist attacks

This is CORE  
 vocabulary for this  
 topic.



el tráfico  
 el dopaje  
 el coste de organización  
 los grandes acontecimientos  
 deportivos  
 los eventos solidarios  
 te dan la oportunidad de...  
 recaudar dinero  
 informar a la gente  
 ayudar a otras personas  
 hacer algo práctico  
 organizar un torneo /  
 un espectáculo

the traffic  
 doping  
 the cost of organisation  
 big sporting events  
 charity events  
 give you the opportunity to...  
 raise money  
 inform people  
 help other people  
 do something practical  
 organise a tournament / a show

- Discussing authentic articles and reports
- Giving developed opinions
- Discussing the state of the world and understanding political opinions

We will also be revising ALL topic areas each week using the '3<sup>rd</sup> Hour' – focusing on exam skills.

We will complete practice papers and past papers and advise ongoing CONSISTENT & SYSTEMATIC revision of vocabulary.

Use: [ActiveLearn](#) – do any listenings and readings – you have access to Viva 1 (Y7), Viva 2 (Y8), Viva 3 (Y9) and Viva GCSE.

[BBC Bitesize](#), [Seneca](#), [Linguascope](#) are all also useful.

QUIZLET links for vocab practice:

[Module 1 - Holidays](#)

[Module 2 - School](#)

[Module 3 - Family, friends, free time & tech](#)

[Module 4 - free time, sport and hobbies](#)

[Module 5 - My town](#)

[Module 6 - Food, Drink, Culture and Festivals](#)

[Module 7 - Jobs and future plans](#)

[Module 8 - Social Problems, Environment & Wider World](#)





## Week 1 – Business operations and production

**Operations** is the business function that **organises, produces and delivers** the goods and services produced or provided by a business. It is the function that **transforms input resources** in to finished goods or services.

### The Production Process

This is how a business uses their **resources to produce goods and services**. It involves the following steps:

1. Design
2. Manufacture
3. Assembly
4. Testing
5. Control
6. Delivery to customer

**Production and competitive advantage:**  
 Operations is linked to productivity, quality and cost. By keeping costs low and quality and productivity high unit cost is decreased!  
**Quality = less wastage**  
**Productivity = more units produced**

	Job	Batch	Flow/Line/Mass	Mass Customization
<b>Main Feature</b>	■ Single one-off items	■ Group of identical products pass through each stage together	■ Mass production of standardized products	■ Flow production with many standardized components but customized differences too
<b>Essential Requirements</b>	■ Highly skilled workforce	■ Labor and machines must be flexible to switch to making batches of other designs	■ Specialized, often expensive, capital equipment – but can be very efficient ■ High steady demand for standardized product	■ Many common components ■ Flexible and multi-skilled workers ■ Flexible equipment – often CAM to allow for variations in the product
<b>Main Advantages</b>	■ Able to undertake specialist projects or jobs, often with high value added ■ High levels of worker motivation	■ Some economies of scale ■ Faster production with lower unit costs than job production ■ Some flexibility in design of product in each batch	■ Low unit costs due to constant working of machines, high labor productivity and economies of scale ■ JIT stock management easier to apply than with other methods	■ Combines low unit costs with flexibility to meet customers' individual requirements
<b>Main Limitations</b>	■ High unit production costs ■ Time consuming ■ Wide range of tools and equipment needed	■ High levels of stocks at each production stage ■ Unit costs likely to be higher than with flow production	■ Inflexible – often very difficult and time consuming to switch from one type of product to another ■ Expensive to set up flow-line machinery and each section needs to be carefully synchronized	■ Expensive product redesign may be needed to allow key components to be switched to allow variety ■ Expensive flexible capital equipment needed

## Week 2 – Business Operations and technology

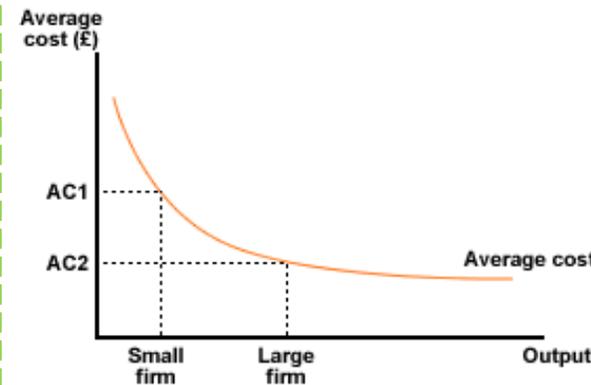
Use of technology used in businesses production processes include:

CAD  
 Geographically Positioning System  
 3D printing

Supply Chain Management (SCM)  
 Electronic Point of Sale  
 E-commerce

**Productivity** – is output per worker. It measures how much each worker producer. Increasing productivity leads to better competitiveness. This can be done by reducing costs or increasing productivity.

**Economies of Scale**  
 When **unit costs decrease** as production volumes increase. This is because the **fixed costs are spread across more units**.



Cost                      Productivity  
 Flexibility              Quality  
 These are all factors that influence how a business can use technology

The **Benefits of Technology** on Operations

- ✓ Keeps business in touch with customers
- ✓ Lowers costs
- ✓ Speeds up production
- ✓ Means **less mistakes** and errors are made

The **drawbacks of Technology** on Operations:

- ❖ High initial costs
- ❖ Can become obsolete
- ❖ Requires employees to be trained to use new equipment



## Week 3 – Managing stock

Managing stock is about managing the materials that a business owns in the **most effective way**

### Just in Time Stock Control

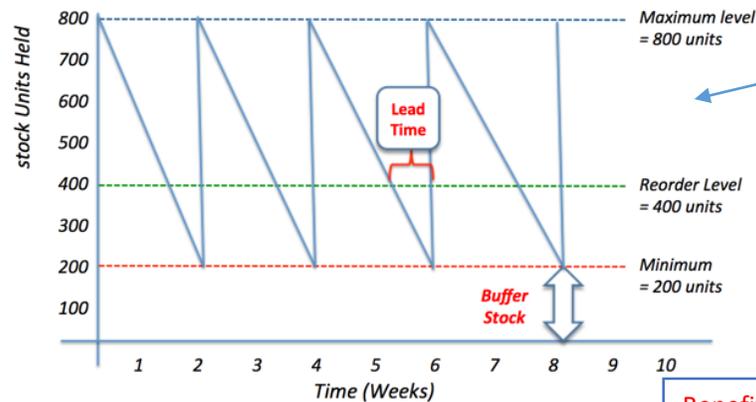
JIT is stock management system that has stock delivered. It **minimises storage costs**. Relationships with suppliers must be good for it to work

The **maximum stock** level is the most stock they can hold

The **reorder level** is the level of stock which will be ordered by the business.

The **lead time** is how long it takes for new stock to arrive

Example of Stock Control Chart



**Buffer stock** is also known as the minimum stock level – it is a safety net in the case they have a surge in demand

### Benefits of holding stock

- ✓ Damaged goods can be replaced
- ✓ Supply chain problems are minimised
- ✓ Unplanned **increase in demand** can be met
- ✓ Businesses **might receive discounts** for bulk buying

### Benefits of having little stock:

- Cost saved due to **less storage**
- Less chance of stock being damaged or stolen
- Can reduce costs** of production which impacts unit cost
- Employees can do other tasks rather than managing stock

## Week 4 – Suppliers and procurement

Choosing a supplier is an important decision. A business will need to consider:  
 - **Cost**      - **reliability**      - **customer relations**      - **flexibility**

Businesses **may use one** or they **may use many suppliers**. With one supplier they are able to develop a strong relationship which **may mean discounts**. Using many suppliers will spread risk of supply chain disruption.

### Good suppliers usually:

- offer flexible delivery
- Are reliable
- Have high quality
- Are a good price
- Give discounts for large order (economies of scale)

How do suppliers and logistics impact businesses?

✓ Flexible suppliers **meet customer demand** more easily

✓ If they are timely this can increase reputation

✓ Securing good contracts can help a business achieve **economies of scale**

X Late delivery can **delay production**

X Poor quality can lead to dissatisfied customers and returned products which **increases unit costs**

X If a supplier delivers direct to customers there is a risk that quality can be compromised or delivery not reliable



## Week 5 – Managing Quality

Quality can be managed through:

- Quality control
- Quality assurance

**Quality Control** = quality is **checked at the end** of the process and the product has already been made. Items with **defects are wasted**

**Quality assurance** – quality is assessed at every stage of the production process. Everyone is responsible for quality in order to **reduce defects overall**

Why is **good quality** beneficial?

- ✓ It creates a good brand image and reputation
- ✓ It can be a way of differentiating
- ✓ A premium price can be charged
- ✓ It can meet customer needs and provides a competitive advantage
- ✓ **It ensures there is less waste which lowers unit costs!**

How can a **business quality assure**?

- Everyone focuses on quality in every process
- Customers and suppliers are involved at the design stage
- Meet a quality standard e.g. ISO 9000
- Managers ensure there are systems in place to quality assure
- Aim for 0 defects

Benefits and drawbacks of quality control

Benefit	Cost
Reduces chance of poor quality products reaching end users	Faults only found at the end of production
Only some employees need to be trained as inspectors to look for faults	High wastage costs
	Reworking faulty products costs time and money

## Week 6 – Customer Service and the sales process

Customer service has grown in importance due to the **competitive nature** of many markets

Poor Customer service can lead to:

- ❖ Poor brand image
- ❖ Low customer loyalty
- ❖ Bad word of mouth
- ❖ Falling sales
- ❖ A lack of competitive advantage due to little differentiation

Good customer service leads to:

- ✓ Loyal, repeat customers who have high levels of satisfaction
- ✓ Good word of mouth promotion due to this satisfaction
- ✓ Positive brand image and reputation
- ✓ Increased sales due to repeat purchases
- ✓ A competitive advantage as your product is differentiated

The sales process identifies the key stages of buying a product e.g.

- Customer interest
- Speed and **efficiency** of delivery
- Customer engagement
- Post-sales service
- Loyal Customer**
- Repeat purchase



Factors affecting the sales process

Some processes are short e.g. buying food from a shop. Others are much more lengthy e.g. purchasing a house

This is affected by:

- **Product knowledge** of sales staff
- Speed of the service
- **Customer engagement**
- Response to **customer feedback**
- The post-sales service provided

Businesses need to consider:

How do they get the **customers attention**?

How do they respond promptly?

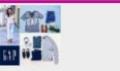
How do they **build and maintain relationships**?

How do they ensure **long-term customer satisfaction**?

What can they do to ensure customers continue to buy from them?

## Work of others

## Week 1 -

Designer Name	Facts	Logo	Examples
<b>Raymond Templier</b>	<b>RAYMOND TEMPLIER</b> (1891-1968) like many of his contemporaries in jewelry, was born to a family with a long tradition as jewelers.		
<b>Gerrit Rietveld</b>	<b>Gerrit Thomas Rietveld</b> ; 24 June 1888 – 25 June 1964) was a Dutch furniture designer and architect. One of the principal members of the Dutch artistic movement called De Stijl, Rietveld is famous for his Red and Blue Chair.		
<b>Charles Rennie Macintosh</b>	<b>Charles Rennie Macintosh</b> (7 June 1868 – 10 December 1928) was a Scottish architect, designer, water colourist and artist. His artistic approach had much in common with European Symbolism. His work was influential on European design movements such as Art Nouveau and Secessionism.		
<b>Aldo Rossi</b>	<b>Aldo Rossi</b> (3 May 1931 – 4 September 1997) was an Italian architect and designer who achieved international recognition in four distinct areas: theory, drawing, architecture and product design. He was the first Italian to receive the Pritzker Prize for architecture.		
<b>Ettore Sottsass</b>	<b>Ettore Sottsass</b> (14 September 1917 – 31 December 2007) was an Italian architect and designer during the 20th century. His work included furniture, jewellery, glass, lighting, home objects and office machine design, as well as many buildings and interiors.		
Company Name	Facts	Logo	Examples
<b>Alessi</b>	<b>Alessi</b> is a housewares and kitchen utensil company in Italy, producing everyday items from plastic and metal, created by famous designers.		
<b>Apple</b>	<b>Apple Inc.</b> is an American multinational technology company headquartered in Cupertino, California that designs, develops, and sells consumer electronics, computer software, and online services.		
<b>Braun</b>	<b>Braun GmbH</b> formerly <b>Braun AG</b> , is a German consumer products company based in Kronberg. From 1984 until 2007, Braun was a wholly owned subsidiary of The Gillette Company, which had purchased a controlling interest in the company in 1967.		
<b>Dyson</b>	<b>Dyson Ltd.</b> is a British technology company established by James Dyson in 1987. It designs and manufactures household appliances such as vacuum cleaners, hand dryers, bladeless fans, heaters and hair dryers.		
<b>GAP</b>	<b>The Gap, Inc.</b> commonly known as <b>Gap Inc.</b> or <b>Gap</b> , (stylized as <b>GAP</b> ) is an American worldwide clothing and accessories retailer.		
<b>Primark</b>	<b>Primark</b> known as <b>Penneys</b> in the Republic of Ireland) is an Irish clothing and accessories company which is a subsidiary of AB Foods, and is headquartered in Dublin.		
<b>Under Armour</b>	<b>Under Armour, Inc.</b> is an American company that manufactures footwear, sports and casual apparel.		
<b>Zara</b>	<b>Zara</b> is a Spanish clothing and accessories retailer based in Arteixo, Galicia. It is the main brand of the Inditex group, the world's largest apparel retailer.		
Designer Name	Facts	Logo	Examples
<b>Philippe Starck</b>	<b>Philippe Starck</b> (born January 18, 1949) is a French designer known since the start of his career in the 1980s for his interior, product, industrial and architectural design including furniture		
<b>Coco Chanel</b>	<b>Gabrielle Bonheur "Coco" Chanel</b> (19 August 1883 – 10 January 1971) was a French fashion designer and businesswoman. She was the founder and namesake of the Chanel brand.		
<b>Alexander McQueen</b>	<b>Lee Alexander McQueen, CBE</b> (17 March 1969 – 11 February 2010), known professionally as <b>Alexander McQueen</b> , was a British fashion designer and couturier. He is known for having worked as chief designer at Givenchy from 1996 to 2001 and for founding his own Alexander McQueen label.		
<b>Vivienne Westwood</b>	<b>Dame Vivienne Isabel Westwood DBE RDI</b> (born 8 April 1941) is a British fashion designer and businesswoman, largely responsible for bringing modern punk and new wave fashions into the mainstream.		
<b>Harry Beck</b>	<b>Henry Charles Beck</b> (4 June 1902 – 18 September 1974), known as <b>Harry Beck</b> , was an English technical draughtsman best known for creating the present London Underground Tube map in 1931.		
<b>Norman Foster</b>	<b>Norman Robert Foster, Baron Foster of Thames Bank, OM, HonFREng</b> (born 1 June 1935) is a British architect whose company, Foster + Partners, maintains an international design practice famous for hightech architecture.		
Designer Name	Facts	Logo	Examples
<b>Marcel Breuer</b>	<b>Marcel Lajos Breuer</b> (22 May 1902 – 1 July 1981) was a Hungarian-born modernist, architect, and furniture designer. Breuer extended the sculptural vocabulary he had developed in the carpentry shop at the Bauhaus into a personal architecture		
<b>Sir Alec Issigonis</b>	<b>Sir Alexander Arnold Constantine Issigonis</b> ; 18 November 1906 – 2 October 1988) was a British-Greek designer of cars, widely noted for the ground-breaking and influential development of the Mini, launched by the British Motor Corporation (BMC) in 1959.		
<b>William Morris</b>	<b>William Morris</b> (24 March 1834 – 3 October 1896) was an English textile designer, poet, novelist, translator, and socialist activist. Associated with the British Arts and Crafts Movement, he was a major contributor to the revival of traditional British textile arts and methods of production.		
<b>Mary Quant</b>	<b>Dame Barbara Mary Quant, Mrs Plunket Greene</b> , (born 11 February 1934) is a Welsh fashion designer and British fashion icon. She became an instrumental figure in the 1960s London-based Mod and youth fashion movements.		
<b>Louis Comfort Tiffany</b>	<b>Louis Comfort Tiffany</b> (February 18, 1848 – January 17, 1933) was an American artist and designer who worked in the decorative arts. He is best known for his work in stained glass.		

# Manufacturing

## Week 2

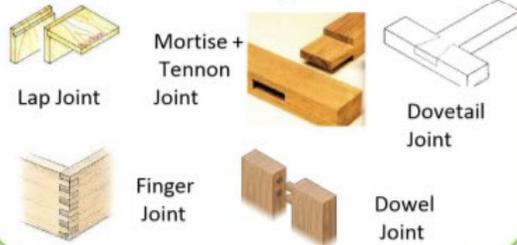
### Knowledge Organiser AQA Design & Technology 8552

#### 1: Joining Methods

Wood joints can be either permanent or temporary depending on the type and if glue is used.

Permanent:	Temporary:
When we do not want to take the pieces apart again	When we will, or might need to take pieces apart again
Glues, welding, rivets	Screws, bolts, nails

#### 1.1 Wood Joints



#### 2. Scales of Production

**One off:** when you make a unique item

**Batch:** when you make a few/set amount

**Mass:** when you make thousands

**Continuous:** open ended production

#### 3. Adhesives

**P.V.A.** – Poly Vinyl Acetate – best for joining 2 pieces of wood together

**Epoxy** – a *thermosetting* resin that can be used to bond most types of material

**Contact Adhesive** – a glue type that creates a tacky bond on both surfaces to be joined. It can be used with most materials.

#### 4: Materials

##### 4.1 Woods:

Hardwoods:	Softwoods:
Beech	Scots Pine
Oak	Cedar
Ash	Spruce

##### 4.2 Engineered Boards

Engineered boards are manmade materials usually made by mixing wood chips and glues to make wooden sheets.

##### Examples:

Medium Density Fibreboard (MDF)  
Chipboard, Plywood and Hardboard

##### 4.3 Plastics

Plastics are made of polymers, and are mostly refined from oil. There are 2 main categories:

Thermoplastics	Thermosetting plastics
Acrylic	Urea Formaldehyde
Polypropylene (PP)	Melamine Formaldehyde
High Impact Polystyrene (HIPS)	Epoxy Resin

##### 4.4 Metals

Metals are hard and usually shiny, containing one or more elements dug and refined from the ground

Ferrous metals are any metal that contains iron and will rust	Non-Ferrous metals do not contain iron and will not rust
---	--

**Alloys** are metals made from a mix of 2 metals – brass is made of copper and zinc.

**Composite materials** are a mix of 2 different types of material to get the best qualities from each – eg: GRP (Glass Reinforced Plastic)



#### 5: TOOLS

#### 6: Surface Finishes

Finishing is usually one of the last stages of making a project. It will usually involve sanding and applying a surface coating to **protect** your material and **improve its visual appearance**.

##### Some examples:

Paint, Stain, Varnish, Oil, Danish Oil, Wax, Polish & Dip Coating.

#### 7: KEY WORD FOCUS

You should be able to explain the meaning of each of these words by the end of this rotation.

CAD	Computer Aided Design
CAM	Computer Aided Manufacture
CNC	Computer Numerical Control

## Manufacturing

### Joining Materials

- Permanent and Temporary
- Wood Joints
- Scale of Production
- Adhesives

### Materials

- Woods
- Engineered Boards
- Plastics
- Metals
- Composite Materials

### Tools

### Surface Finishing

# Natural & Manufactured Boards

## Week 3

### Knowledge Organiser – Design Technology KS4 GCSE

#### 1. Woods Man-Made Woods

<b>Medium density fibreboard (MDF)</b>	<b>Description</b> Has a smooth, even surface Easily machined and painted Available in water and fire-resistant form Often veneered or painted to improve its appearance	<b>Uses</b> Furniture and interior panelling
<b>Chipboard</b>	<b>Description</b> Made from chips of wood glued together with urea formaldehyde (glue) Usually veneered with an attractive hardwood or covered in plastic laminate	<b>Uses</b> Kitchen and bedroom furniture Shelving and general DIY Work
<b>Plywood</b>	<b>Description</b> A very strong board, constructed of layers of veneer or ply, which are glued together with the grains at 90° to each other Interior and exterior grades available.	<b>Uses</b> Furniture making Boat building and exterior work
<b>Hardboard</b>	<b>Description</b> A very cheap particle board. Can have a laminated plastic surface	<b>Uses</b> Kitchen unit and furniture back panels

#### Hard Woods

<b>Oak</b>	<b>Description</b> A very strong, light-brown wood Open grained Very hard, but quite easy to work with	<b>Uses</b> High quality furniture Beams used in building Veneers
<b>Mahogany</b>	<b>Description</b> Reddish-brown in colour Easy to work with	<b>Uses</b> Indoor furniture Ship fittings Doors Veneers
<b>Beech</b>	<b>Description</b> A straight-grained hardwood with a fine texture Light in colour Very hard but easy to work with Can be steam bent	<b>Uses</b> Furniture Tool handles
<b>Ash</b>	<b>Description</b> Open grained Easy to work with Pale cream colour, often stained black Can be laminated (i.e. glued into veneers which are glued together)	<b>Uses</b> Tool handles Sports equipment Furniture Ladders Veneers

#### Soft Wood

<b>Pine</b>	<b>Description</b> Pale yellow coloured with dark lines and a fine, even texture. Medium in weight Stiff and stable Inexpensive	<b>Uses</b> Readily available for DIY work Mainly used for construction work and simple joinery Furniture
-------------	---	--

#### 2. Plastics

<b>Acrylic</b>		<b>Properties:</b> • Hard wearing • Will not shatter • Can be coloured • Bathtubs, School Projects, Display signs
<b>Polypropylene</b>		<b>Properties:</b> • High impact strength • Softens at 150°C • Can be flexed many times without breaking • School chairs, Crates
<b>High Impact Polystyrene (HIPS)</b>		<b>Properties:</b> • Light but strong • Widely available in sheets • Used for casings of electronic products
<b>Polythene (LDPE)</b>		<b>Properties:</b> • Weaker and softer than HDPE. • Lightweight • Carrier Bags + Squeezy Bottles
<b>Polythene (HDPE)</b>		<b>Properties:</b> • Stiff strong plastic • Used for pipes and bowls • Buckets
<b>Urea formaldehyde</b>		<b>Properties:</b> • Colourless plastic • Can be coloured • Door and cupboard handles, Electrical fittings

#### 3. Material Properties

<b>Strength</b>	The ability of a material to stand up to forces being applied without it bending, breaking, shattering or deforming in any way.
<b>Elasticity</b>	The ability of a material to absorb force and flex in different directions, returning to its original position.
<b>Ductility</b>	The ability of a material to change shape (deform) usually by stretching along its length.
<b>Malleability</b>	The ability of a material to be reshaped in all directions without cracking.
<b>Hardness</b>	The ability of a material to resist scratching, wear and tear and indentation.
<b>Toughness</b>	A characteristic of a material that does not break or shatter when receiving a blow or under a sudden shock.

#### 3. Metals

<b>Aluminium</b>	<b>Properties:</b> • Light Weight • Light grey in colour • Can be polished to a mirror like appearance • Rust resistant	
<b>Mild Steel</b>	<b>Properties:</b> • Heavy • Dark grey in colour • Rusts very quickly if exposed	
<b>Stainless Steel</b>	<b>Properties:</b> • Heavy • Shiny appearance • Very resistant to wear / rust.	
<b>Cast Iron</b>	<b>Properties:</b> • Heated metal pig iron with some quantities of other metals • Strong in compression. • Brittle	
<b>Copper</b>	<b>Properties:</b> • Reddish brown metal. • Soft • Excellent conductor of heat and electricity	
<b>Brass</b>	<b>Properties:</b> • Yellow metal • Hard • Alloy	

#### 4. Composites

Carbon Fibre	GRP Fibreglass
Expensive in comparison to other materials.	GRP is composed of strands of glass which are woven to form a flexible fabric. The fabric is normally placed in a mould and polyester resin is added.
Very good strength to weight ratio.	
Used in the manufacture of high end sports cars and sports equipment.	Glass reinforced plastic is lightweight and has good thermal insulation properties. It has a high strength to weight ratio

## Natural & Manufactured Boards

#### Woods – Man-made

- MDF
- Chipboard
- Plywood
- Hardwood

#### Hardwoods

- Oak
- Mahogany
- Beech
- Ash

#### Softwood

- Pine

#### Plastics

- Acrylic
- Polypropylene
- HIPS
- LDPE
- HDPE
- Urea Formaldehyde

#### Material Properties

- Strength
- Elasticity
- Ductility
- Malleability
- Hardness
- Toughness

#### Metals

- Aluminum
- Mild Steel
- Stainless Steel
- Cast Iron
- Copper
- Brass

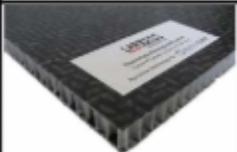
#### Composites

- Carbon Fibre
- GRP Fibreglass

**Natural & Manufactured Boards**

**Week 4**

**1: Forces and Stresses**

Force	Description	A fair test for each force/stress.	How a material / object can be adapted to resist	Examples
<b>Tension</b>	Forces pulling in opposite directions.	Apply the same weight to each material and suspended in the same manner.	Concrete can have steel bars inserted to reinforce.	
<b>Compression</b>	Forces that are trying to crush or shorten.	Insert materials into a vice/clamp and apply the same amount of twists to the handle.	Composite panels can have a honeycomb structure sandwiched in the middle to resist.	
<b>Bending</b>	Flexing force	Apply the same weight to the material.	Steel beams have an I profile to resist bending.	
<b>Torsion</b>	Twisting force.	Use clamps & stands to hold the materials and turn in opposite directions at the same angle.	The diagonals on a tower crane help the structure against torsion.	
<b>Shear</b>	A strain produced when an object is subjected to opposing forces.	Place the material between a tool that works in opposite directions. e.g. Shears	Bolts are hardened and have unthreaded shanks to help stop shearing.	

**2. Improving functionality of materials**

Process	Description	Result	Example	Visual Example
Lamination	Layering of thin materials	Depending on the direction of lamination it can make boards stiffer or actually more flexible	Plywood: Laminations at 90 degrees to each other - Rigid	
			Flexi-ply: laminations all the same direction - Bendy	
Bending / Folding	Folding a 90 degree edge on sheet metal / plastic	Makes the panel more rigid	Body panels on cars	
Webbing	Modern polymer fabrics woven together	Extremely strong and durable fabric	Seat belts	
Fabric interfacing	A strengthening material added to the unseen face of a fabric	Adds strength / shape	Shirt collars	

# Mechanical Devices

## Week 5

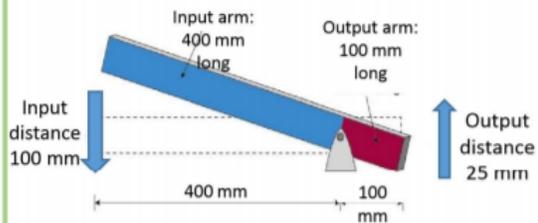
### Knowledge Organiser – Design Technology KS4 GCSE

#### 1: Mechanical Devices - Motion

There are four types of motion:

<b>Linear Motion</b> is movement in one direction along a straight line.		
<b>Oscillating Motion</b> This motion is similar to reciprocating motion, but the constant movement is from side to side along a curved path.		
<b>Rotary Motion</b> Examples of circular motion include a ball tied to a rope and being swung round in a circle		
<b>Reciprocating Motion</b> , this is repetitive up-and-down or back-and-forth linear motion		

#### 4: How to work out a levers distance of travel



$$\text{Output} \div \text{Input} \times \text{Input distance} = \text{Output distance}$$

$$100 \div 400 \times 100 = 25 \text{ mm}$$

#### 2: Mechanical Devices – Levers

There are three classes of levers.

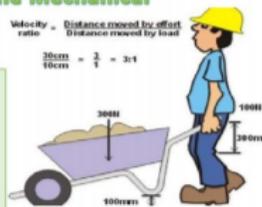
<b>Class One</b> A class one lever has its input on one side of the fulcrum and its output on the other.		
<b>Class Two</b> A class two lever has its input at one end of the lever, its output in the middle and fulcrum at the other end.		
<b>Class Three</b> A class three lever has its output at one end of the lever, its fulcrum at the other with its input in the middle.		

#### 5: How to work out the Mechanical Advantage

Or use the following formula:

$$MA = \frac{\text{Load}}{\text{Effort}} = \frac{300\text{N}}{100\text{N}} = 3$$

This is written as 3:1 or just MA of 3



#### 3: Mechanical Devices – Linkages

<b>Reverse motion linkage</b>	The reverse motion linkage changes the direction of the input motion so that the output travels in the opposite direction. If the input is pulled the output pushes and vice versa. It uses a central bar held in position with a fixed pivot (fulcrum) that forces the change in direction and two moving pivots which are connected to the input and output bars.	
<b>Parallel motion or push/pull linkage</b>	The push/pull linkage maintains the direction of the input motion so that the output travels in the same direction. If the input is pulled the output is pulled and so on. It uses three linking bars, four moving pivots and two fixed pivots.	
<b>Bell crank linkage</b>	The bell crank linkage changes the direction of the input motion through 90 degrees. It can be used to change horizontal motion into vertical motion or vice versa. It uses a fixed pivot and two moving pivots.	
<b>Crank and slider</b>	The crank and slider linkage changes rotary motion into reciprocating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots to push and pull a slider along a set path.	
<b>Treadle linkage</b>	The treadle linkage changes rotary motion into oscillating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots and a further fixed pivot to create a windscreen wiper motion.	

## Mechanical Devices

#### Types of motion

- Linear
- Oscillating
- Rotary
- Reciprocating

#### Levers

- Class One
- Class Two
- Class Three

#### Linkages

- Reverse motion Linkage
- Parallel Motion
- Bell Crank
- Crank and Slider
- Treadle

#### Working out

- How to work out a levers distance of travel
- How to work out the mechanical advantage

Mechanical Devices

Week 6

Mechanical Devices

Forces and Stresses

- Tension
- Compression
- Bending
- Torsion
- Shear

The modifications of properties

- Seasoning
- Annealing
- Addition of stabilisers

Improving functionality of materials

- Lamination
- Bending / Folding
- Webbing
- Fabric interfacing

Knowledge Organiser – Design Technology KS4 GCSE

2. Improving functionality of materials

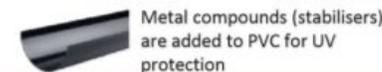
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1: The Modification of properties for specific purposes

Process	Material	Purpose
Seasoning	Timber	Removes the moisture content so that the timber will not shrink, warp and twist
Annealing (heating)	Copper	Softens the copper to make it more malleable
Addition of Stabilisers	PVC	Stops plastic become brittle with exposure to the sun



# Energy Generations and Storage

## Week 7

### Knowledge Organiser – Design Technology KS4 GCSE

#### Energy Types

##### 1. Fossil Fuels – Non-renewable energy

In a thermal power station fuel such as coal, oil or gas is burned in a furnace to produce heat - chemical to heat energy.

- this heat is used to change water into steam in the boiler.
- the steam drives the turbine - heat to kinetic energy
- this drives the generator to produce electricity - kinetic to electrical energy.

Some experts believe that fossil fuels will run out in our lifetime.

#### Energy Types

##### 3. Nuclear Energy – Renewable energy

The main nuclear fuels are **uranium** and **plutonium**. In a nuclear power station nuclear fuel undergoes a controlled chain reaction in the reactor to produce heat - nuclear to heat energy.

- heat is used to change water into steam in the boiler.
- the steam drives the turbine (heat to kinetic energy)
- this drives the generator to produce electricity - kinetic to electrical energy.

#### Energy Types

##### 8. Batteries

**Alkaline batteries** are the most common type of domestic batteries, they are disposable but contain chemicals that are bad for the environment. Fortunately more and more battery recycling banks are appearing now where most of the battery can be reused.

**Rechargeable batteries** are better for the environment and more economical in the long run (High initial purchase price). Their lifespan decreases with every charge.

## Energy Generations & Storage

### Energy Types Non-renewable

- Fossil Fuels

### Renewable

- Biomass Energy
- Nuclear Energy
- Wind Energy
- Solar Energy
- Tidal Energy
- Hydroelectricity
- Batteries
  - Alkaline
  - Rechargeable

#### Energy Types

##### 2. Biomass Energy – Renewable Energy

**Biomass** is an industry term for getting energy by burning wood, and other organic matter. Burning biomass releases carbon emissions, but has been classed as a renewable energy source in the EU and UN legal frameworks, because plant stocks can be replaced with new growth.

#### Energy Types

##### 4. Wind Energy – Renewable Energy

- Placing generator correctly and angle to wind
- Substation increases voltage for transmission over long distances
- Transformer increases voltage for transmission to substation
- Transmission to the grid

#### Energy Types

##### 5. Solar Energy – Renewable Energy

- Get panels to the panels. Call Electrician
- Your friendly utility technician will make sure that your new system is connected properly when you first start it.
- Your solar electricity will connect into your home's wiring at your existing meter.
- Your friendly solar electrician will connect your solar panels to your inverter.

#### Energy Types

##### 6. Tidal Energy – Renewable Energy

- Water moves in and out past the turbine as tides ebb and flow.
- Turbines turn generator module, producing electricity.
- Electricity is returned by underwater cables for use ashore.

#### Energy Types

##### 7. Hydroelectricity – Renewable Energy

- In a hydroelectric power station water is stored behind a dam in a reservoir. This water has gravitational potential energy.
- The water runs down pipes (potential to kinetic energy) to turn the turbine
- The turbine is connected to a generator to produce electricity (kinetic to electrical energy).

## Text In Practice

## Component 3

**Given Circumstances:** Everything that the script tells you. The 'world' of the play – the things that make the play that play and not a different play.

**Environmental** – Geographic location (inc. climate), date, year, season, time of day. Also includes the economic environment: the character's relationship to wealth or poverty, and the class of the character in relationship to the society in which they live.

**Previous Action** - Any action mentioned in the play's dialogue that reveals any incident or action that took place before the current action of the play/scene began. Often called, 'exposition'.

**Polar Opposition/Attitude** - Beliefs held by a character that are in direct opposition to the world in which the character lives. This opposition creates conflict. Conflict creates dramatic action.

**Spatial Awareness:** The ability to see yourself (in relation to other actors/set) in the stage space to create a specific effect.

**Proxemics:** The use of space/distance to communicate relationship.

**Script:** The entire play written down. Scripts include all the dialogue that the characters speak, stage directions and a brief overview of the setting.

**Blocking:** Planning your positioning and movement around the stage, including entrances and exits.

## Component 3

## Text In Practice

Theatrical Skills

- Learn how to **commit dialogue to memory** for devised performances and/or learn text they are performing for text-based performances
- Develop **the ability to interpret and/or create and perform** a character as appropriate to the demands of the performance
- Develop **a range of vocal skills and techniques** eg clarity of diction, inflection, accent, intonation and phrasing; pace, pause and timing; projection, pitch; emotional range; song and/or choral speaking
- Develop **a range of physical skills and techniques** eg movement, body language, posture, gesture, gait, co-ordination, stillness, timing, control; facial expression; eye contact, listening, expression of mood; spatial awareness; interaction with other performers; dance and choral movement
- **Develop an appropriate performer/audience relationship and ensure sustained engagement throughout the performance**
- **Adopt the latest safe working practices**

Dig Deeper Questions

- **How could you communicate subtle changes in a character?**
- **Why is blocking an important part of the 'page to stage' process?**
- **How might environmental given circumstances influence your use of space? Why are proxemics so important when creating meaning?**
- **How might you as an actor use given circumstances to craft your character?**
- **What do you think is the most important part of the 'page to stage' process?**
- **What makes a successful, scripted performance?**
- **Why is it important to research the historical, political and social context of the play?**
- **Why is it important to skim read the whole play, even though you are only performing two extracts?**

## Text In Practice

## Component 3

**Examined Performance for Component 3**

Learners who have chosen **performing** as a specialism are expected to:

- learn how to commit dialogue to memory for devised performances and/or learn text they are performing for text-based performances
- develop the ability to interpret and/or create and perform a character as appropriate to the demands of the performance
- develop a range of vocal skills and techniques eg clarity of diction, inflection, accent, intonation and phrasing; pace, pause and timing; projection, pitch; emotional range; song and/or choral speaking
- develop a range of physical skills and techniques eg movement, body language, posture, gesture, gait, co-ordination, stillness, timing, control; facial expression; eye contact, listening, expression of mood; spatial awareness; interaction with other performers; dance and choral movement
- develop an appropriate performer/audience relationship and ensure sustained engagement throughout the performance
- adopt the latest safe working practices.

Learners who have chosen **lighting** design as a specialism are expected to:

- learn how to design and realise lighting that contributes positively to the overall effect of the performance and communicates intended meaning for an audience
- develop the ability to design and realise lighting capable of establishing the location, time and/or to enhance mood or atmosphere
- develop the ability to design and realise a range of lighting effects eg through the use of colour, gobos, gels, filters, gauzes, projections and lighting states through intensity, fading and cross-fading, blackout, shadow, directional lighting
- develop the ability to select the appropriate equipment and determine its position in order to realise the intended design eg choice of lanterns and lamps – profile, Fresnel, flood, moving light, birdies, strobes; rigged, floor and side lights; angle and focus of lanterns
- develop an understanding of how to apply rigging, positioning, angling and focusing
- adopt the latest safe working practices.

## Component 3

## Text In Practice

Band	Mark	Descriptors
4	16–20	<b>Excellent</b> contribution to performance: <ul style="list-style-type: none"> <li>• An extensive range of skills are demonstrated.</li> <li>• Skills are deployed precisely and in a highly effective way.</li> <li>• Personal interpretation is entirely appropriate to the play as a whole.</li> <li>• Personal interpretation is highly sensitive to context.</li> <li>• Artistic intentions are entirely achieved.</li> </ul>
3	11–15	<b>Good</b> contribution to performance: <ul style="list-style-type: none"> <li>• Wide range of skills are demonstrated.</li> <li>• Skills are deployed confidently and in a mostly effective way.</li> <li>• Personal interpretation exhibits a good degree of appropriateness to the play as a whole.</li> <li>• Personal interpretation exhibits a good degree of sensitivity to context.</li> <li>• Artistic intentions are mostly achieved.</li> </ul>
2	6–10	<b>Reasonable</b> contribution to performance: <ul style="list-style-type: none"> <li>• Fair range of skills are demonstrated.</li> <li>• Skills are deployed with care and with effectiveness in places.</li> <li>• Personal interpretation has some relevance to the play as a whole.</li> <li>• Personal interpretation is sensitive to context in places.</li> <li>• Artistic intentions are partly achieved.</li> </ul>
1	1–5	<b>Limited</b> contribution to performance: <ul style="list-style-type: none"> <li>• Narrow range of skills are demonstrated.</li> <li>• Skills are deployed uncertainly with little effectiveness.</li> <li>• Personal interpretation lacks appropriateness for the play as a whole.</li> <li>• Personal interpretation lacks sensitivity to context.</li> <li>• Artistic intentions are achieved to a minimal extent.</li> </ul>
0	0	Nothing worthy of credit.

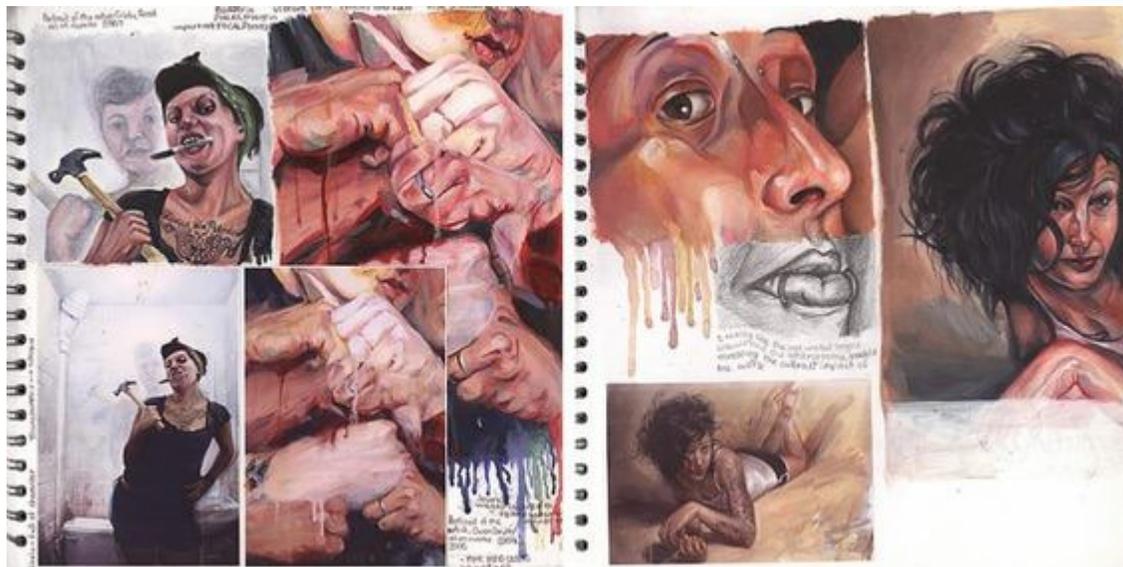
## A01

The portfolio is made up of preparatory studies leading to a fully resolved response, or group of responses. The portfolio represents 100% of the final mark.

A01: Develop ideas through investigations, demonstrating critical understanding of sources.

Assessment Objective 1 is about developing ideas from a starting point to a final piece. This is done through mind-mapping, sketches and studies related to the work of other artists.

You need to analyse and understand these contextual sources, and develop your ideas in a personal way. Don't just state facts that you have found out. Relate what you have found out to your own ideas and experience.



**A01** EXPLORE  
 DEVELOP  
 DEVELOP IDEAS  
 INVESTIGATE & RESEARCH  
 OTHER ARTISTS WORK  
 ANALYSE  
 ANNOTATE

## Check List

A relevant mood board of ideas	
A relevant mind map of ideas	
At least 3 artist pages (A3)	
An artist essay for each artist studied	
Copies of artists' work	
Annotation to explain your ideas	

**Make sure you clearly annotate what is *your* work and what comes from other sources**

## A02

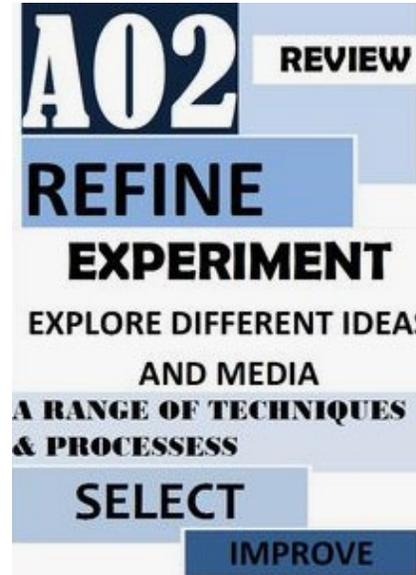
**A02: Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.**

Assessment Objective 2 is about refining your ideas through selecting and experimenting with appropriate resources, media, materials, techniques and processes.

Your choice of resources should be linked to your understanding of the media and materials used by artists and designers. Practical experience and experimentation will help you understand the possibilities of various media and develop your technical skills.

You don't have to use all the different ideas and methods that you have explored, but your final work should be developed from or link with your studies in different media. It is important to show that you have experimented with processes and techniques, so you should present your samples and studies carefully in your workbook, journal or on mounted sheets.

You should make it clear how and why you have selected and used particular materials and working methods. For example, you could present examples of artists' work alongside your own studies. You could explain the connection in written annotations.



Presenting your own work alongside that of inspirational artists and designers can help explain your visual choices

## Check List

Experiments with your observation studies, in the style of your artists	
3 designs in the styles of your artists	
Annotation of your work	



# A03

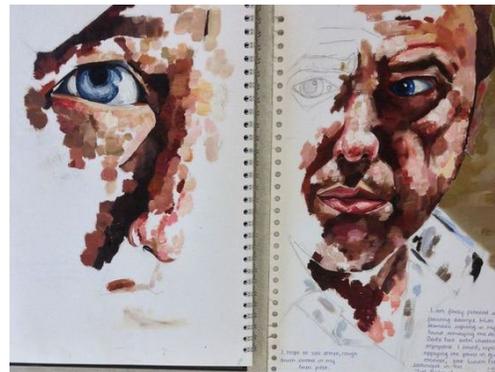
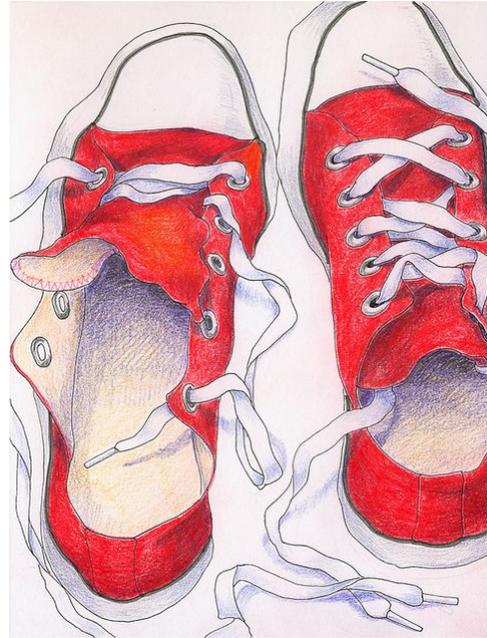
## A03: Record ideas, observations and insights relevant to intentions as work progresses

Assessment Objective 3 is about recording your ideas, observations and insights. These can be visual, written and in other forms.

You should work from a range of experiences and stimulus materials, as each of these could lead you to different ways of developing your ideas. You should reflect upon your work, and consider what you have achieved at each stage and what you will do next.

Evidence of your understanding and intentions can be shown by the ways you use media, materials and processes, as well as in the ways that you develop your ideas, skills and techniques.

You should demonstrate that you have reflected on how you developed your ideas. This should be based on your selection of media, sources and contextual material. You need to show you have understood the formal elements in your own work and that of others. You should also consider how you could develop your ideas further on the set brief or theme.



**A03 EVIDENCE**

**RECORD**

**PRESENT IDEAS**

PRIMARY OBSERVATION

DRAWING, PAINTING, PRINTING, PHOTOGRAPHY WRITING.

**ANNOTATE**

DIFFERENT MEDIA

### Check List

Secondary resources (internet/ magazines etc.)	
Primary resources (your own photos)	
Observation studies	
- tonal/ biro	
- Colour pencil	
- Water colour	
- Other (acrylic/ ink/ oil pastel act)	
Annotation of your work	

## AO4

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

Assessment Objective 4 is about presenting a personal, informed and meaningful response, from your initial research through to the final piece. You need to demonstrate analytical and critical understanding as you respond to your theme.

You must show that you have understood the theme, and that you have an understanding of the way artists, designers or craftspeople work. You need to demonstrate this understanding in your research and development studies, as well as in your final piece.

To make a meaningful response it is important to demonstrate that you have selected suitable source material and media. You need to make connections between your work and suitable contextual sources. You should record your ideas as you develop them into a completed final piece.

Organise your projects so that the development of your ideas and the connections between all the elements of your work are made clear. There should be a visual 'journey' from your starting point through to your final piece that demonstrates your understanding of your particular area(s) of art and design.

Showing clear links between your starting point, sources and final piece will help show how successful your project has been

### Check List

Experiments with your observation studies, in the style of your artists	
3 designs in the styles of your artists	
1 final design idea (a small scaled version of what you hope your final piece will look like)	
Annotation of your work	

Your work needs to be personal, so make sure you explain what the theme or other starting point means to you, and show how you have developed your own individual visual language

## Annotation

### AO2: Annotating your work, ideas and concepts

Annotations are written explanations or critical comments added to art or design work that record and communicate your thoughts.

- analyse the work of an inspirational artist or designer
- record a technique
- record ideas
- explain the thinking behind an idea
- analyse the success of a technique, idea or composition
- explain how a particular artist or designer's style or technique has influenced your work

Annotations can be used for your own reference, eg to make a note of how you achieved a technique, or to record an idea you might like to try later.

They can also be used to communicate information to the examiner that will help explain your thoughts and decision-making processes.

Using annotations can demonstrate evidence of planning, decision-making and problem-solving ability, which will all contribute towards your assessment.

To annotate your work successfully, you should explain:

- what you have done and why you did it
- how you did it, such as the media and techniques used
- why you chose a particular medium or technique
- how an artwork or design fits in with your project
- what aspects you like
- how you could improve the work
- what you think you will do next



Carefully placed annotation can complement your visual work as well as explaining it

## Annotation

### AO2: Annotating your work, ideas and concepts: **Vocabulary**

Using the correct vocabulary in your annotation will show that you are developing your knowledge, understanding and skills. Think about using key terms, such as:

#### Subject –

- what is shown in the artwork?
- who is it a portrait of?
- what objects are in a still life?
- what is your natural or built environment?

#### Composition –

- how are the elements of the work arranged?
- are they close together or far apart?
- what is the overall shape of the composition?
- what viewpoint is it shown from?

#### Foreground and background –

- which elements appear close up or further away?

#### Visual elements –

- how are line, shape, colour, tone, form, texture and pattern used?

Annotations can be added to artwork using a variety of formats:

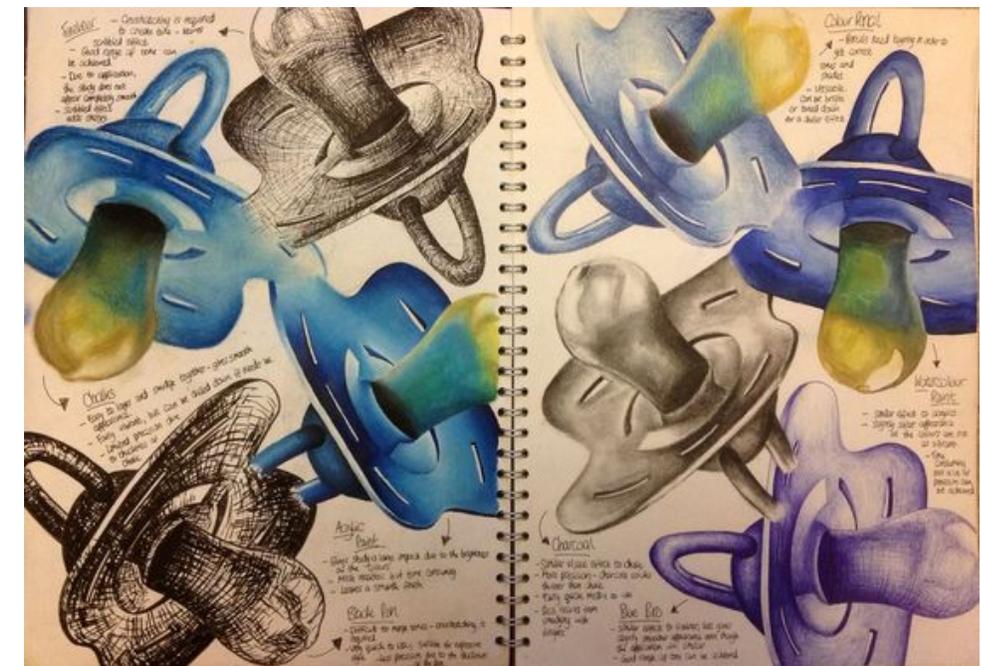
- Writing them next to work produced in a sketchbook
- Writing on tags or post it notes
- Writing them on separate presentation sheets
- taking photographs of the work at different stages and tagging the images with comments

Think carefully about how your annotation looks. It should add to your work and not distract from it.

Make sure handwritten annotation is easy to read. If your handwriting is messy you might be better printing your notes.

If you want to print notes you should use a font that complements your images.

Don't feel you have to write in full sentences. Noting key words or phrases can be just as effective.



Short, simple notes using correct vocabulary can give a clear idea of your understanding and knowledge

## Week 1 – Health and Wellbeing Improvement Plans

### C1 Health and wellbeing improvement plans

Learners will explore the features of health and wellbeing improvement plans. It links to, and consolidates, knowledge and understanding from Component 2, in particular support services and also care values in terms of the need for a person-centred approach.

- The importance of a person-centred approach that takes into account an individual's needs, wishes and circumstances.
- Information to be included in plan:
  - recommended actions to improve health and wellbeing
  - short-term (less than six months) and long-term targets
  - appropriate sources of support (formal and/or informal).

### C2 Obstacles to implementing plans

Learners will explore the obstacles that individuals can face when implementing these plans and how they may be mitigated.

- Potential obstacles:
  - emotional/psychological – lack of motivation, low self-esteem, acceptance of current state
  - time constraints – work and family commitments
  - availability of resources – financial, physical, e.g. equipment
  - unachievable targets – unachievable for the individual or unrealistic timescale
  - lack of support, e.g. from family and friends
  - other factors specific to individual – ability/disability, addiction
  - barriers to accessing identified services.

## Exam Practice

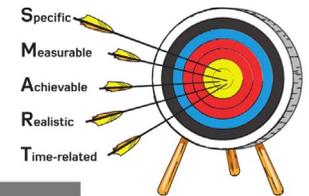
## Week 2 – Setting Targets

### Creating targets

A plan needs both long- and short-term targets.

- A long-term target is generally 6 months or more. An example might be to lose 10 kg in that space of time. But that can seem a long time away and you might be tempted to put off actually getting started.
- A short-term target can be anything less than 6 months. An example might be to lose 1 kg in a week. This might seem achievable because it is not a major challenge.

Breaking down your final long-term goal into smaller steps seems less daunting and removes excuses for not getting started.



'SMART' word	The target
Specific	The target must be clearly stated. It should say exactly what you mean, such as to 'lose 2 kg in weight in a week'. The target should be clear and not open to any misunderstanding.
Measurable	A target of to 'lose weight' is too vague. A specific amount must be stated so you can prove you have met your target.
Achievable/attainable	If you are following a health and wellbeing improvement plan you must feel it is possible to achieve the target set. If you do not, you will probably give up before you have started. An achievable (reasonable) target is to 'lose 1 kg this week'; an unachievable target would be to 'lose 20 kg this week'.
Realistic	The target set must be realistic in that you must be able to physically do it. It is not realistic to expect a person who is older and not very fit to run for 30 minutes a day to help weight loss but it is realistic to ask the same of a fitter, younger person.
Time-related	The target must have a deadline, so that you know when you need to achieve the target by and progress can be assessed.

## Week 3 – Sources of Support

### Support in the voluntary sector

Voluntary organisations often run events which help you meet a target such as weight loss or improved activity levels, and some of them also raise money for the charity through the events

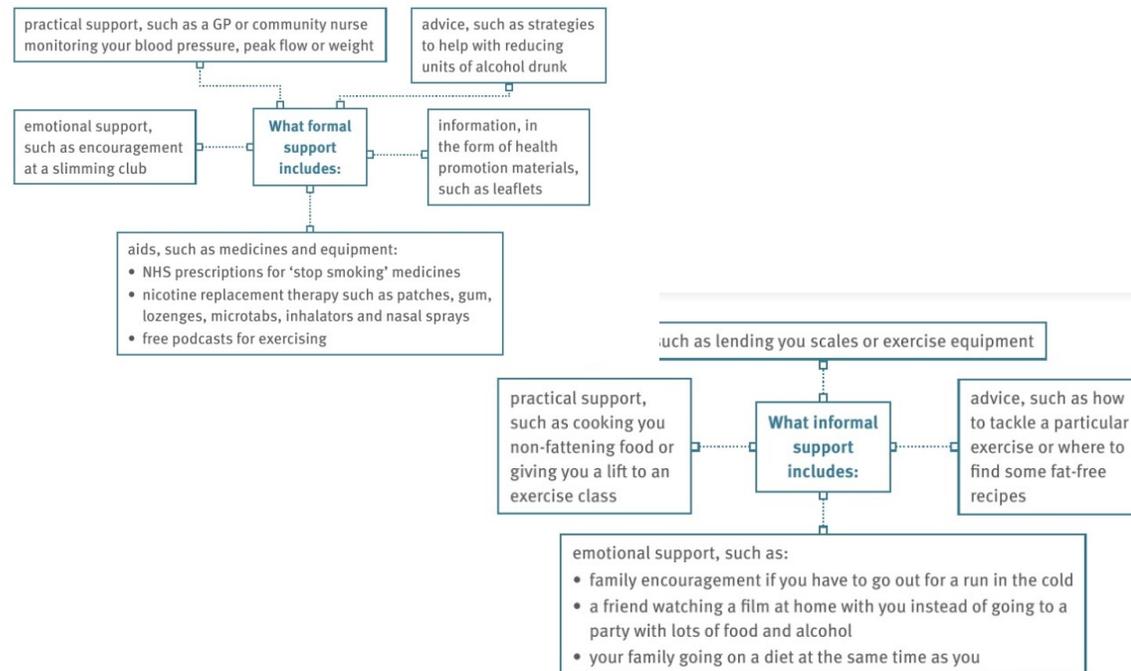
For example, the charity Cancer Research UK runs sponsored 'Race for Life' events throughout the UK. These provide:

- a good opportunity for exercising
- a feel-good factor, because you are raising money for charity at the same time.

Another example is Walking for Health, a voluntary group that supports others to improve activity rates and wellbeing through walking. Its volunteers lead groups of walkers (some of whom may be very inactive), helping them along the way.

There are also many self-help groups. One example might be a weight loss group where people can discuss aspects of weight loss such as nutrition, emotions and exercise, and also take part in exercise sessions.

**Formal support** is provided by health and social care professionals. These are people who are trained and paid to give support. Take a look at the diagram to see what formal support can include.



## Week 4 – Obstacles

Obstacle	Ways of Overcoming
Lack of motivation	<ul style="list-style-type: none"> <li>• Reminding them of the benefits</li> <li>• Choosing things they enjoy</li> <li>• Having a variety of strategies</li> <li>• Building in rewards</li> </ul>
Low self-esteem	<ul style="list-style-type: none"> <li>• Focusing on the plan and rewarding self for effort</li> <li>• Getting family and friends to encourage and praise</li> </ul>
Acceptance	<ul style="list-style-type: none"> <li>• Support from family and friends to recognize</li> <li>• Information on the consequences of not following plan</li> </ul>
Time constraints	<ul style="list-style-type: none"> <li>• Adapting to work life e.g taking stairs instead of lift, exercising at desk</li> <li>• Involve the family e.g bike rides</li> </ul>
Availability of resources (e.g financial)	<ul style="list-style-type: none"> <li>• NHS website 'get fit for free'</li> <li>• Choose free activities in the community</li> <li>• Use initiative e.g if you don't have scales weigh food in cups</li> </ul>
Unachievable target	<p>Needs to be</p> <ul style="list-style-type: none"> <li>• Not too ambitious</li> <li>• Appropriate</li> <li>• Understandable to the person</li> <li>• The correct time scale</li> <li>• A task they feel isn't too big</li> </ul>
Lack of support	<ul style="list-style-type: none"> <li>• Explain to family and get them to join in</li> <li>• Ask people to take temptation away</li> <li>• Avoid tempting situations</li> </ul>
Individual issues such as disability or addiction	<ul style="list-style-type: none"> <li>• Help individuals to understand their plan</li> <li>• Make a plan that suits their needs</li> <li>• Adapt the plan to help with behaviours that cause addictions</li> </ul>
Barriers to accessing services	<ul style="list-style-type: none"> <li>• Physical</li> <li>• Psychological</li> <li>• Financial</li> <li>• Cultural and language</li> <li>• Resource</li> <li>• Geographical</li> </ul>

## Week 5 & 6 – Revision for Exam

### A1 Factors affecting health and wellbeing

Learners will explore how factors can affect an individual's health and wellbeing positively or negatively. This links to, and extends, knowledge and understanding of life events covered in *Component 1*, but here the focus is on health and wellbeing.

- Definition of health and wellbeing: a combination of physical health and social and emotional wellbeing, and not just the absence of disease or illness.
- Physical and lifestyle factors that can have positive or negative effects on health and wellbeing:
  - genetic inheritance, including inherited conditions and predisposition to other conditions
  - ill health (acute and chronic)
  - diet (balance, quality and amount)
  - amount of exercise
  - substance use, including alcohol, nicotine, illegal drugs and misuse of prescribed drugs
  - personal hygiene.
- Social, emotional and cultural factors that can have positive or negative effects on health and wellbeing:
  - social interactions, e.g. supportive/unsupportive relationships, social integration/isolation
  - stress, e.g. work-related
  - willingness to seek help or access services, e.g. influenced by culture, gender, education.
- Economic factors that can have positive or negative effects on health and wellbeing:
  - financial resources.
- Environmental factors that can have positive or negative effects on health and wellbeing:
  - environmental conditions, e.g. levels of pollution, noise
  - housing, e.g. conditions, location.
- The impact of life events relating to relationship changes and changes in life circumstances.

### B Interpreting health indicators

#### B1 Physiological indicators

Learners will interpret indicators that can be used to measure physiological health, interpreting data using published guidance.

- Physiological indicators that are used to measure health:
  - pulse (resting and recovery rate after exercise)
  - blood pressure
  - peak flow
  - body mass index (BMI).
- Using published guidance to interpret data relating to these physiological indicators.
- The potential significance of abnormal readings: risks to physical health.

#### B2 Lifestyle indicators

Learners will interpret lifestyle data in relation to risks posed to physical health.

- Interpretation of lifestyle data, specifically risks to physical health associated with:
  - smoking
  - alcohol consumption
  - inactive lifestyles.

#### C1 Health and wellbeing improvement plans

Learners will explore the features of health and wellbeing improvement plans. It links to, and consolidates, knowledge and understanding from Component 2, in particular support services and also care values in terms of the need for a person-centred approach.

- The importance of a person-centred approach that takes into account an individual's needs, wishes and circumstances.
- Information to be included in plan:
  - recommended actions to improve health and wellbeing
  - short-term (less than six months) and long-term targets
  - appropriate sources of support (formal and/or informal).

#### C2 Obstacles to implementing plans

Learners will explore the obstacles that individuals can face when implementing these plans and how they may be mitigated.

- Potential obstacles:
  - emotional/psychological – lack of motivation, low self-esteem, acceptance of current state
  - time constraints – work and family commitments
  - availability of resources – financial, physical, e.g. equipment
  - unachievable targets – unachievable for the individual or unrealistic timescale
  - lack of support, e.g. from family and friends
  - other factors specific to individual – ability/disability, addiction
  - barriers to accessing identified services.

## Week 1 – Pre-Production

**Mind mapping** – There are multiple steps which can be used in order to create an effective mind map:

1. You need to ensure that you start with a central idea. This should be in the centre of the page so that it draws your attention. You can also include an image that represents the mind map's topic, this will help to strengthen the connection you have to the main theme.
2. Add branches to the mind map – the main branches forming from the central idea should each follow a specific theme, which can then be explored in more depth by adding more branches from them giving more detail.
3. Ensure that key words are used on separate branches as this will help to spark more associations.
4. Colour code the different branches of the mind map to help personalise it further and add more visual stimulation.

**Visualisation diagrams** – when creating these it is important that you remember who the audience is as this will affect the amount of detail that needs to be included. Remember this should give the client a clear idea of what the final product will look like. Add annotations or labels where required to enhance their understanding. Also if required give an indication of scale.

**Storyboards** – A storyboard is a series of diagrams that shows a sequence of displays. A storyboard should contain the number of scenes, scene content, timings, camera shots (e.g. close up, mid, long), camera angles (e.g. over the shoulder, low angle, aerial), camera movement (e.g. pan, tilt, zoom or using a track and dolly), lighting (e.g. types, direction), sound (e.g. dialogue, sound effects, ambient sound, music), locations (e.g. indoor studio or other room, outdoors).

**Scripts** - Scripts perform a number of different functions including; identifying the place where an action is to take place, identifying which different characters will be in a particular scene, providing stage directions (movements), and stating what dialogue will be used in a particular scene. Scripts will also contain comments about the particular mood for a scene which the actors can use to take cues from.

## Week 2 – File Format

Depending on the different type of document being created a different file format will need to be selected. The table below outlines the different file formats available for different types of media:

File	Use	Description
MPG	Video Files	<ul style="list-style-type: none"> <li>• Compressed file formats (Lossy)</li> <li>• Smaller file sizes</li> <li>• Faster loading online (speed)</li> <li>• Compression lowers quality</li> </ul>
MOV		
MP4		
SWF	Animation	<ul style="list-style-type: none"> <li>• Compressed file formats</li> <li>• Small file sizes</li> <li>• Fast loading online (speed)</li> <li>• Can be animations, games and video</li> </ul>
FLV		<ul style="list-style-type: none"> <li>• Flash video format</li> <li>• Not compressed</li> <li>• Opens in 'Flash' software</li> <li>• Editable</li> </ul>
JPEG	Image Files	<ul style="list-style-type: none"> <li>• Lossless compression; photography</li> </ul>
GIF		<ul style="list-style-type: none"> <li>• Small file sizes/ Online / web buttons</li> </ul>
PNG		<ul style="list-style-type: none"> <li>• Lossless compression; supports transparency; photography</li> </ul>
TIFF		<ul style="list-style-type: none"> <li>• Large file sizes / Posters / high quality printing</li> </ul>
PDF		<ul style="list-style-type: none"> <li>• Un-editable/ Documents</li> </ul>
WAV	Audio Files	<ul style="list-style-type: none"> <li>• Uncompressed / high quality / Windows only</li> </ul>
AIFF		<ul style="list-style-type: none"> <li>• Uncompressed / high quality / Mac only</li> </ul>
MP3		<ul style="list-style-type: none"> <li>• Compressed / small file sizes / good for devices</li> </ul>

## Week 3 – Reviewing Documents

In order to review a pre-production document it is important to ensure that you are consistently referring back to the brief / client's requirements - Review and compare your work to the original brief – have you done what was asked? How? Think about the following:

- Format – Has the client specified the type of file format or layout required? If not how have you interpreted what is needed to deliver on this?
- Style – Has the client requested a specific style? Or do you need to analyse the target audience to develop a suitable house style? How have you achieved this?
- Clarity – Is the documentation understandable? Look back at the documentation and think that if you were the client, would you be able to understand the plans that have been drawn up in sufficient detail in order to make an assessment of whether they are correct or not. Clarity in the design phase will save a lot of time and effort in the long run as fewer things will need to be corrected before final approval.
- Suitability of content for the client and target audience – this could be in terms of the content that has been included in the design or the level of language that has been used e.g. is it too simplistic or complex. Pitching this right is a real skill that needs to be developed over time.

## Week 4

### Creating a mood board

**The purpose, uses and content of different pre-production documents**

A mood board is a collection of sample materials and products. It can be either a physical mood board or a digital mood board.

A physical mood board is, for example, created on a notice board or large piece of paper using pictures and samples that are fixed to it.

A digital mood board is, for example, created in any software application that supports multiple images, graphics, text and other content.

Creating a mood board, extended learning: <https://sway.office.com/wdwHRc7R5ISbqV9C?ref=Link>



## Week 5

### Creating a mind map

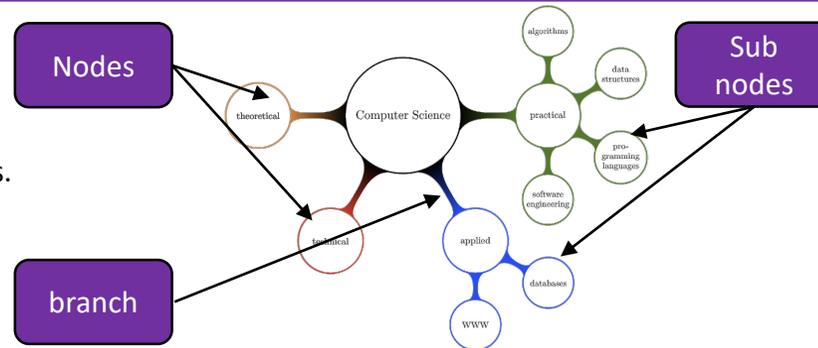
**The purpose, uses and content of different pre-production documents**

A mind map or 'spider diagram' is a way of organising thoughts and ideas.

It is based around a central theme (or node) and has branches off for the different aspects using sub nodes.

Creating a mood board, extended learning:

<https://sway.office.com/wdwHRc7R5ISbqV9C?ref=Link>



## Week 6

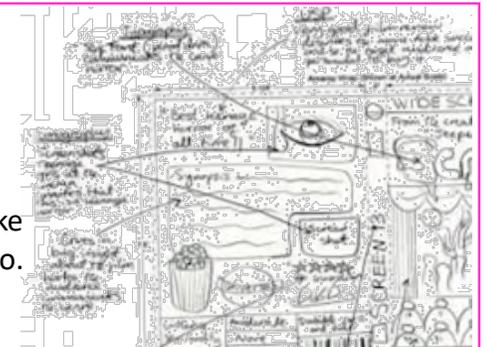
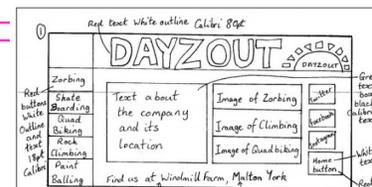
### Creating a visualisation diagram

**The purpose, uses and content of different pre-production documents**

This is a rough drawing or sketch of what the final static image product is intended to look like. Typically it is hand drawn, but good art skills are not essential as it is a concept, layout and content of the product that is being illustrated. A static or still image is one that does not move, so something like a magazine advert, a DVD cover or a website page would be good examples, although don't use these for anything that has a timeline – such as a video.

A good visualisation diagram should be annotated. These should include your own thoughts, notes and comments that help to show your thinking.

Creating a mood board, extended learning: <https://sway.office.com/WFJkSQ0xvs3GWhv7?ref=Link>



## A02

## Week 1 - 2

This term we will focus on **Assessment Objective 2 (AO2)** which means you will refine your work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes and reviewing and refining your ideas as your work develops.

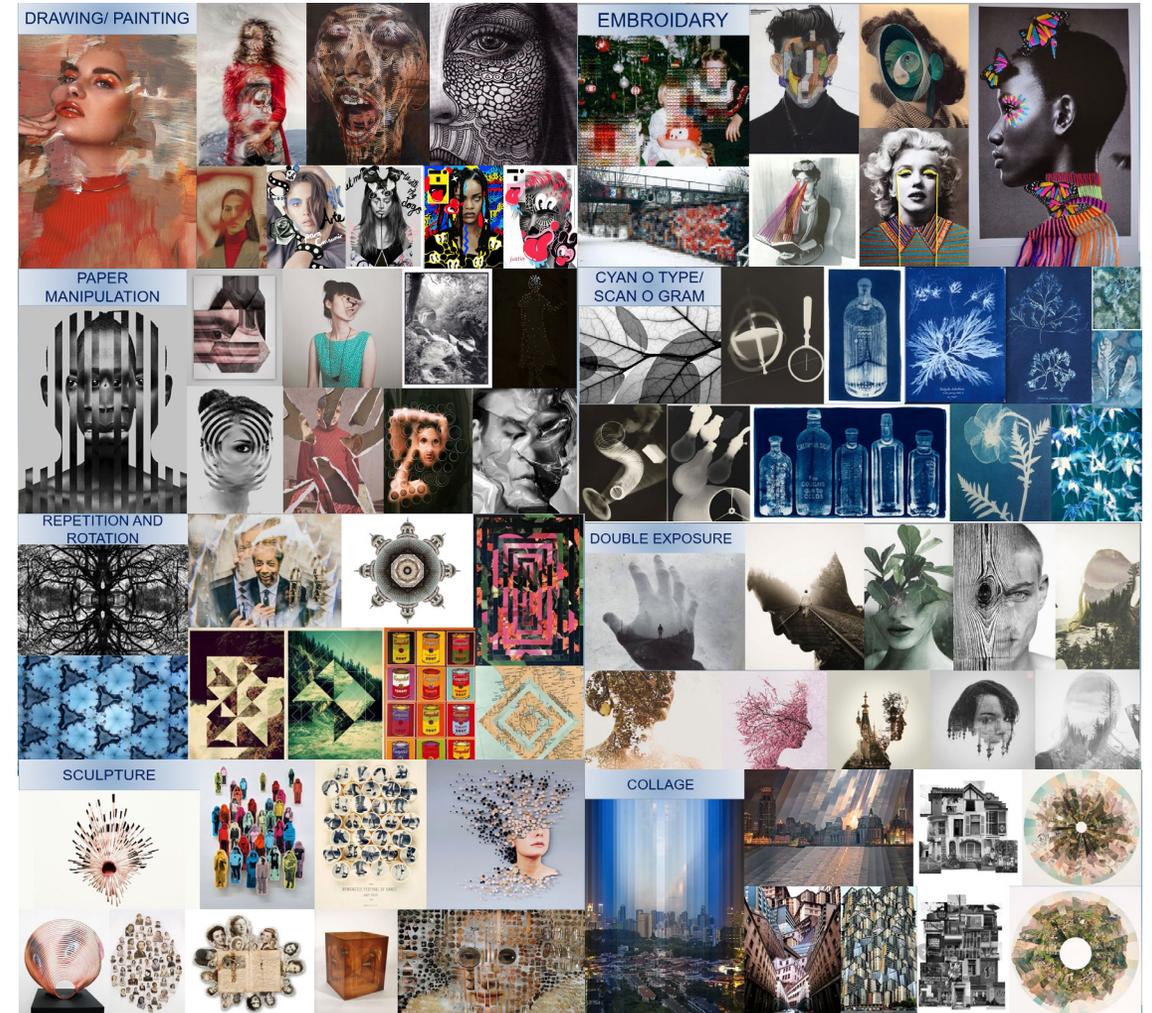
- Create work using lots of different styles and techniques.
- Analyse and evaluate your work, changing it as you go to make it better.
- Refine and develop – Always think, how can this be more successful?
- Take risks and if something didn't work, explain why to show your understanding.
- Edit photographs and present stages of editing.
- Design a range of different ideas.



## A03

## Week 1 - 2

You will develop your photographs using a range of manual or digital processes. It is important to choose processes that play to your strengths and so you will need to research a broad range of styles before selecting your preferred method.



### Week 3 - 4

#### Digital and Manual Manipulation

You will learn how to manipulate your photographs in the style of the below artists (left to right Camila Casullo, Nico Goodden, Brandon Kidwell, Barbara Kruger and Julie Cockburn). You will learn how to isolate colour, create a double exposure affect, add text and repeat and rotate to create patterns. You can find YouTube tutorials for all of these skills to practice using Photoshop prior to your lesson.



You will learn how to manipulate your photographs in the style of the below artists (left to right Amy Friend, Elise Wehle, Erin Case, Victoria Villasana, Alana Dee Haynes). You will learn how to create tessellation patterns, negative space effects, create a double exposure affect, add embroidery and add drawing/ etching to your photographs.



### Week 5 - 6

#### AO4

You will create a personal response to your investigation of your theme. This is your final piece and can take many different formats but must clearly link your theme and the artists you have studied. You should aim to show all of the knowledge and skill you have developed over the last two years.



## Week 1 –Key Concepts of Social Influence and Conformity

Social psychology is an area that looks at how other people influence our behavior, thoughts and feelings.

**Conformity:** The tendency to change what we do, think or say in response to the real or imagined pressure from a majority group.

Kelman (1958) Three types of conformity

- **Compliance:** Superficial agreement with the group – going along with it publicly but holding a different view privately (temporary change).
- **Identification:** Conforming to the group because we value it – prepared to change views to be accepted by it.
- **Internalisation:** Conforming to the group because you accept its norms – you agree privately as well as publicly (permanent change).



## Week 2 – Obedience

**Obedience** = To follow an order given by a person with recognised authority over you.

### Milgram:

- He conducted an experiment focusing on the conflict between obedience to authority and personal conscience.
- Participants were told by an experimenter to administer increasingly powerful electric shocks to another individual. Unbeknownst to the participants, shocks were fake and the individual being shocked was an actor.
- The majority of participants obeyed, even when the individual being shocked screamed in pain.

### Obedience vs Conformity

Obedience	Conformity
Hierarchy of authority	Those of equal status
We feel like we have to, in order to avoid punishment	We feel like we should in order to be liked or because we want to be right
If someone refuses, they may be punished and suffer bad consequences	If someone refuses, they may be ignored or marginalised

## Week 3 – Collective and Crowd Behaviour

Social influence can be seen in groups when people gather together.

**Collective behaviour** = The behaviour of 2 or more individuals who are acting together.

**Crowd behaviour** = Refers to a group of people who have come together for a common purpose, e.g. to watch a football match.

**Pro Social** = Actions which benefit society. Such as giving to charity.

**Anti social** = Actions which go against society and harms it in some way – such as the London riots



## Week 4 – Theories of Social Influence – Situational Factors of Conformity

### Situational factors

In some cases, people will outwardly change their behaviour to fit in with the group, but will retain their personal opinion.

**Normative Social Influence:** This occurs when we wish to be liked by the majority group.

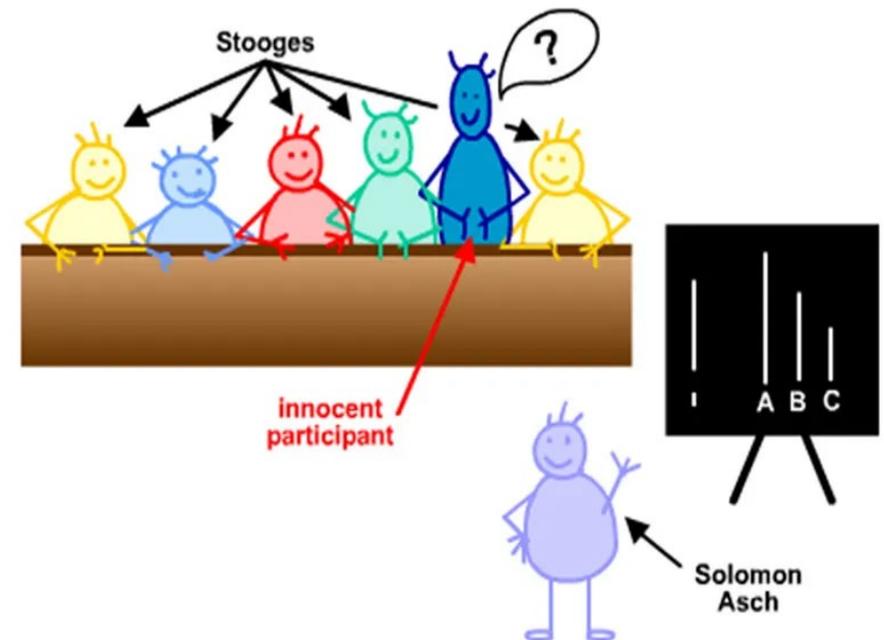
**Informational Social Influence:** This occurs when we look to the majority group for information as we want to be right.

### Asch:

- Conducted an experiment to investigate the extent to which social pressure from a majority group could affect a person to conform.
- There was an obvious answer to a line judgment task.
- If the participant gave an incorrect answer it would be clear that this was due to group pressure.

### AO3:

- ☺ Lab experiment – easily replicated
- ☺ Proved that people give into social pressure
- ☹ Lab experiment- lacks ecological validity
- ☹ Biased sample- White American men
- ☹ Artificial study- Results are not reliable, not an everyday task





**Week 5 – Theories of Social Influence – Situational Factors of Collective and Crowd Behaviour**



LeBon:

- When people are in a crowd, they lose their sense of self, responsibility and morality – the crowd works together.
- This behaviour is unconscious and driven by instinct.
- This can lead to violence and people acting in ways they would never normally contemplate if they were on their own.

Reicher:

- Crowds acts under a common **social identity** – members of the crowd all share a similar background, culture, interests or come from a similar area.
- He researched St Paul’s riots (1980) People attacked police cars but did not damage other people’s cars or their property. Looked at...
  - **Ingroups:** Someone who is part of your group. This could be someone who lives in the same area as you or shares the same interests or is in the same class or team.
  - **Outgroups:** Someone who is not in your group. It could be that they support a different football team to you or are in a different class.
  - **Deindividuation:** When people are in the crowd and they lose their sense of individuality and feel more anonymous. This can also happen if someone is wearing a costume or uniform.

**Week 6 – Theories of Social Influence – Situational Factors of Social and Anti-social behaviour: Culture**



**Collectivist:** Emphasize the needs and goals of the group as a whole over the needs and wishes of each individual.

**Individualistic:** Is a society which is characterised by individualism, which is the prioritising, or emphasis, of the individual over the entire group

Whiting and whiting	Tower	Moghaddam
Conduced a naturalistic observation of children aged 3-11 years old in 6 different countries. Children from Mexico and Philippines acted in more pro-social way than children from Japan and USA. Most pro-social were children from Kenya (100% of Kenyan children demonstrated altruism, compared to 8% American children).	Investigated sharing behaviour in children from UK and Russia. <b>Russian</b> children = chose resources that benefited others, <b>UK</b> children = chose resources that benefited themselves.	Found children raised on a <b>Kibbutz</b> showed more altruistic and helping behaviours compared to children raised in <b>Europe and USA.</b>

## Week 7 – Theories of Social Influence – Authority figures on obedience

**Authority figure:** Someone we perceive as having more power than ourselves

**Agentic state:** When an individual does not feel responsible for their actions as they are acting under the orders from an authority figure.

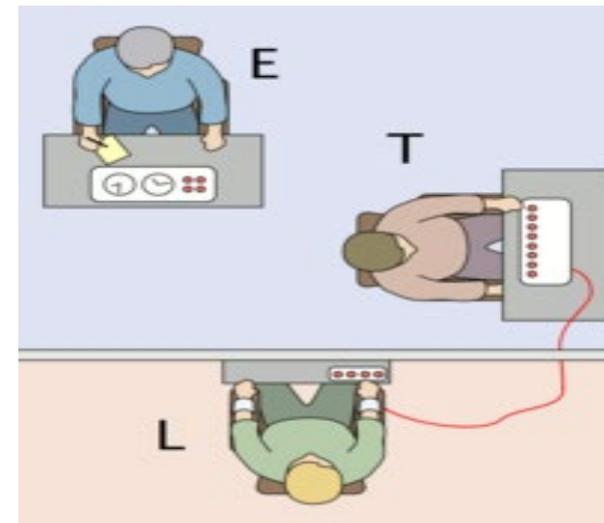
**Autonomous state:** Where the individual feels responsible for their own actions

### Milgram:

- He conducted an experiment focusing on the conflict between obedience to authority and personal conscience.
- Participants were told by an experimenter to administer increasingly powerful electric shocks to another individual. Unbeknownst to the participants, shocks were fake and the individual being shocked was an actor.
- The majority of participants obeyed, even when the individual being shocked screamed in pain.

## Week 8- Evaluation of situational factors

- ☹ Does not take free will into account
- ☹ Deindividuation does not always lead to violence
- ☹ Not everyone conforms in the same way
- ☹ Theories fail to take individual differences into account
- ☹ Milgram's research can be viewed as deterministic
- ☹ Most research is conducted on children



## Week 9 – Bickman's research

### Aim:

Does appearance affect how people obey others?

### Procedure:

Field experiment

3 male experimenters – each took it in turn to dress as a civilian (jacket and tie), milkman, guard uniform (looked like a police officer)  
Gave orders to 153 random pedestrians on a street in Brooklyn, New York

### Orders:

Picking up litter – 'Pick up this bag for me.'

Coin and parking meter – 'This man is overparked at the meter but doesn't have any change – give him a dime.'

Bus Stop – 'Don't you know you have to stand on the other side of the pole? This sign says "No Standing".'

### Results:

People were 2 to 3 times more likely to obey the guard than the civilian

89% obeyed the guard, 57% the milkman and 33% the civilian.

- ☹ Participants were selected by opportunity sampling
- ☹ The research is culturally biased
- ☹ The study was unethical
- ☹ Gender bias

## Week 10 – Dispositional Factors – Locus of Control

### Locus of control:

How much control a person feels like they have over their own life

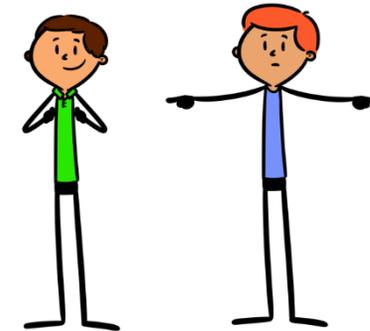
Rotter (1954) defines locus of control as the degree to which a person perceives an outcome as being contingent on their own actions or those of external forces.

### Internal locus of control:

People who base their success on their own work and believe they control their life.

### External locus of control:

People who attribute their success or failure to outside influences.



INTERNAL

EXTERNAL

## Week 11 – Dispositional Factors – Morality

**Morality:** Understanding what is right and wrong

Kohlberg (1968)

- Conducted a longitudinal study into morality, followed the same group of boys over a period of 12 years.
- Preconventional morality:
  - Stage 1, punishment where children are focused on consequences.
  - Stage 2, Action is based on what is most beneficial
- Conventional morality:
  - Stage 3, pleasing and getting approval from others
  - Stage 4, Behaviour is based around obeying authority
- Post-conventional morality:
  - Stage 5, Behaviour based on what has been agreed by society as a whole
  - Stage 6, Based on more abstract ideas of justice and what is ethical

**Generalisability:** Describes the extent to which research findings can be applied to settings other than that in which they were originally tested

- ☹ Gender biased
- ☹ Not generalizable
- ☹ Focuses too much on the individual

## Week 12 – Dispositional Factors – Authoritarian Personality

**Authoritarian Personality:** A personality type that is very obedient to authority

Adorno et al. (1950) developed a questionnaire called the California F scale, to measure levels of authoritarian personality.

- Believed obedience was down to the personality of the individuals
- He proposed those in 'authoritarian personality' was more likely to obey those in authority and discriminate against those that they see as inferior
- Findings: People with authoritarian personality...
  - See the world in black and white
  - Offer blind obedience to those they believe are a higher authority than themselves
  - Are prejudiced to those they see as inferior to themselves
  - Are very conformist
- ☹ Focuses too much on the individual, making generalisations difficult
- ☹ Explanations are reductionist
- ☹ Does not explain why people who have not experienced harsh parenting are not obedient

## Week 13 – Dispositional Factors – Influence of the brain

Influence of the brain:

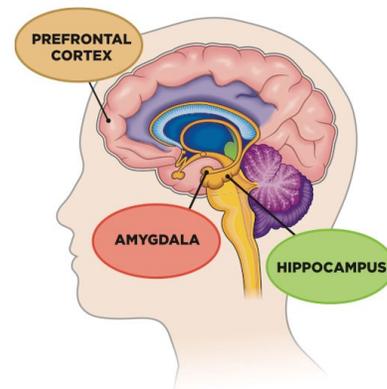
Argoskin et al (2014)

Positive correlation between self esteem and grey matter  
People with low self-esteem have reduced amounts of grey matter in the hippocampus.

People with low self esteem are more conforming

Anderson et al (1999)

Two individuals that have suffered brain damage to the pre-frontal cortex as babies, were unable to understand the difference between right and wrong behaviour and showed personality traits similar to that of psychopaths



## Week 14 - Natcen (2011) Riots

'Why did young people get involved in the riots?'

- The researchers aimed to speak to around 30 people in each of the five areas studied – Tottenham, Peckham, Clapham Junction, Salford and Birmingham - and two unaffected areas – Poplar in east London and Firth Park in Sheffield.
- 36 participants were interviewed 5 weeks after the riots took place
- Informed consent was gained and they were assured that any information about what had happened would not be passed on to the police but any plans for any future criminal activity would be.
- Results:
- They divided those participants into; watchers, rioters, looters and non-involved
- Motivators for involvement in rioting and/or looting were found to be: benefiting from an exciting experience, an opportunity to get free stuff, and/or the chance to get back at the police.
- Two clear decision-making processes were found to interact and influence whether or not a young person got involved. These were:
  - (i) Their beliefs about right and wrong.
  - (ii) Their assessment of the risks of involvement weighed against the benefits.
- ☹ Memory is not always reliable
- ☹ Social desirability bias
- ☹ Not a representative sample

## Week 15 – Changing attitudes

Moscovici (1985) identified the behavioural styles which minorities must possess if they are to exert social influence on majorities:

1. The message that minority put forward must be consistent, they must not change the message.
2. The minority must show how committed it is to the cause.
3. The argument must be persuasive, for example, having a charismatic representative.

Charities and government campaigns:

- Campaigning to reduce the stigma and discrimination associated with mental health
- Time to change: The campaign focuses on changing behaviours towards people with mental health problems, rather than just raising awareness of mental health issues.

**proud to support**

**time to change**

**let's end mental health discrimination**



## Learners must be taught:

- key considerations when planning sports activity sessions, i.e.
  - objectives for the session (e.g. meeting the needs of the group)
  - appropriate venue (e.g. type, size, indoor/outdoor)
  - equipment needs (e.g. type, size weight, arrangements)
  - supervision needs (e.g. additional leaders, roles, number of participants)
  - timing of activities (e.g. related to age, experience of participants, weather)
  - introduction/conclusion of session (e.g. how, when, where?)
  - basic warm up/cool down (e.g. physical and mental preparation relevant to age of participants and the activity)
  - skills and technique development (e.g. appropriate activities/structure of a session)
  - engaging (e.g. Will the participants have fun? Will the activity hold their attention? Will the session flow smoothly?)
  - organisation (e.g. size/make up of working groups, size of working areas, length of warm up/drills, timing to prevent boredom, allowing progression)

**Learning Outcome 1: Know the personal qualities, styles, roles and responsibilities associated with effective sports leadership**

## Learners must be taught:

- different leadership roles and opportunities in sport (e.g. captains, managers, teachers, coaches, expedition leaders, role models)
- role-related responsibilities (e.g. knowledge of activity, enthusiasm for activity, knowledge of safety, knowledge of child protection issues, knowledge of basic first aid)
- personal qualities which relate to leadership roles (e.g. reliability, punctuality, confidence, communication, creativity)
- leadership styles, i.e.
  - democratic
  - autocratic
  - laissez-faire.

## safety considerations when planning sports activity sessions, i.e.

- risk assessments (e.g. facilities, equipment/clothing checks, activity-specific risks)
- corrective action (e.g. wiping up puddles, removing litter, reporting faulty equipment)
- emergency procedures (e.g. procedures in the event of an accident, procedures in the event of other emergencies, summoning qualified help, completion of relevant documents).

Delivering a session:

safe practice, i.e. organisation of group/activity, safe supervision (e.g. as a leader, coach)

delivery style, i.e. proactive/reactive, demonstration/explanation

communication skills, i.e. verbal, non-verbal, appropriate language, technical terms

motivation techniques, i.e. encouragement, extrinsic motivators (e.g. rewards, prizes)

activity-specific knowledge, i.e. appreciation/understanding of current techniques and tactics which are appropriate to the requirements of the performers

adaptability, i.e. making adjustments in an activity that isn't working, addressing issues you hadn't

prepared for.

Evaluating a session

evaluating planning and delivery of a sports activity session, i.e. ○ what went well? – against the plan (e.g. was the order of activities effective? – against the delivery (e.g. did I keep everyone motivated?)

what did not go well? – against the plan (e.g. did I consider an appropriate number of activities?) – against the delivery (e.g. was the group listening to me?)

what could be improved for the future? – against the plan (e.g. were the group's objectives met?) – against the delivery (e.g. could I position myself better when communicating with the group?)

**LO1 - Be able to use skills, techniques and tactics/strategies/compositional ideas as an individual performer in a sporting activity (Year 11)**

the key components of performance for an individual performer in a sporting activity, i.e.

- performance of skills and techniques (e.g. a front somersault in trampolining)
- creativity (e.g. communicating a theme to the audience through performance of a ballet dance)
- appropriate use of tactics/strategies/compositional ideas (e.g. using a drop-shot against a baseline player in tennis)
- decision-making during performance (e.g. shot selection from different lies in golf)
- ability to manage/maintain own performance (e.g. staying composed after two illegal jumps in triple-jump).

**LO2 - Be able to use skills, techniques and tactics/strategies/compositional ideas as a team performer in sporting activity. (Year 10)**

the key components of performance for a team performer in a sporting activity, i.e.

- performance of skills and techniques (e.g. a chest pass in netball) o creativity (e.g. feint to pass and then dribble in basketball)
- appropriate use of tactics/strategies/compositional ideas (e.g. when to bowl a bouncer in cricket)
- decision-making during performance (e.g. choice of pass in rugby union)
- awareness of role within/contribution to the team (e.g. covering for a team mate who is out of position in football).

### **LO3 - Be able to officiate in a sporting activity (Year 10)**

- how to apply rules and regulations relevant to the activity (e.g. reference to NGB rule books)
- the importance of consistency (e.g. making sure rules are applied consistently in a variety of situations)
- the importance of accuracy (e.g. applying rules correctly)
- the use of signals (e.g. whistles/flags/gestures – how, when, why)
- how to communicate decisions (e.g. with other officials, performers and the audience)
- the importance of positioning (e.g. to gain the best view to make decisions, not obstruct activity).

### **LO4 - Be able to apply practice methods to support improvement in a sporting activity (Year 10/11)**

how to identify areas of improvement in their own performance in a sporting activity, i.e.

- what are the key skills in the activity?
- which key skills are strengths?
- which key skills are weaknesses?
- types of skills, i.e. simple skill (e.g. transferable between a number of sports such as running)
- complex skill (e.g. tend to be specific to a sport (non-transferable) such as a tennis serve)
- open skill (e.g. adaptable depending on the environment such as a pass in football)
- closed skill (e.g. performed in a stable environment such as a free throw in basketball)
- types of practice, i.e. whole i.e. the whole skill is performed at once (e.g. a triple jump)
- part i.e. the skill is broken down into parts which are practised separately (e.g. just the 'hop' phase in the triple jump)
- variable i.e. the skill is practised in the range of different situations that could be experienced in a performance
- fixed i.e. a specific skill or technique is repeatedly practised in the same way
- methods to improve own performance, i.e.
- different types of practice
- altering context of performance (e.g. playing with and against better players can improve performance)
- use of tools to aid evaluation (e.g. match analysis, video analysis, etc.)

how to measure improvement in skills, techniques and strategies developed, i.e.

- completion of proficiency awards
- keeping individual logs of performance
- keeping video diaries
- peer observation
- monitoring competition results over time.