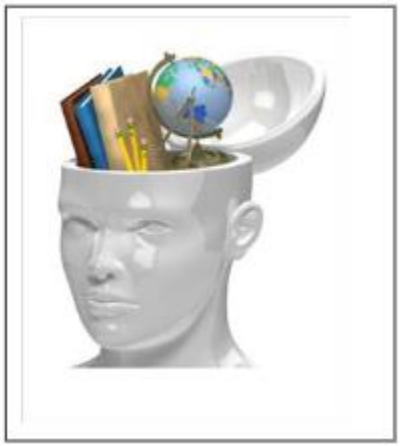
Year 10
Knowledge Organiser Summer Term



Instructions for using your Knowledge Organiser

Self-testing

You can use your knowledge organisers and exercise book in a number of different ways but you should not just copy from the Knowledge Organiser into your book.

Below are some possible tasks you could do in your workbooks

- Ask someone to write questions for you
- Write your own challenging questions and then leave it overnight to answer them the next day
- Create mindmaps
- Create flashcards
- Put the key words into new sentences
- Look, cover, write and check
- Mnemonics
- Draw a comic strip of a timeline
- Use the 'clock' template to divide the information into smaller sections. Then test yourself on different sections
- Give yourself spelling tests
- Definition tests
- Draw diagrams of processes
- Draw images and annotate/label them with extra information
- Do further research on the topic
- Create fact files
- Create flowcharts

Presentation

You should take pride in how you present your work; each page should be clearly labelled with underlined title and date. There should be an appropriate amount of work.

The Knowledge Organisers are designed to help you learn a wide range of knowledge which in turn will mean you are more prepared for your lessons as well as the new style GCSEs that you will sit in the future.

To get the most out of your Knowledge Organiser, you should be learning sections and then self testing in your workbook.

Do not just copy into your workbook

Always check and correct!

Subject: BTEC Art Year 10: Pop Art Food

Oasis Academy Enfield

Brief: A **new restaurant** is opening in London.

You have been asked to enter a **competition.**

This is to **promote** the **opening night.**

In order to **enter** the **competition** you must produce a piece of artwork around the theme of **pop-art food**. It should **clearly show links** to the style of traditional **pop-artists** but also be creative, original and interesting.

Key Pop Artists

Andy Warhol: His Coca Cola prints remind us of the commercial strength of a product and the simple print design of Warhol's repetitive technique, that is **recognised** around the world.
Patrick Caulfield: His use of colour and tone in its simplest shapes convey beauty, compositional structure and form.
Ron Magnes: His work uses the unique **Pop Art** style. He takes a more zoomed in approach to looking at popular food products, displaying their **construction** and **consumption qualities**.

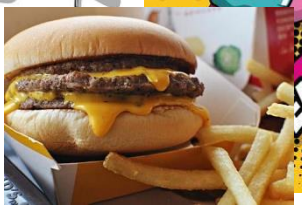
Alternative artists are: **Wayne Thiebaud**. His work will be how you are other artist's have used other vicious (thick) mediums that have been used to show food Art.

In component 2 you are required to work in work in a wide range of 2-D mediums, oil-pastels, paint, mono-printing, photography and lino print-making.

You will need to show **knowledge and understanding** of how meanings, ideas and intentions can be communicated using a wide range of practical and technical processes.

Process, Techniques and Materials

- Drawing in the style of Pop Artists
- Mono-printing
- Risk Assessment Sheet
- Outline of Intentions
- Development of Ideas
- Final piece(s)
- Meeting Clients Expectations



consumption SUBWAY commercial

The Enfield Way is to LEARN

Internal Methods	External Methods
transfers notice board newsletter website intranet	headhunting newspapers trade journals careers fairs shop windows recruitment agencies web based

Equality in Recruitment

Businesses must ensure they treat all workers fairly. They must offer equal pay and promotion opportunities for women and ethnic minorities.
This also applies to recruitment. Employers must not discriminate against applicants based on race, sex, age or disability.

Equality Act 2010

This act legally protects people from discrimination in the workplace and in wider society.

Redundancy Procedures

- Staff can lose their job through **redundancy** if the business suffers a fall in profit or they no longer offer the services of products the employee provides.
- Redundancy procedures must be fair .
- Can receive compensation for being made redundant.

Voluntary redundancy	Employees can volunteer for redundancy.

Stage	Explanation
Stage 1 Identifying a need	This could be due to the following reasons: • Growth in business • Retirement of a member of staff or employee leaves the business • An existing employee is promoted • New location for the business which needs staffing • New skills required which current staff do not have.
Stage 2 Create a job description	The business creates a document which sets out the job role in detail. The candidate can then decide of they are able to fulfil the roles and responsibilities.
Stage 3 Person Specificati on	Sets out **essential** and **desirable** criteria. It is used to measure the candidate against and compare to others who have applied. Includes qualifications required, previous experience and attributes/ characteristics/ qualities.
Stage 4 Advertising a position	The business will advertise their vacancy in a suitable place. The advert needs to include all important information, such as business name, job title, pay and hours.
Stage 5 Shortlisting	This is where businesses decide who they want to interview based on their applications. It is important this is done fairly and the job description and person specification is usually used to help.
Stage 6 Interview	Candidates will be interviewed and answers are recorded. They are sometimes given a score and this is then compared to others to ensure fairness.
Stage 7 References	References will be obtained from previous employers, teachers or others. It cannot be from a family member or friend. This helps to make sure they have a true and honest view of the applicant.
Stage 8 Offer the position	If successful, candidates will be offered the position verbally or in writing. There is always a formal written offer sent with key information, such as start date.

Year 10 BTEC Performing Arts

Unit 11: Devising for Performance

Key Terminology	Definition
Devising	Creating a performance based on a stimulus using workshops and research to create your ideas.
Stimulus	A picture, item, article, or literature that is used as a baseline for your devised performance.
Improvisation	Creating a performance on the spot, using a stimulus, thought or skill as the starting point for your improvisation.
Still Image	Being frozen during a performance to highlight a key moment.
Thought Tracking	When a character states a thought or emotion out loud for only the audience to hear.
Movement	The physical way in which you perform to convey emotion and tell a story.

The 6 Steps to Devising a Performance:

1. Choose a stimulus
2. Workshop it
3. Research the stimulus
4. Come up with your aims and intentions
5. Plan your performance
6. Rehearse and improvise

Your Stimulus:

A newspaper article explaining the events of the London 2011 riots.

Assessment:

In groups of 2-6 devise a performance based on the stimulus and your on going research project.

Year 10 Summer Term 1 English Knowledge Organiser

Year 10 Knowledge Organiser – Power and Conflict Poetry

AO1: S.Q.I. points and quotes	AO2: M.Q.E. language and structure	AO3: C contexts and meanings

YouTube Tutorials on every poem!
'Mr Bruff AQA Power and Conflict Poetry'

Ozymandias
Percy Bysshe Shelley

Shelley was a poet of the 'Romantic period' (late 1700s and early 1800s). Romantic poets were interested in emotion and the power of nature. Shelley also disliked the concept of a monarchy and the oppression of ordinary people. He had been inspired by the French Revolution – when the French monarchy was overthrown.

London
William Blake

Published in 1794, a time of great poverty is many parts of London. Blake was an English poet and artist. Much of his work was influenced by his radical political views: he believed in social and racial equality. This poem is part of the 'Songs of Experience' collection, which focuses on how innocence is lost and society is corrupt. He also questioned the teachings of the Church and the decisions of Government.

Extract from 'The Prelude'
William Wordsworth

Published shortly after his death, The Prelude was a very long poem (14 books) that told the story of Wordsworth's life. This extract is the first part of a book entitled 'Introduction – Childhood and School-Time'. Like Shelley, Wordsworth was a Romantic poet and so his poetry explores themes of nature, human emotion and how humans are shaped by their interaction with nature.

My Last Duchess
Robert Browning

Browning was a British poet, and lived in Italy. The poem was published in 1842. Browning may have been inspired by the story of an Italian Duke (Duke of Ferrara): his wife died in suspicious circumstances and it was rumoured that she had been poisoned.

The Charge of the Light Brigade
Alfred Lord Tennyson

As Poet Laureate, he had a responsibility to inspire the nation and portray the war in a positive light: propaganda. -Although Tennyson glorifies the soldiers who took part, he also draws attention to the fact that a commander had made a mistake: "Someone had blunder'd". -This was a controversial point to make in Victorian times when blind devotion to power was expected.

Exposure
Wilfred Owen

Written in 1917 before Owen went on to win the Military Cross for bravery, and was then killed in battle in 1918: the poem has authenticity as it is written by an actual soldier. Of his work, Owen said: "My theme is war and the pity of war". Despite highlighting the tragedy of war and mistakes of senior commanders, he had a deep sense of duty: "not loath, we lie out here" shows that he was not bitter.

Storm on the Island
Seamus Heaney

Heaney was Northern Irish and died in 2013. This poem was published in 1966 at the start of 'The Troubles' in Northern Ireland: a period of violence between those who wanted to remain part of the UK and those who wanted to become part of Ireland. The first eight letters of the title spell 'Stormont': this is the name of Northern Ireland's parliament. The poem might be a metaphor for the political storm in the country.

Bayonet Charge
Ted Hughes

Published in 1957, but most-likely set in World War 1. Hughes' father had survived the battle of Gallipoli in World War 1, and so he may have wished to draw attention to the hardships of trench warfare. He draws a contrast between the idealism of patriotism and the reality of fighting and killing. ("King, honour, human dignity, etcetera")

Remains
Simon Armitage

"These are poems of survivors – the damaged, exhausted men who return from war in body but never, wholly, in mind." Simon Armitage. The poem coincided with increased awareness of PTSD amongst the military, and aroused sympathy amongst the public – many of whom were opposed to the war.

Poppies
Jane Weir

Set around the time of the Iraq and Afghan wars, but the conflict is deliberately ambiguous to give the poem a timeless relevance to all mothers and families. There are hints of a critical tone; about how soldiers can become intoxicated by the glamour or the military: "a blockade of yellow bias" and "intoxicated".

War Photographer
Carol Ann Duffy

Like Tennyson and Hughes, Duffy was the Poet Laureate. Duffy was inspired to write this poem by her friendship with a war photographer. She was intrigued by the challenge faced by people whose job requires them to record horrific events without being able to help. The location is ambiguous and therefore universal: ("Belfast. Beirut. Phnom Penh.")

Tissue
Imtiaz Dharker

Dharker was born in Pakistan and grew up in Glasgow. 'Tissue' is taken from a 2006 collection of poems entitles 'The Terrorist at My Table': the collection questions how well we know people around us. This particular poem also questions how well we understand ourselves and the fragility of humanity.

The Emigree
Carol Rumens

Emigree was published in 1993. The home country of the speaker is not revealed – this ambiguity gives the poem a timeless relevance. Increasingly relevant to many people in current world climate

Checking Out Me History
John Agard

Agard was born in the Caribbean in 1949 and moved to the UK in the 1970s. His poetry challenges racism and prejudice. This poem may, to some extent, have achieved its purpose: in 2016, a statue was erected in London in honour of Mary Seacole, one of the subjects of the poem.

Kamikaze
Beatrice Garland

Cowardice or surrender was a great shame in wartime Japan. To surrender meant shame for you and your family, and rejection by society: "he must have wondered which had been the better way to die".

Keywords: Write definitions

Church: The holy people of God, the community of Christians

church: The building in which Christians worship
Agape: describes selfless, sacrificial and unconditional love

Mission: a vocations or religious calling of a religious organisation or individual to go out and spread their faith

The Great Commission: Jesus instruction to his followers that they should spread his teachings to all the nations of the world

Missionary: a person sent on a religious mission to a foreign country through preaching or charitable work

Evangelism: spreading the Christian gospel by public preaching

Mission: a type of non-liturgical worship, sometimes spontaneous or charismatic

Foodbanks are charities set up by Christians who give food to those people in need.

The Trussell Trust

- Founded in 1997 by Carol and Paddy
- Provide emergency food for those in crisis in the UK
- Based on Christian principles
- Non-perishable food is donated to the foodbanks e.g cans/soups
- Care professionals doctors/health visitors and social workers can recommend individuals.

The Oasis Project

- Community hub of Plymouth Methodist Mission circuit
- Food bank
- Also runs, courses, interent cafes, job clubs
- 200 people use the centre each week

Street Pastors

History of Street Pastors (statistics)

-

The Great Commission
"Therefore go and make disciples of all nations, baptising them in the name of the Father and the Son and of the Holy Spirit, teaching them to obey everything I have commanded you." Matthew 28:19-20
This means that everyone who is baptised will be similar to Jesus therefore; they should go and spread the word of God. This shows they Church growth is important to Christians

Alpha course missionary
Founded in 1977 by the Church of England reverend Charles Marnham

The aim was to help church members understand the basics of Christian faith. It is an evangelical course to learn and about Christianity. Some courses also take place in the home, universities and prisons. Millions of people have taken part in this course.

Give examples of the Christ of all nations case study

Reinhard Bonnke held evangelical missions throughout the world and in Africa in particular. He believe God spoke to him in his dream and said Africa shall be saved. This inspired him to organise large rallies and a tent, which

Reconciliation: a sacrament in the Catholic Church, restoring harmony after relationships have broken down

Persecution: hostility and ill treatment, especially because of race, or political reasons or religious beliefs

What does the church do?

- **Food banks**
- **Sunday schools**
- **Mother and toddler groups**
- **Bible studies**
- **Charities**

"And God placed all things under his (Jesus') feet and appointed him to be the head over everything for the Church, which is his body" Ephesians 1:22-23

This quote means that Jesus is in charge of the Church community, so we must follow the teachings of Jesus.

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How do street pastors help the local community?

"Faith by itself, if it is not accompanied by action is dead" James 2:17
(Interpret the meaning of the quote)

Parish Nursing (case study)

Explain the importance of two out of the three Christian charities.
(Complete in your books)

1. Catholic Agency for Overseas Development (CAFOD)
2. Christian Aid
3. Tearfund

held up to 34000. This then grew to at least 1.6 million attendees.

Explain the role of Jesus in reconciling people to God.

The primary mission of the worldwide Church is to proclaim that Jesus came to earth to restore the relationship between people and God.
Christians argue that sin caused this relationship to be broken and separated the world from God who is holy.

How do Christians respond to persecution?
Not all persecution has a very negative effect. It may also be helpful for Christians to develop their faith and strengthen their beliefs. This is a test to really see if a Christian is committed to their faith. Christians believe those who suffer share a unique way with Jesus.
Jesus said 'If someone slaps you on the right cheek, turn them to the other cheek also' (Matthew 5:59)

Do not overcome by evil, but overcome evil with good' (Romans 12:21)

Explain how Charities help to support the persecuted

The Christian Church campaigns on behalf of those persecuted Christians.

Two organisations to help those persecuted-
The Barnabus Fund
Christian Solidarity Worldwide (CSW)

Subject: GCSE Food Tech KO Year 10

In this project you will cover:

The hospitality environment
How hospitality and catering provisions operate
Health and safety practise and legislation
Food causing ill health
Role of the EHO
Nutrients – function and sources and specific needs of group of people
Impact of cooking method on nutritional value
Practical activities – making food dishes
Food presentation techniques

Key Vocabulary

Equipment	Food Safety
Knife	Use by date
Table spoon	Best before date
Butter Knife	Frozen Food
Measuring Jug	Chilled Food
Chopping Board	High risk foods
Saucepan	Low risk foods
Mixing Bowl	Salmonella
Wooden Spoon	E Coli
Frying pan/Wok	Vitamins & Minerals
Food Mixer	Carbohydrates
Baking tray	Gluten in
Rolling Pin	Gluten

Weighing and measuring are skills needed by food scientist and chefs and are practised during the mise en place stage of cooking. This is facilitated by teacher demonstrations and students following recipes. The investigative work done on the impact of cooking methods on nutritional value also links to the job role of a food scientists.

By studying about nutrients and healthy eating using the Eat well guide as a framework, students are to the role of a dietitian and a nutritionists. These lessons will be delivered through home learning, group work activities, power points presentations and a visiting speaker.

Researching where our food comes from give students the opportunity to hone the skills of a food writer, culinary librarian and food journalist. This piece of work will be done through classwork (market place activity and home learning.

Food presentation skills are encouraged by adding a finishing technique to dishes made. This is within the remit of a food stylist, food photographer, food artist as well as a molecular gastronomist.

Students practise being a health and safety officer when conducting risk assessment of the food room before their practical tasks. Through role play, students will study the role of an Environmental Health Officer. Linked to these two careers, is the unit of work on health and safety and bacteria and food poisoning .

Conducting sensory analysis gives students insights into the job of a food taster and a quality assurer. This activity is conducted after practical activities in class as well as at home.

Careers in the hospitality industry include managers, administrators, front house staff as well as back house staff. These careers are studied at KS4 through power point presentations, trips, role plays, independent work and home learning activities.

Key Skills & Knowledge

By the end of the project you should have gained the skills and knowledge to be able to do the following:

The hospitality environment
How hospitality and catering provisions operate
Health and safety practise and legislation
Food causing ill health
Role of the EHO
Nutrients – function and sources and specific needs of group of people
Impact of cooking method on nutritional value
Practical activities – making food dishes
Food presentation techniques

The Enfield Way is to LEARN

GCSE Physical Education

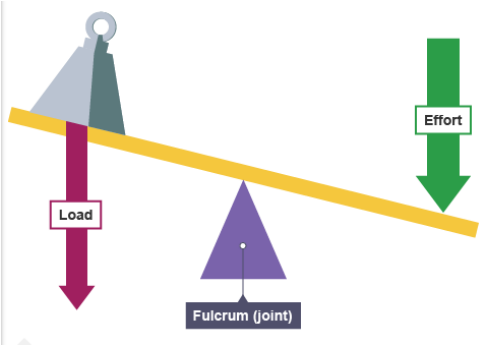
1.1c – Movement Analysis

GCSE PE KS4 Knowledge Organiser

Component	% of overall GCSE (9-1) in Physical Education (J587)			
	AO1	AO2	AO3	AO4
1: Physical factors affecting performance	12.5	10	7.5	0

Assessment Objectives	
AO1	Demonstrate knowledge and understanding of the factors that underpin performance and involvement in physical activity and sport.
AO2	Apply knowledge and understanding of the factors that underpin performance and involvement in physical activity and sport.
AO3	Analyse and evaluate the factors that underpin performance and involvement in physical education and sport.

Movement Analysis



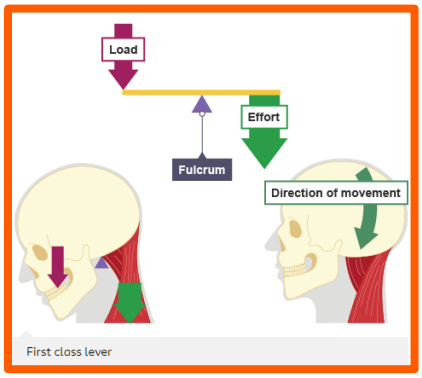
Levers

A lever consists of:

- A rigid structure (Bone)
- A Force acting upon it (agonist muscle) to produce a turn movement (angular motion)
- A fulcrum which is a fixed point (joint)
- A load or resistance that is placed on the rigid structure (weight or body part being moved and anything it is carrying)

First-Class Lever

The fulcrum is in the **middle** of the effort and the load.

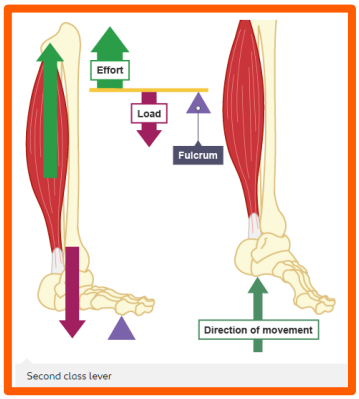


Example: This type of lever is found in the neck when raising your head to head a football.

Neck muscle provides the effort, the neck joint is the fulcrum and the weight of the head is the load.

Second-Class Lever

The load is in the **middle** of the effort and the fulcrum.

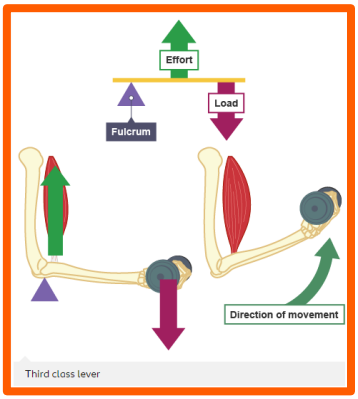


Example: This type of lever is found in the ankle when standing on your tiptoes during the take-off of a jump in a jump shot in basketball.

The gastrocnemius provides the effort, the big toe joint is the fulcrum and the weight of the body is the load.

Third-Class Lever

The effort is in the **middle** of the load and the fulcrum.

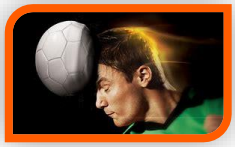


Examples: This type of lever is found in the elbow when performing a bicep curl in weightlifting.

The bicep provides the effort, the elbow joint is the fulcrum and the weight forearm, hand and dumbbells and the load.

GCSE Physical Education

1.1c – Movement Analysis



F → 1

L → 2

E → 3

Levers are used to multiply force. This means that they allow you to move a large output load with a smaller effort. Load and effort are forces measured in Newtons (N).
In a lever, if the distance from the effort to the fulcrum is longer than the distance from the load to the fulcrum, this gives a greater mechanical advantage. First-class and second-class levers have mechanical advantage.

Second class levers have the best mechanical advantage, so they can move a large load with a relatively small effort.

Mechanical Advantage

Exam Question: Explain why a second-class lever has the best mechanical advantage.

The further away the effort is from the fulcrum, the easier it is to lift the load. This requires a long lever arm.
In a second-class lever, the effort is further away from the fulcrum that the load therefore less effort is required.

Example:

Load = 500N Effort = 100N

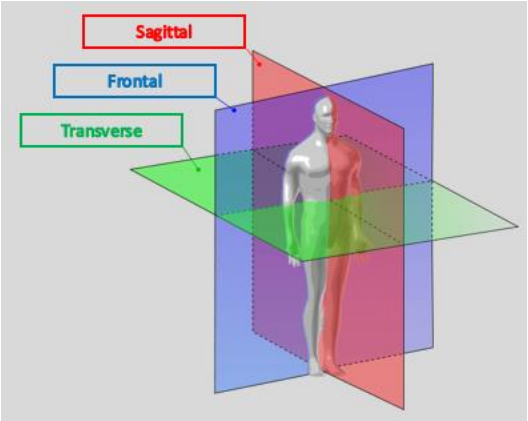
500N ÷ 100N = 5

At take-off, the high jumper applies large forces to the ground through their ankle. The ankle operates with mechanical advantage in order to resist these forces and enable the jumper to achieve flight

Mechanical Advantage = Load ÷ Effort

Planes of Movement

All body movements occur in different planes and around different axes.
A plane is an imaginary flat surface running through the body.



Sagittal Plane

The sagittal plane divides the body vertically into left and right. Movements in this plane are flexion and extension.

Example: Somersault in trampolining – Sprinting in athletics

Frontal Plane

The frontal plane divides the body in anterior and posterior (front and back). Movements in this plane are abduction and adduction.

Example: Star Jump in gymnastics – Diving save in football

Transverse Plan

The transverse plane divides the body horizontally into superior and inferior (upper and lower). Movements in this plane are rotational.

Example: Pivoting in netball – full twist in trampolining.

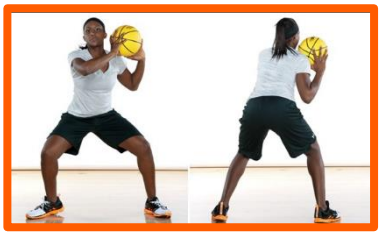
Sagittal – Side to side

Frontal – Front and back

Transverse – Top and bottom

GCSE Physical Education

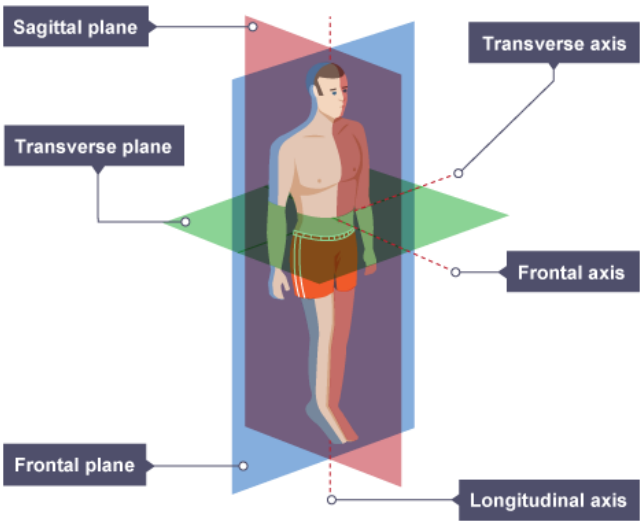
1.1c – Movement Analysis



Axes of Rotation

All body movements occur in different planes and around different axes.

An axis is an imaginary line at right angles to the plane, about which the body rotates or spins.



Transverse Axes

The transverse axis runs from left to right through the centre of the body.

Example: Summersault in trampolining – Sprinting in athletics

Frontal Axes

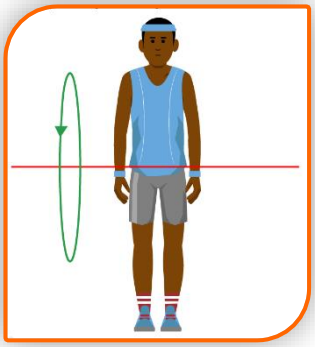
The frontal axis runs from front to back through the centre of the body.

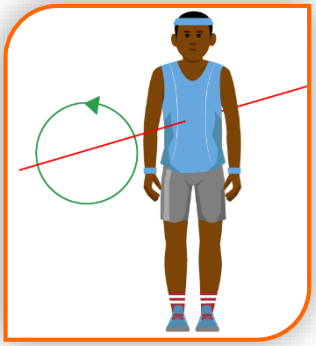
Example: Star Jump in gymnastics – Diving save in football

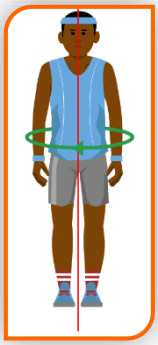
Longitudinal Axes

The longitudinal axis runs from top to bottom through the centre of the body.

Example: Pivoting in netball – full twist in trampolining.







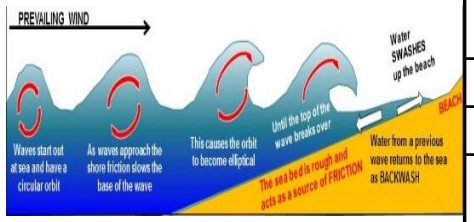
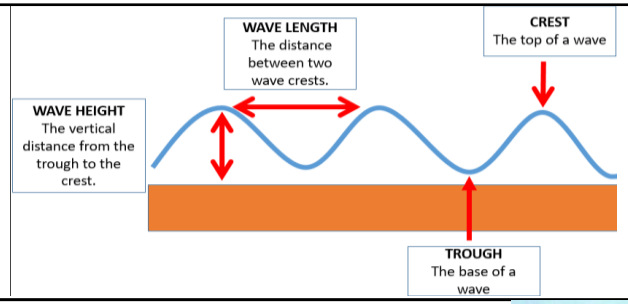
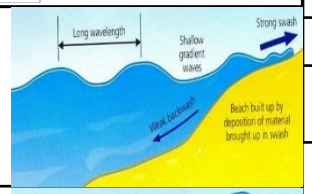
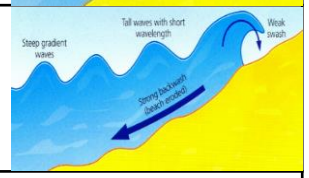
GCSE Physical Education

1.1c – Movement Analysis

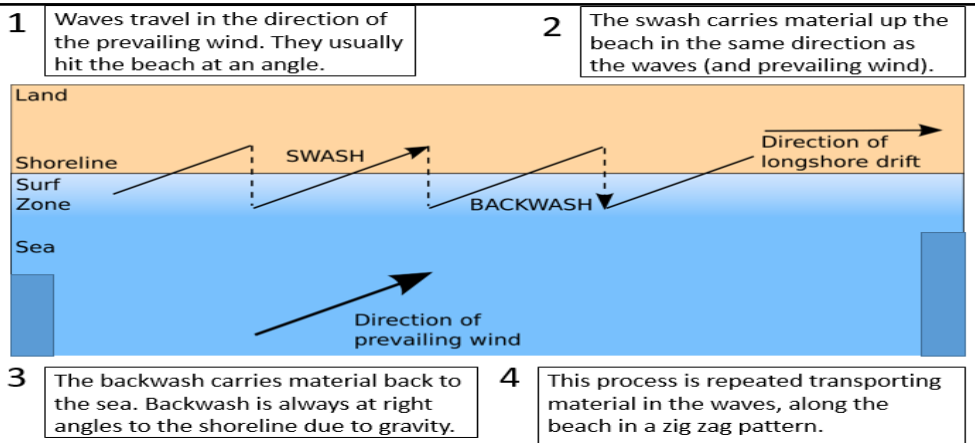
Sagittal Plane → Transverse Axes Frontal Plane → Frontal Axes Transverse Plane → Longitudinal Axes

Exam Question: Using examples of movement explain how a netball player uses all three planes of movement during a match [4]

During a netball match a netball will use the sagittal plane of movement when flexing and extending their knees when running. A netball will use the frontal plane of movement when performing abduction at the shoulder when blocking their opponent from passing. A netballer will use the transverse plane of movement when performing pivot to turn when in possession of the netball.

Coastline	The outline of the land. Where the land meets the sea
How are waves formed and how do they break?	• Winds push the surface of the water in the direction it is blowing. • The water moves in a circular motion = waves. • As the waves move into shallow water, the rough sea bed = friction = water travels slower at the base of the circular wave = the top of the wave moves faster than the base. • Eventually the top of the wave breaks 
Wave anatomy	
Constructive Waves	• Long wavelength and low wave height • Strong swash and gentle backwash = add material and create big beaches • Very gentle, created in calm conditions and a short fetch. 
Destructive Waves	• Short wavelength and high wave height • Weak swash and strong backwash = remove material and erode beaches • Very powerful, created in storms and 
Wave fetch	The distance of water over which the wind blows (the size of the sea/ocean)
Swash	Breaking waves rush water and sediment up the beach.
Backwash	The water that rushes flows back to the sea.
Infiltration	Water enters the ground
Saturation	Rock that is full of liquid
Impermeable rock (non-porous rock)	Rocks that do not allow liquid to pass through
Permeable rock (porous rock)	Rocks that allow liquid to pass through
Slip plane	A line of weakness along which movement occurs

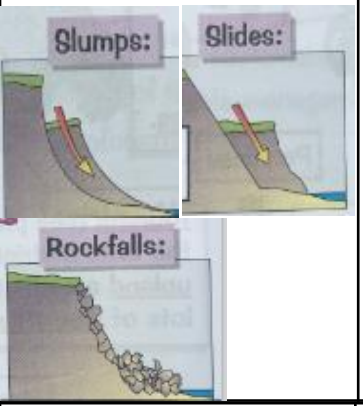
Erosion	The wearing away or removal of rocks. Erosion attacks the base of the cliff.
Hydraulic Action	The force of the waves hitting the cliffs removes material. Air bubbles in the water are pushed into cracks in the cliff and remove material due to an increase in pressure.
Abrasion	Material in the sea hits against the cliffs and removes rocks and soil, *like sandpaper.*
Corrosion	Chemicals in the water dissolve the cliff.
Attrition	Material in the sea crash into each other and break into smaller pieces. Continued attrition = smaller, smoother pebbles and sand particles.
Weathering	The breakdown of rocks caused by the day-to-day changes in the atmosphere. Weathering attacks the top of the cliff.
Freeze-thaw	Water collects in cracks. At night this water freezes and expands. The cracks get larger. In the day the temperature rises and the ice melts (thaws). The repeated freezing and thawing weakens the rock = breaks apart
Biological weathering	Plant roots grow in cracks in the rocks and break them apart. Animals burrow into weak rocks and break it apart.
Carbonation	Carbon dioxide and sulphur dioxide mix with rainwater to produce acid rain. This reacts with rocks. *e.g. rainwater + CO2 = carbonic acid. Carbonic acid + calcium carbonate (in rocks such as limestone) = calcium bicarbonate which is soluble = rock dissolves.*
Transportation	The movement of sediment along the coastline.
Longshore drift	The zig zag movement of transported material along the coastline. It is transported in the direction of the prevailing wind.



Deposition	The dropping of material carried by the water. It takes place in areas where the flow of water slows down. Waves lose energy and can no longer carry sediment and is therefore dropped. This occurs in: • *Sheltered bays when the wave's energy decreases.* • *Areas where there are constructive waves (strong swash/weak backwash)* • *Coastlines with groynes. These are wooden walls that are built out to sea, along the beach. They trap sediment being transported by longshore drift.*

Landforms that have been created by erosion and weathering:

MASS MOVEMENT

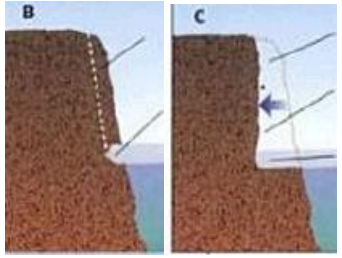


Mass movement is the downhill movement of material caused by gravity.

Rotational slump and Landslide:
- During periods of rain, water infiltrates (goes into) permeable rock. This makes the rock heavier.
- Eventually the rock becomes saturated (full of water) and unstable. A line of weakness forms in the unstable rock. A line of weakness is also known as a slip plane.
- Material moves down along the line of weakness.
  - *Rotational slumps – a CURVED line of weakness forms.*
  - *Landslides – a STRAIGHT line of weakness forms.*

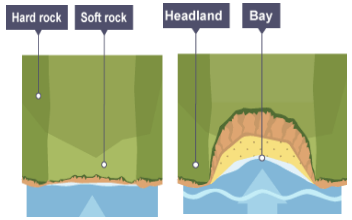
Rock Fall – where rocks fall down a cliff face due to gravity
- Freeze-thaw weakens the rocks at the top of the cliff.
- These weakened rocks fall to the base of the cliff.
- The material that collects at the bottom of the cliff is called a scree slope.

WAVE CUT PLATFORM



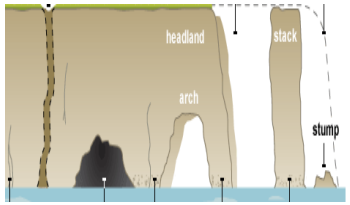
A wave cut platform is a platform of rock found at the base of a cliff, formed due to erosion and weathering.
- Waves attack the base of the cliff between the high and low tide marks.
- Processes of erosion, such as hydraulic action and abrasion erode the base of the cliff creating a ***wave cut notch*** and ***overhanging cliff***.
- Further erosion makes the wave cut notch larger and overhanging cliff unstable.
- Eventually the overhanging cliff collapses leaving a flat area of rock (***wave cut platform***).
- The cliff retreats.

HEADLAND AND BAY



A headland is a cliff that sticks out into the sea.
A bay is an indentation in the coastline between headlands
- Headlands and bays occur along discordant coastlines. These are coastlines with bands of alternating hard and soft rock.
- The two different rock types erode at different speeds.
  - ***Hard rock*** *(granite) will erode more slowly, creating* ***headlands****.*
  - ***Soft rock*** *(clay) will erode more quickly, creating* ***bays****.*
- Bays are sheltered. As a result, deposition occurs and beaches are formed.

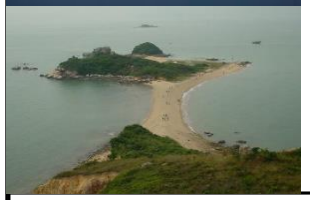
CAVE, ARCH, STACK



A cave, arch, stack is a coastal landform that is created along headlands.
- Waves attack a line of weakness along a headland. Erosion (hydraulic action, abrasion) widens the line of weakness to create a cave.
- Continued erosion, erodes the back of the cave, creating an arch.
- Weathering (freeze-thaw, animals, salt) weakens the top of the arch making it unstable. It eventually collapses, forming a stack.
- The stack is eroded from the base by the sea and weakened at the top by weathering = stump.

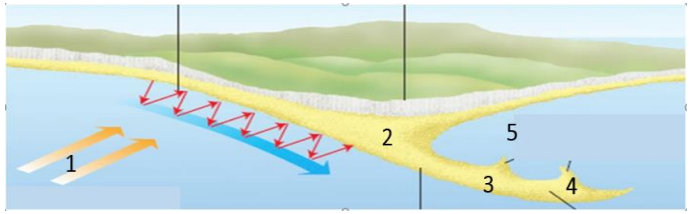
Landforms that have been created by transportation and deposition:

SPIT



A spit is a long, narrow band of sand/shingle that extends out into the sea from the land.

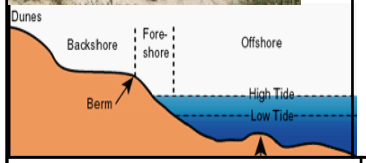
1. LONGSHORE DRIFT transports material along the coastline in a zigzag pattern.
2. Where there is a sudden BEND in the coastline, the waves lose energy. As a result, material is deposited.
3. REPEAT: continued longshore drift along the coastline and deposition at the bend, deposits material out to sea = spit.
4. Strong winds and waves curve the end of the spit = RECURVED end.
5. The area behind the spit is sheltered from waves = low energy = deposition. SALTMARSHES and mud flats are common here. They attract lots of wildlife.



A BAR is formed when a spit joins two headlands together.
A lagoon forms behind the bar.

A TOMBOLO is formed when a spit joins to an island.

BEACH



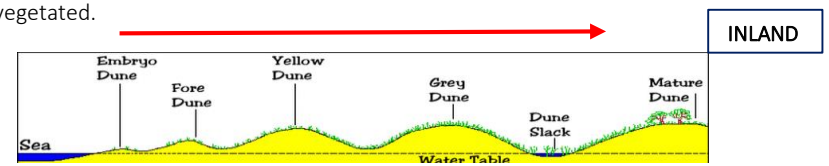
Deposits of sand and shingle (pebbles) at the coast.

Beaches are found on the coast between the high water mark (high tide line) and low water mark (low tide line).
- *Sandy beaches are wide and flat. They are created by constructive waves with a strong swash and weak backwash. They occur in sheltered areas such as bays.*
- *Shingle beaches are steep and narrow. They are created by destructive waves with a weak swash and strong backwash. They occur in exposed coastlines.*

Beaches are made up of the **offshore** (*out to sea*), **foreshore** (*between high and low tide lines*) and **backshore** (*high up the beach, near the sand dunes*).

SAND DUNE

SAND DUNES – mounds of sand at the back of the beach.
- Sand is moved up the beach by the wind.
- It gets trapped by obstacles (e.g. driftwood) and the sand is deposited. Overtime it gets vegetated and larger = embryo dune.
- As you travel inland from the sea, the sand dunes get: taller, larger, darker, more vegetated.



Hard engineering Effective?	Using manmade, artificial structures to prevent erosion and flooding.. More effective, long lasting and need less maintenance than soft engineering, however more expensive and less natural/environmentally friendly.
Sea Wall	A strong concrete wall built in front of the cliff/settlement that absorbs the wave's energy. A curved sea wall reflects the wave back to sea. • Effective, long lifespan, tourists like to walk along it. • Expensive to build and maintain, looks unnatural.
Rock Armour	Large rocks placed in front of the cliff or settlement, that absorb the wave's energy. • Effective, long lifespan, cheaper, more natural and easier to build/maintain than a sea wall. • Expensive (UK rock armour often comes from Norway), access to the beach can be difficult, can become slippery and dangerous.
Gabions	A wire cage filled with rocks that are placed in front of the cliff or seaside settlement. These absorb the wave's energy. • Effective, long lifespan, cheaper and easier to build/maintain than rock armour/sea walls. • Wire cages have short lifespan (5-10 years). Sea water corrodes metal cages creating broken gabions which can be dangerous to tourists. More expensive than soft engineering.
Groynes	Wood or rock fences built out into the sea. They trap sediment transported by longshore drift and make the beach larger. • Groynes make the beach wider. The waves lose energy as they rush up the beach, meaning they have less erosion. Big beaches boosts tourism. • They prevent sediment reaching beaches further along the coastline, making beaches along the coastline smaller. Therefore the problem is moved, not solved. More expensive than soft engineering.
Off-shore Break-water	Stone walls built up in the ocean parallel to the coastline. • They reduce the energy of the waves and help deposition to occur = beach gets larger (e.g. Sea Palling), • They can be very expensive and interfere with boats.
Managed retreat More specifically….	A deliberate decision to allow the sea to floor an area of low-value land. People are evacuated, buildings demolished and any existing sea defences removed. The sea then naturally floods the land and salt marshes develop in the flooded land, which absorb the energy of future waves. New flood defences can be built in high-value land behind the salt marshes
Example of managed retreat	Medmerry Managed Retreat, Chichester, South England. The flat, low-lying land had a low value (used for farming and caravan parks). The sea wall that protected the area needed repairing, but the decision was to not repair it and allow the land to flood as it was cheaper than repairing the sea wall. The managed retreat took place in November 2013.

ADVANTAGES	DISADVANTAGES
• Reduced chance of flooding. • 7km of new cycle routes, 10km of new footpaths for leisure activities. • 300hectares of new habitats created (saltmarshes). This creates a tourist attraction (e.g. birdwatches). • Newly flooded land has created new fishing nursery = new fishing industry in Selsey (economy)	• People were relocated from their homes. • Despite planning, habitats of existing species were affected. • The scheme cost £28 million. • Three farms were flooded = loss of industry and income.

Soft engineering Effective?	Using natural, environmentally friendly methods to prevent flooding. Often cheaper than hard engineering however need more maintaining and have a shorter lifespan
Beach Nourishment	Adds sediment to the beach to make it wider. The widened beach acts as a barrier from the waves and reduces erosion and flooding. • Cheap and easy to maintain, natural looking, bigger beaches = more tourism • Short lifespan, constant maintenance, beach is closed due it is being done.
Beach Reprofiling	Material removed by longshore drift or destructive waves is returned to the beach. This maintains the size of the beach and prevents it getting smaller. • Cheap and easy to maintain, natural appearance, bigger beach = more tourists • Short lifespan, constant maintenance, beach is closed due it is being done.
Dune Regeneration	Sand dunes are repaired and made larger using fences or marram grass. This creates a natural barrier from the waves. • Cheap, very natural, popular with wildlife (creates habitats). • While being repaired, dunes are closed = less tourists. They also require constant maintenance as dunes are constantly changing.
Dune Fencing	Fences are built on sandy beaches to collect sand and create new sand dunes. The new sand dunes act as a natural barrier from the waves. • Cheap, natural, help make dunes larger, minimal impact on wildlife. • Can be dangerous if the fences break, need regular maintenance after storms

The UK's coastline is at risk of erosion. For a section of coastline to be protected, the cost of the scheme must be less than the value of the land, property and infrastructure (e.g. roads) saved, and the scheme must have no negative 'knock-on' environmental effects, for example making erosion worse somewhere else. The British Government creates **shoreline management plans (SMPs)** that outline how our coastline will be protected. There are four strategies.

Advance the line	Build new defence structures (v. high land value)
Hold the line	Maintain/improve existing coastal defences (high land value)
Managed retreat	Allow the sea to flood the land and build new sea defences inland (low land value)
Do nothing	Leave land to erode/flood (v.low land value)

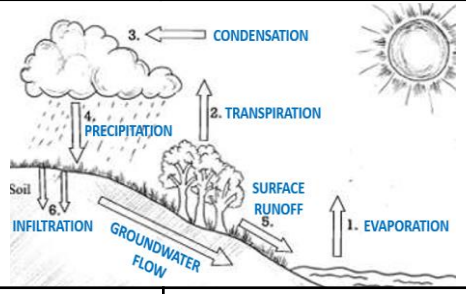
Example: West Dorset is located on the south coast of England. There is evidence of erosion along this coastline, due to:

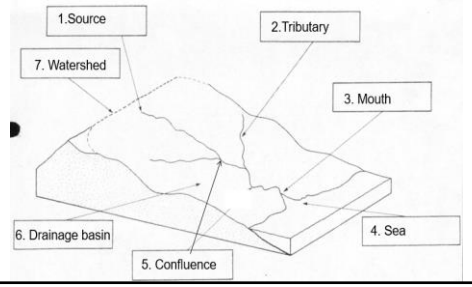
- *The underlying rock is clay, which is soft and erodes very quickly.*
- *The fetch is the distance the waves travel before they reach the coastline. In West Dorset, the waves travel over 4000 miles across the Atlantic = very strong destructive waves are common here.*

To reduce the risk of erosion they use a number of strategies:

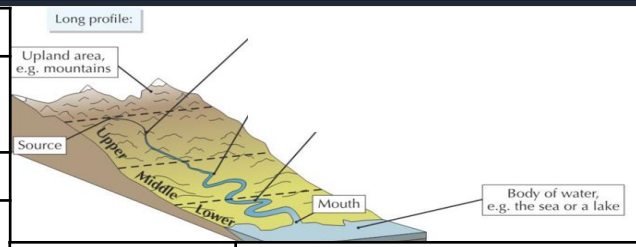
➢ At Lyme Regis in West Dorset a number of hard and soft engineering is used to protect the high value land. These include a sea wall, rock armour, groynes and beach nourishment.
These are very effective at reducing the rate of erosion with little evidence of new erosion at Lyme Regis.
On the other hand, they are very expensive and impact on the natural wildlife. Furthermore, the groynes prevent the transport of sediment along the coastline, which has caused mass movement further along the coastline.

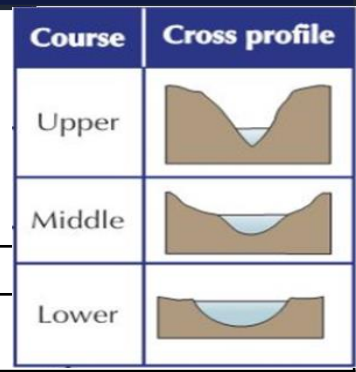
Evaporation	The sun heats up water. The water turns into a gas which rises up into the atmosphere .
Transpiration	The sun heats up water on the leaves of trees. The water turns into a gas which rises up into the atmosphere (air).
Condensation	As the water in the atmosphere rises, it cools and condenses to form clouds.
Precipitation	Water in the cloud falls to the earth's surface as rain, hail, sleet and snow.
Surface run-off	When the water runs off the surface of the ground as a river or stream.
Groundwater flow	When water flows through the rocks and soil underground.
Infiltration	When water enters a rock.





Drainage Basin	The area of land in which water drains into a specific river.
Watershed	The boundary of a drainage basin. It separates one drainage basin from another. It is usually high land.
Source	The point where the river begins.
Tributary	A stream or small river that joins a larger stream or big river.
Confluence	A point where two streams or rivers meet.
Mouth	The point where the river meets the sea or ocean.
Embankments	Raised river banks on either side of a river
Contour Line	Brown lines on an OS map that join up points of equal height. They allow us to determine slope gradient.
Flood	A flood occurs when there is too much water in the river channel. As a result water spills out onto the floodplain.
Flash Flood	Rapidly rising river levels leading to greater
Storm Hydrograph	Shows how a river changes after a storm and is used to predict floods
Lag time	The time (in hours) between the peak rainfall and peak discharge
Discharge	The volume of water in a river channel (measured in cumecs)

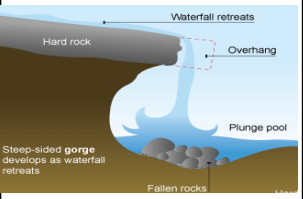




Long profile	Shows the gradient of a river along its course (from its source to its mouth).
Cross profile	Shows the shape of the river channel and valley. It shows a cross section of the river. It is an imaginary 'slice' across a river channel/valley at a specific point.
Upper course:	➢ Long profile: very steep gradient. ➢ Cross profile: Vertical erosion has created steep V shape valleys. The river channel is narrow and shallow. ➢ Landforms: *V shape valleys, waterfalls, gorge.*
Middle course:	➢ Long profile: medium gradient. ➢ Cross profile: Gentle sloping valley sides – formed by lateral erosion. Wider and deeper river channel.
Lower course:	➢ Long profile: flat gradient. ➢ Cross profile: Lateral erosion widens the river valley = very wide, almost flat valley. Widest and deepest river channel ➢ Landforms = *estuaries, floodplain, levees, meanders, ox bow lakes*
Erosion	The removal of rock by the river
Hydraulic Action	The force of water hits against the river channel and removes material. It is common with fast moving, high energy water.
Abrasion	Sediment carried by the river hits the river channel and removes material.
Corrosion	Chemicals in the water dissolve rocks (e.g. limestone)
Attrition	Stones carried by the river hit into each other, gradually making the rocks smaller and smoother. Rocks in the upper course are large and more angular than rocks in the lower course.
Weathering	The breakdown of rocks caused by the day-to-day changes in the atmosphere.
Freeze-thaw	Water collects in cracks. At night this water freezes and expands. The cracks get larger. In the day the temperature rises and the ice melts (thaws). The repeated freezing and thawing weakens the rock = breaks apart.
Transportation	Eroded material is carried by the river downstream.
Traction	Large particles roll along the river bed.
Saltation	Pebble-sized particles bounce along the river bed.
Suspension	Small particles (silt and clay) are carried in the water.
Solution	Soluble materials dissolve in the water and are carried along.
Deposition	Deposition takes place where a river does not have enough energy to carry sediment (its load). As a result it is dropped.

Landforms that have been created by erosion and weathering:

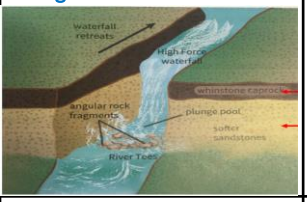
Waterfall



A steep fall of water in the upper course of a river.

- Waterfalls are formed when hard rock overlays softer rock.
- The softer rock is eroded more quickly than the harder rock creating a plunge pool and overhanging rock.
- Continued erosion makes the plunge pool deeper and overhanging rock becomes unstable.
- The overhanging rock collapses and the waterfall retreats upstream.

Gorge



A narrow steep sided valley that is usually found immediately downstream from a waterfall.

It is formed by the gradual retreat of a waterfall over hundreds or thousands of years.

What processes of erosion and weathering result in the formation of a waterfall and gorge.

➢ *You need to be able to identify and define each.*

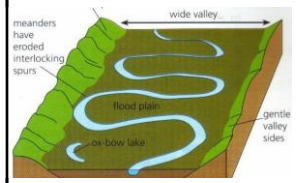
Interlocking Spurs

Interlocking spurs are a landform found in the upper course of the river, formed due to erosion and weathering.

- In the upper course, the river erodes vertically (downwards) creating steep valley sides.
- Weathering of the valley sides creates deep V shape valleys.
- The river in the upper course does not have enough energy to erode laterally and so flows around bands of more resistant rock
- These resistant hard rock creates ridges with jut out, creating spurs. These spurs overlap forming interlocking spurs.

Landforms that have been created by transportation and deposition:

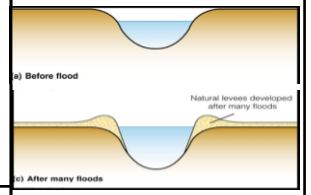
Floodplain



A wide, flat area of marshy land on either side of a river in the lower course of a river.

- Flooding is common in the lower course of a river.
- When a river floods, velocity decreases = energy decreases = deposition occurs.
- Layers of deposited fine sediment (e.g. silt/alluvium) build up on the valley floor, either side of the river creating a floodplain.
- The floodplain is made wider due to large meanders that wind across the floodplain.
- *Common landforms on a floodplain: levee, estuary, meander, oxbow lakes.*

Levee



A raised river bank found alongside a river in the lower course, caused by repeated flooding. They are natural embankments.

Flooding is common in the lower course of a river. When a river floods, velocity decreases = energy decreases = deposition occurs.

- Heavier, larger material is deposited first, next to the river bank.
- Lighter silt/alluvium is deposited further across the floodplain.
- Over time the height of the banks are raised by a build up of coarser sand deposits, creating levees.

Estuary

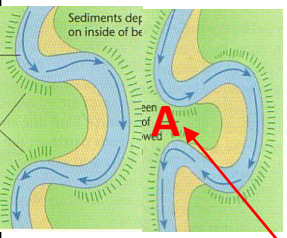
Is the wide part of a river, where the river meets the sea (mouth)

Estuaries are the transitional zone between the river & sea.

- The water flowing down the river meets water flowing up the river from the sea (during high tides). As the water meets, velocity decreases= energy decreases = lots of deposition.
- Due to deposition, salt marshes form creating habitats for wildlife.
- In some estuaries humans have made ports for industry.

Landforms that have been created by erosion and deposition:

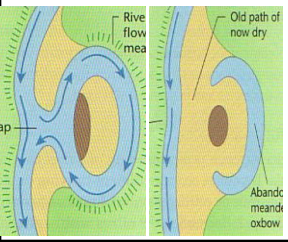
Meander



A meander is a bend in the river on the valley floor.

1. It starts with a slight bend.
2. Water moves faster on the outside of the bend and slower on the inside.
3. The fast water erodes the outside of the bend. The slower water deposits material on the inside of the bend.
4. Continued erosion and deposition makes the bend bigger.

Ox bow lake

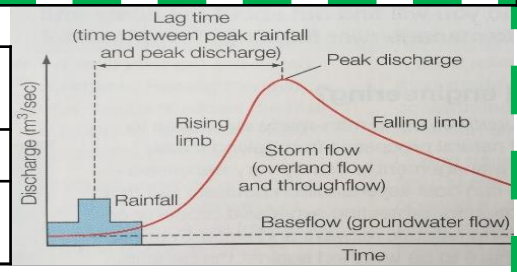


An oxbow lake is a U-shaped lake formed when a meander is no longer connected to a river

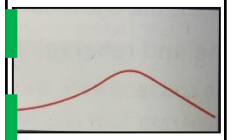
5. Continued erosion and deposition makes the meander bigger and the neck (A) narrows.
6. Eventually the neck breaks through and the water takes the most direct route, avoiding the meander
7. As less water is flowing through the meander, the energy is reduced = deposition. The meander is blocked off and an oxbow lake is created.

STORM HYDROGRAPH

Storm Hydrograph	A graph showing how a river reacts to heavy rainfall. It can be used to predict floods.
Lag time	The time between the peak rainfall and peak discharge
Discharge	The volume of water in a river channel (measured in cumecs).



NO FLOOD



- Trees in drainage basin intercept rainfall meaning there will be a longer lag time.
- Gentle rain will mean more water is infiltrated into the ground. Therefore it takes longer to reach the river channel = longer lag time.
- Permeable rock = more water infiltrated = takes longer to reach river.
- Dry soils = more water can infiltrate = takes longer to reach river channel
- Large drainage basins = water has to travel further to reach river = slower

FLOOD

- Deforestation = no trees to intercept rainfall = rainfall reaches river quickly = shorter lag time.
- Intense rain = too fast to infiltrate = more surface runoff = quicker to river = shorter lag time.
- Impermeable rock = rainwater not infiltrated = more surface runoff = quicker to river = shorter lag time. Impermeable surfaces are created when areas are ***urbanised*** (concrete).
- Steep slopes = quick transfer of water to river channel = short lag time

Hard engineering Effective?	Using manmade, artificial structures to prevent erosion and flooding.. More effective, long lasting and need less maintenance than soft engineering, however more expensive and less natural/environmentally friendly.
Dam & Reservoir	A large wall is built across a river and a reservoir forms behind the dam. It is used to regulate river flow. The flow of water can be 'turned off' during periods of heavy rain. • Effective, long lifespan, used for irrigation, water supply, recreation and HEP. • Expensive, damage habitats, people have to relocate due to flooding.
Channel Straightening	Rivers are straightened by cutting through meanders to create a straight river channel. This speeds up the flow of water along the river. • Effective as water does not have time to build up, long lifespan. • Expensive, unnatural, damage habitats, result in flooding downstream.
Embankment	A raised riverbank (levee) which allows the river to channel to hold more water. • Effective, long lifespan, can look natural if covered in vegetation • Expensive, if concrete is used it is unnatural and unattractive.
Flood Relief Channel	A man-made river channel constructed to divert water in a river channel away from urban areas. • Effective as regulate river discharge (in heavy rain, relief channels are opened) • Expensive, it can destroy habitats while it is being constructed.
Soft engineering Effective?	Using natural, environmentally friendly methods to prevent flooding. Often cheaper than hard engineering however need more maintaining and have a shorter lifespan
Afforestation	Planting trees to create a woodland/forest • Trees slow down the movement of water into channels (longer lag time) = less likely to flood. Provides habitats. Cheap. • Less effective than hard engineering.
Wetlands	Where land next to wetlands is left to flood. • Cheap, easy to maintain, create habitats, stores water so less in river channel. • Short lifespan, constant maintenance, beach is closed due it is being done.
Floodplain Zoning	Land is allocated for different uses according to its flood risk. Land closest to the river is used as parkland and land further from rivers is used for housing and industries. • Doesn't' stop the flood but reduces cost as infrastructure is not destroyed. • Flood is not stopped, is difficult to if the land has already been built on.
River Restoration	Returns a river to its natural state (e.g. remove channel straightening or a dam). • Cheap, easy to maintain, creates habitats, natural. • Flooding still occurs, less effective.
Planning & Preparation	Rivers are monitored to measure flood risk using satellites, instruments and computer models. The Environmental Agency issue alarms if a flood will happen. • People can prepare – sandbags around home, move valuable upstairs, evacuate, create emergency kits, • Flood still occurs, house prices can drop if deemed 'at risk'

An example of a recent extreme weather event in the UK: THE SOMERSET FLOODS

Where	Somerset, south-west England
Physical landscape	Somerset is low lying farmland. There are several rivers, including the Tone and Parrett, which flow into the Severn Estuary.
When	January and February, 2014
Why	350mm of rain in January and February (100mm above average), high tides, storm surges, rivers had not been dredged in 20 years and so were clogged with sediment
Social Effects	• 600 houses flooded. People in temporary accommodation for months. • 16 farms were evacuated • Villages (e.g. Moorland) were cut off by the floodwater. This meant residents could not attend school, work or shop. • Power supplies were cut off. • Local roads and railway lines were flooded.
Economic Effects	• Somerset County Council estimated the cost at £10 million. • 14,000 hectares of farmland under water for weeks = could not sell crops. • Over 1000 livestock had to be evacuated, which was very expensive for farmers and insurance companies. • Local roads and railway lines were flooded. These needed to be repaired.
Environmental Effects	• Floodwater contained sewage and chemicals which contaminated farmland. • Habitats were lost.

To reduce the risk of future floods, a £20 million Flood Action Plan was launched.

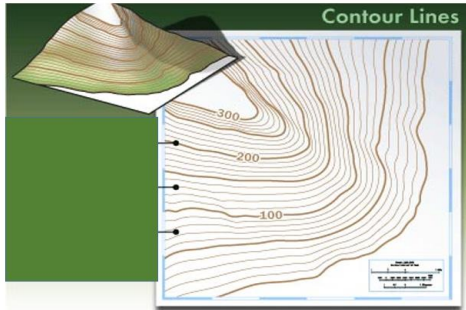
Dredging	In March 2014, 8km of the River Tone and the River Parratt were dredged. This is when material/soil/mud is removed from the river bed. As a result the river channel is larger and can hold more water. This prevents the river overflowing its banks.
Elevated roads	Roads have been elevated in places. As a result even if a flood occurs, people can still drive on the elevated roads. This also helps the economy by allowing import/export.
Flood defences	Settlements in areas of flood risk have flood defences. As a result they are able to protect themselves.
Embankments	River banks have been raised. These are called embankments. This means the river channel can hold more water and therefore it is less likely to overflow.

Contour lines tell us about the relief of the land (slope gradient). Contour lines are brown lines on an OS map. They join up points of equal height, shown on the lines.

They often show changes in height of 5 or 10 metres.

- Contours very close together = steep gradient (upper course – gorge)
- Contours far apart = flat land (lower course – floodplain)

http://www.bbc.co.uk/education/clips/zpxwq6f



Year 10 Summer 2 PAPER 3: ISSUE EVALUATION & FIELDWORK

Section A: Issue Evaluation

- *AQA will send a pre-release document to Miss Rae on 19th March, 2020. This document will be a six page article on a current project occurring in the world. It will be related to at least two of the topics we have covered in Papers 1 and 2. You will have the pre-release document in your exam so you do not need to memorise it.*
- *Section A will ask you questions about the pre-release document. To prepare we will then spend 2 weeks going over the document and practising likely questions that will come up. Do not focus on this until Miss Martin and Mr Lewis ask you to.*

Section B: Fieldwork

- *The first half of Section B is on **generic fieldwork** (pages 1 – 4). It will reference fieldworks other students have completed and ask you questions about it. For example: how should they collect or present their data, what does their data show, what is one risk of their fieldwork, how could they improve their data. You need to practice geographical skills (maps, graphs, diagrams, median/mode/mean, interquartile range…etc.*
- *The second half of Section B is on **YOUR fieldwork** (pages 5 – 11). You will be asked four questions on your human and physical fieldworks. For example: justify the location of your fieldwork enquiry, justify one data collection technique, assess the reliability of your results, justify your sampling method, assess the effectiveness of your data presentation choices…etc.*

A geographical enquiry can be split up into six stages.

- Introduction and planning
- Methods and data collection
- Data presentation
- Data Analysis
- Conclusions
- Evaluation

Enquiry Question	A question you plan to answer during your investigation. *Is coastal engineering effective at preventing erosion along the West Dorset coastline?*
Aim	A general statement of what you are trying to find out. *To compare the effectiveness of coastal engineering at Lyme Regis and Chesil Beach in West Dorset.*
Hypothesis	A testable statement (the likely outcome). *The coastal engineering strategies will be effective at preventing erosion at Lyme Regis and Chesil Beach in West Dorset.*
Risk assessment	A document that outlines the risks of completing an activity and the measures taken to reduce these risks.
Primary data	Data that is collected by yourself.
Secondary data	Data or information that has been created by another person or organisation (e.g. google, census, geology maps, OS maps).
Quantitative data	Data that can be measured and recorded using numbers (e.g. the age of your car, the number of pedestrians on a pavement).
Qualitative data	Data that records people's opinions or view (EQS, interviews, focus groups, questionnaires).
Sampling	Sampling is a shortcut method for investigating a whole population. Data is gathered on a small part of the whole and used to make a judgement as a whole.
Stratified sampling	Dividing the target population into subcategories (e.g. race, gender, religion, age). Selecting members in proportion that they occur in the population. (e.g. 2.5% of British are of Indian origin, therefore 2.5% of your sample should be of Indian origin).
Systematic sampling	Samples are chosen in a regular way. (e.g. every 2 meters along a transect line or every 10th person or 10th house).
Random sampling	Samples are chosen at random. Every member of the population has an equal chance of being selected (pull names out a hat)
Data collection	The process of collecting data. (e.g. wave count, pedestrian count, EQS, photographs, field sketch, land value survey).
Methodology	The strategies chosen to collect data for your investigation.
Data presentation	How you present your data. For example line graph, choropleth map, proportional circle map, bar chart, pie chart).
GIS	Geographical information systems. When you place data onto a map.
Mean	An average. Add all the values together. Divide the total by the number of values added.
Mode	The most common value.
Median	The middle value.
Range	Minus the lowest value from the highest value.
Interquartile range	Organise the data points from highest to lowest. Find the median. Find the median of the upper half of results (upper quartile) Find the median of the lower half of results (lower quartile) Minus the lower quartile from the upper quartile.
Conclusions	Does your data answer your enquiry question. Overall…..
Reliability	Refers to the degree to which repeated measurements give the same result. To get more reliable results repeat the test and take an average.
Accuracy	Refers to the whether your data achieves the correct result. To get more accurate results use accurate equipment.

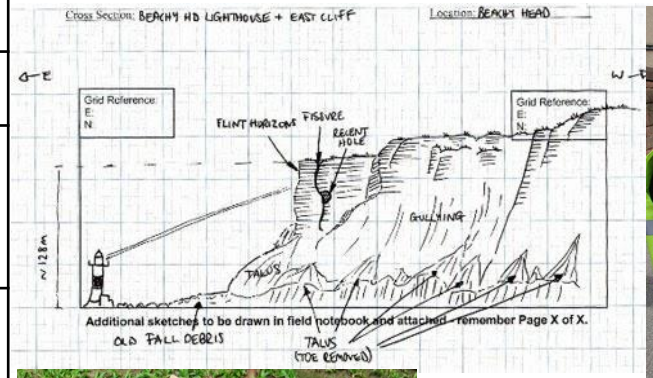
Methodology/Data Collection

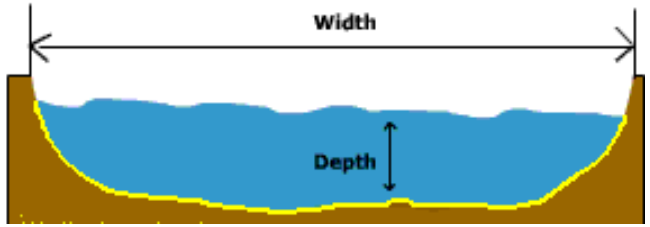
TECHNIQUE	WHAT IS IT USED TO MEASURE
FIELD SKETCH	Field sketches are a simple drawing or sketch of a site, showing its key features. *e.g. they can show the different sea defences and coastal management plans at each site or they can show the key characteristics of two sites. These could then be used to compare two locations.*
BIPOLAR EVALUATIONS	Bipolar evaluations measure our own opinion using a scale of . *E.g. an environmental quality survey. This uses an observer's judgement to assess environmental quality against a range of indicators (e.g. graffiti, building quality, damage to pavements, number of green spaces…etc.). They work on a scale (+5 to -5).*
RIVER VELOCITY	Measures the speed of the water flow along the river. ➢ *How quickly is material transported along the river?* ➢ *How does river velocity impact on river processes?*
WAVE COUNT	Wave counts measure the number of waves that break in a minute. They are used to measure if the waves are constructive or destructive.
LAND VALUE MAPPING	Working out the value of the land at a specific location.
BEDLOAD SIZE	The size and shape of pebbles on the beach or on the river bed.
QUESTIONNAIRES/ SURVEYS	People answer questions based on their opinion on the location.
PEDESTRIAN / TRAFFIC / LITTER COUNTS	• A pedestrian count is used to measure footfall (number of people passing by). • A traffic count records the number of cars that are in a location. • A litter count records the amount of litter in a location.
WIDTH OF RIVER DEPTH OF RIVER	Measure how wide and deep a river is at specific points along a river's long profile.
QUADRAT SAMPLING (DONE IN BIOLOGY)	Shows the number of different species in a location (biodiversity). It would be impossible to count all the plants in a habitat, so a sample is taken. A tool called a **quadrat** is often used in sampling plants.
WIND SPEED AND DIRECTION	Wind speed and direction.
DUNE PROFILES, SAME AS BEACH PROFILING	Succession Transects The aim of dune profiling is to investigate the structure of the dune system from the fore dunes (most recently formed).

		What is it used to measure
SECONDARY DATA	OS map	Ordnance Survey maps show a detailed picture of the land. We used both 1:25,000 and 1:50,000 scale maps
	Historical maps	Historical maps show the area 50-100 years ago. They can be compared with todays maps for the changes.
	Sea defence informatio n	Information about sea defences, from local authorities and DEFRA.
	Average house price	The average house price is released by the HM land registry. It combines the house prices of all recently sold houses and divides by the number of houses, making an average.

Labels

Annotation



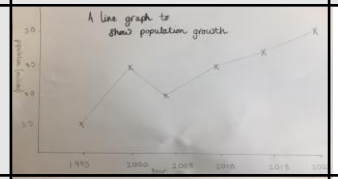
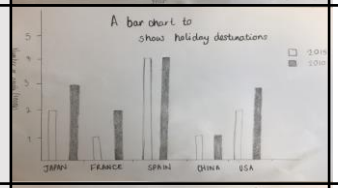
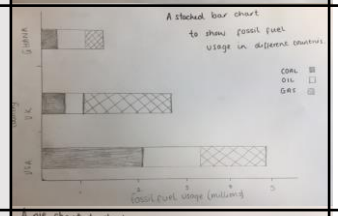
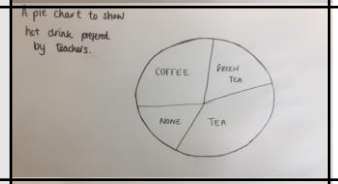
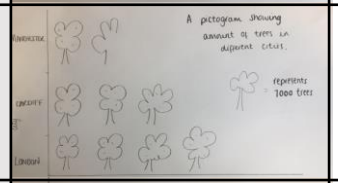
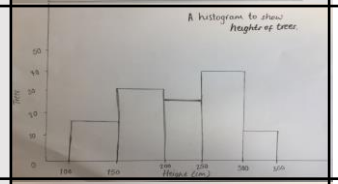
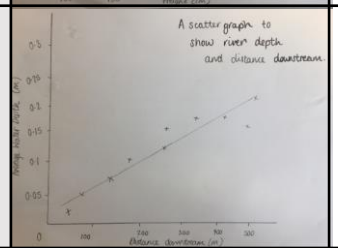


Environmental Quality Index

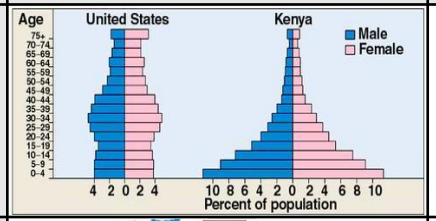
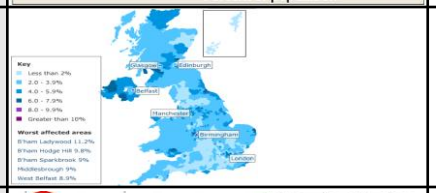
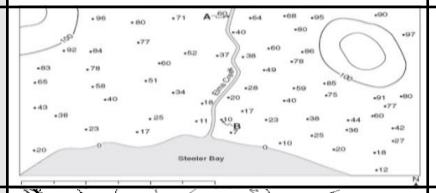
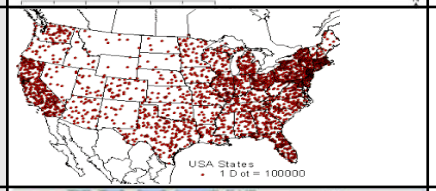
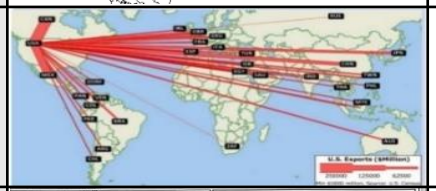
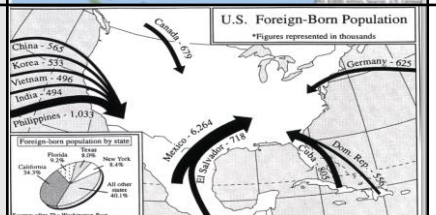
Date: Time: Location:

POSITIVE ASPECTS	+2	+1	0	-1	-2	NEGATIVE ASPECTS
High pedestrian count						Low pedestrian count
Low traffic count						High traffic count
Odourless						Unpleasant smells
Little/no air pollution						Considerable air pollution
Pleasant/attractive buildings						Unpleasant/unattractive buildings
Pleasant surroundings to buildings						Buildings in poor state of repair
Well tended and cared for buildings						Unpleasant surroundings
Quiet						Noisy
Some/much greenery						No greenery
All buildings used						Some boarded up or empty buildings
Upper stories well cared for						Upper stories not well cared for
Little litter						Much garbage
Safe for young/elderly						Unsafe for young / elderly
Disabled facilities						No disabled facilities

Data Presentation: graphs, maps, pictograms…etc.

GRAPH	EXAMPLE	DESCRIPTION OF GRAPH	WHAT DATA IS IT APPROPRIATE FOR?
LINE CHART		A line chart or line graph shows continuous changes in data over time. • A straight line joins data points on a graph.	• Traffic flows • Population Change • Height of sediment (groyne profile)
BAR CHART		A bar chart or bar graph is a graph where data is shown by rectangles that are drawn to a certain length (height).	• Number of people/ animals in certain locations. • Bipolar analysis
DIVIDED BAR CHART OR STACKED BAR CHART		Similar to a bar chart/graph as the data is shown using rectangles that are drawn to a certain length. However in a divided or stacked bar chart the rectangle is subdivided into different categories. *e.g. the graph shows different countries and their use of fossil fuels. The total length shows the total use of all fossil fuels, however the colours show the use of oil, gas, coal.*	• Data with a number of different subdivisions.
PIE CHARTS		A circle is divided into sectors that represent a proportion of a whole. To draw a pie chart, we need to represent each part of the data as a proportion of 360°, because there are 360° degrees in a circle.	• Questionnaire data with specific answers.
PICTOGRAMS		A pictogram uses pictures to represent numerical data. *e.g. the number of trees in a city is represented by the number of trees shown.*	• Number of cars, pedestrians, animals in a certain area.
HISTOGRAM		A histogram is similar to a bar chart, but a histogram groups numbers into range along the X axis. This uses continuous data. *Eg. If the tree is 225cm tall it will be added to the 200-250 range.*	• Waiting times • Amount of people or animals in a certain area. • A pedestrian count.
SCATTER GRAPHS/ DISPERSION GRAPHS		A scatter graph (also called a scatter plot/chart/graph/diagram) show a number of data points plotted onto a graph. They usually show the relationship between two variables. *e.g. how does life expectancy change as GDP increases?* • Positive correlation: the data points start low and then begin to rise up the Y axis • Negative correlation: the data points start high and then sink down the Y axis	• Continuous data that could potentially link with other data.

Data Presentation: population pyramids, GIS, maps, proportional circle maps, flow lines…etc.

MAP	EXAMPLE	DESCRIPTION OF GRAPH	WHAT DATA IS IT APPROPRIATE FOR?
POPULATION PYRAMID		A population pyramid shows a population's structure. It can be done to show the population of a continent, country, town, city, village…etc. A population pyramid breaks the population up into 5 year groups *(0-4, 5-9).* It shows the number of males and females alive in each 5 year group. *(e.g. the number of men aged 0-4 or 10-14 or 25-29).*	Populations (humans or animals) in an area.
CHLOROPLETH MAP		Different colours, shades or symbols are used to represent data. Allows you to see similarities and differences. *e.g. the darker shades indicate higher population density.* *e.g. the lighter shades indicate high altitude (height above sea level)* *e.g. different colours are used to indicate 100% of the population with access to clean water.*	Population density Altitude Access to clean water
PROPORTIONAL CIRCLE MAPPING		The circles are used to show data. The size of the circle indicates the value/amount of data it is representing. *e.g. the bigger the circle, the larger the population size* *e.g. the bigger the circle, the higher their release of greenhouse gases.*	Wave counts Total bipolar scores
ISOLINE MAP		Isolines are lines drawn to link different places that share a common value. They help patterns or links to be seen within data sets. *e.g. contour lines on a map join points of equal height. They allow you to easily see the gradient. Lines close together = steep.*	Contour lines Isobars lines that show air pressure.
DOT MAPS		Each dot represents a certain piece of data/information (e.g. population). Map Dot maps show spatial patterns. *e.g. in a population distribution map, each dot represents a certain number of people (e.g. 1 dot = 100,000 people). You can easily see where most people live.*	Population distribution Where people died in London following the Black Death.
DESIRE LINES		A desire line diagram shows the movement of a product from one place to another. Each line joins the place of origin and destination of a particular movement. *e.g. where a country imports and exports its goods.* *e.g. where an airline flies to and from.*	Imports and exports
FLOW LINES		Flow line maps show a movement/flow of a product or group. The line is drawn from the place of origin to the point of destination. The thickness of the line represents how many of a product or group moves. *e.g. flow of migrants between or within countries.* *e.g. flow of traffic along roads.*	Imports and exports Immigration/ Emigration Transport links

PHYSICAL FIELDWORK: Is coastal engineering effective in managing erosion along the West Dorset Coastline?'

WHERE WE WENT:

We visited two locations along the West Dorset coastline: Lyme Regis and Chesil beach. The county of Dorset is located on the South coast of the UK.

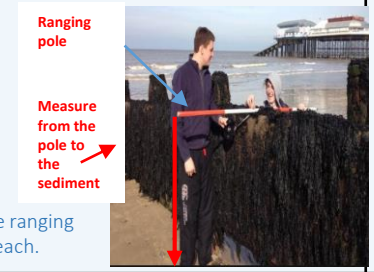
WHY WAS IT SUITABLE?

- The location was suitable as it is only a 3 hour drive from school.
- The centre where we stayed was able to provide us with expert guidance on locations in West Dorset as well as the equipment we needed.
- There is evidence of erosion on the West Dorset Coastline.
  - *The underlying rock is clay, which is soft and erodes very quickly.*
  - *The fetch is the distance the waves travel before they reach the coastline. In West Dorset, the waves travel over 4000 miles across the Atlantic = very strong destructive waves are common here.*
- In West Dorset there are two locations which use different coastal management strategies to protect their coastline. This allows us to compare the effectiveness of the strategies at each site.

❖ RISK ASSESSMENT FOR THE THREE STUDY SITES

ACTIVITY	THE RISK	HOW CAN WE REDUCE THE RISK
Walking to each site where there are uneven and slippery surfaces	Slips, trips and falls	• Wear appropriate footwear • Avoid wet slippery rocks • Always follow footpaths, follow instructions of teachers and leaders.
Collecting data on the beach.	Rising tides, drowning.	• Always stay 5 meters away from water's edge at all times • Group leaders check tide times • Group leaders have knowledge of where the safe areas are.
Collecting data on the cliff tops.	Falling off the cliff top, slipping.	• Group stays 5m away from edge of cliff
Being in the outdoors: cold, wet weather.	Colds, flu and hypothermia	• Check weather forecast before visit • Students have appropriate cold weather clothing • Students have breakfast lunch and dinner
Walking along busy roads	Danger of traffic, crossing busy roads	• Always stay on pavement • Use designated crossings • Wait for green man to cross road

❖ DATA COLLECTION METHODS

	Description and our methodology (how we collected the data)	Why it is appropriate?	Limitations and how we can improve
PRIMARY	**A field sketch** is a simple drawing or sketch of a site, showing its key features. 1. I chose a location where I could see as many engineering structures as possible. 2. I drew the outline of the defences and then added detail. 3. I annotated the drawing, describing in detail each feature I drew. I also included the the date, time, weather conditions and compass direction. We used **stratified sampling**. We carefully choose where to stand, to ensure the sample area represented the whole. This is appropriate as it ensures we drew all the coastal management strategies.	It is appropriate because it allowed us to record the coastal management structures at each location so that we can compare the two locations. It also recorded the day's weather conditions, helping us to explain our other data (e.g. weather affects wave count data).	• The same site could look completely different within an hour of time or in the morning and afternoon. It is affected by the tide, weather conditions or direction you draw the field sketch. *For example in the morning the tide could be low and then in the afternoon, the tide could be high = different field sketch of the same site.* • It is based on your ability to draw. **Improvements** • I could take a panoramic photograph and annotate this.
	Wave counts are used to categorise the waves. 1. I selected a point in the sea where the wave were breaking (turns white) 2. I started the stop watch and counted the number of waves that broke at my chosen point within 60 seconds. 3. I decided if the wave were constructive or destructive using these categories. • *11-15 destructive waves break every minute* • *6-9 constructive waves break every minute.* 4. I repeated this process three times and worked out the average We also used **random sampling** as we selected a random point where they waves were breaking to start our counting.	To measure the effectiveness of coastal management structures against erosion, erosion must occur along the coastline. This test allows us to quickly and reliably check whether the waves are destructive and therefore erosive. We repeated the test 3 times and worked out an average = more reliable. The same person counted the number of waves each time.	• Weather can influence the data. If there is a storm/strong winds it will make the waves look more destructive than they normally are. The conditions could change throughout the day. A recording in the morning might be different than a recording in the afternoon. • Human error **Improvements** • Repeat the wave count more than 3 times = more reliable. • Repeat the test at different sites along the beach = more accurate measure of wave type. *e.g. every 100metres along the beach.* • Repeat the test another day (*each month) will increase accuracy*.
	A groyne profile measures the build-up of sediment on either side of the groyne. 1. In groups of 3 we placed a 2m long ranging pole horizontally across the groyne at a right angle to the groyne. 1m was to the right of the groyne and 1m was to the left of the groyne. 2. We used a tape measure to measure the distance from the end of the ranging pole to the ground on either side of the groyne. This showed us the height of the sand on either side of the groyne. 3. We repeated this test, every 2m up the groyne. We used **systematic sampling** as we used the ranging pole to measure every two metres up the beach.  	It is appropriate as it allows us to quickly determine whether a groyne is effective. Effective groynes trap sediment being transported by longshore drift. Therefore, if there is more sediment on one side of the groyne than the other, the groyne is effective.	• Human error: some people might stretch the tape measure tighter than others others may have the tape very lose or twisted = different measurements recorded. • Water and rock pools often build up at the base of groynes, this can prevent people from being able to take a measurements. • High tide can prevent measurements from being taken. **Improvements** • Repeat the test along more than one groyne. • Repeating the measurements over time will increase the reliability of the data. (e.g every week or month)
	Environmental Quality Survey is a survey that measures your opinion on the environment at each site. 1. Decide where to stand - where you can see most of the defences you are investigating. 2. Read each statement and decide which score should be given for that statement. 3. Add them up to create a total score for your first site sea defence/location.	It is appropriate as it helps me identify the differences in several aspects of the quantity and quality of the coastal management structures used at each site. I can then use this data to compare the effectiveness of structures at each site.	• It is subjective and can be biased on your personal opinion. • Only assesses on a limited amount of criteria. Certain aspects of the environment may be missed. • On different days the location might look different. **Improvements** • Complete the EQS at different sites within one area to gain a better overall picture of the area. • Compare scores between groups to reduce subjectivity and bias.
SECONDARY	Maps: ➢ **GEOLOGY MAPS** were used to show us the rock type = clay. ➢ **OS MAPS** were used to help us locate where along the coastline had coastal management structures. ➢ **HISTORICAL MAPS** were used to show the historical rate of cliff retreat.	**LIMITATIONS** • No map is entirely accurate, they are most accurate if they are showing a small area.	

❖ DATA PRESENTATION

To present our field sketch we drew an annotated field sketch.

It is appropriate as it allows us to record the different types of hard & soft engineering used at each beach. We were also able to focus on the elements that were relevant to our enquiry (coastal management) and remove irrelevant elements (humans/dogs). We also included the conditions of the day (weather, time…etc.) as these factors affect our data.

On the other hand it is based on our ability to draw. An alternative presentation technique would be to use an annotated photograph.

To present our wave count data we used a proportional circle map. The size of the circle indicates the value of data it is representing. *The bigger the circle, the more waves per minute.*

We placed the proportional circles on a satellite photo of the two beaches. We also included the number of waves per minute in each circle. This is a very visual method, making it easy to identify where there are constructive or destructive waves.

To present our groyne profile data, we used an inverted bar chart. A bar chart with EAST and WEST data shown next to each other is best to show the sediment build up on either side of the groyne. The bars are inverted (turned upside down) to show the measurement we completed.

It is appropriate as it is very visual. The top of the bar chart represents the top of the groyne. The bottom of each bar represents the top of the sediment on either side of the groyne. Each side of the groyne is represented by a different colour making it very easy to compare each side.

An alternative data presentation method could be to use a line graph, with each side of the groyne being represented by a different colour.

To present our environmental quality survey data, we used a radar graph. They plot multiple sets of data (for each sea defence) over common variables (adaptability, durability, aesthetics…etc.).

It is appropriate as it allows you to very easily compare data. Many values at each site can be compared against each other. You can also easily compare values between sites.

On the other hand they can be confusing with the multiple lines that overlap each other. An alternative method could be a multiple series bar chart with each sea defence represented by a different colour.

❖ ANALYSIS

Field sketch at Lyme Regis:

- Sea defences include: flat sea wall, curved sea wall, rock armour, groynes, beach nourishment.
- There was evidence of slumping (mass movement) next to the town, where there was no coastal management, however very little evidence of erosion in Lyme Regis where sea defences were used.

Field sketch at Chesil Beach:

- Sea defences include: curved sea wall, natural rock armour (scree from rock fall), revetments and beach nourishment.
- There was evidence of rock fall behind the sea defences with the scree creating natural rock armour.

Wave count at Lyme Regis shown in the proportional circle map:

- Number of waves recorded : 13, 12, 14 = average of 13 waves per minute = destructive waves.

Wave count at Chesil Beach shown in the proportional circle map:

- Number of waves recorded : 13, 14, 14 = average of 14 waves per minute = destructive waves.

Groyne profile at Lyme Regis

- The bars are shorter on the east side of the groyne. This means that there is more sediment on the east side of the groyne than the west.
- More specifically at 14 meters along the groyne, the distance on the east side of the groyne was 105cm, whereas the distance on the west side of the groyne was 150cm.
- This shows that the groynes are effective at preventing the movement of sediment by longshore drift = the beach becomes larger.

EQS at Lyme Regis:

- There is a lot of hard engineering = the impact on the environment scored low, however for effectiveness the overall score was v. high.
- The highest scorers were rock armour & curved sea wall, which scored the +3 for effectiveness and durability, as they are made of granite & concrete. On the other hand they scored low for cost (1) due to high initial costs & rock armour scored -3 for adaptability as they do not have a secondary purpose.

EQS at Chesil

- All coastal management scored well, however not as high as Lyme Regis. Soft engineering (beach nourishment) scored the highest for aesthetics, durability, adaptability & impact on environment.
- Gabions look fantastic from the beach, however there is rusting on the wires on the top of the gabion which can be dangerous.
- The flat sea wall also scored well however has a lower score on the impact on environment.

❖ CONCLUSIONS

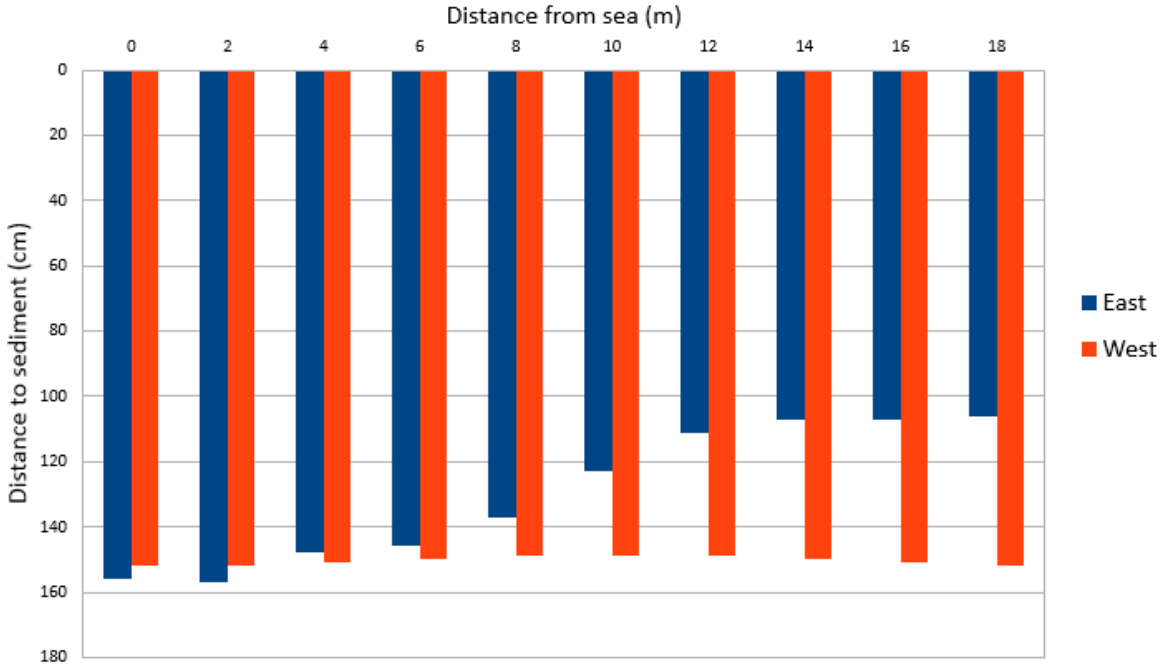
Overall coastal engineering is effective at both Lyme Regis and Chesil Beach, however is slightly more effective at Lyme Regis.

- Lyme Regis is at risk of erosion due to the destructive waves and the soft rock . More specifically, the wave count recorded that the average wave count is 13 waves/minute evidencing they are destructive. Furthermore the geology map shows that the underlying rock type is clay (soft rock). Having said this, the field sketch shows little evidence of erosion in Lyme Regis. This is in large part due to the high number of coastal defence structures at Lyme Regis shown in the field sketch. These include a curved and flat sea wall, rock armour, groynes and beach nourishment. The radar graph showed my opinion on the effectiveness and condition of the coastal defences. Overall the coastal defences scored very highly, with all defences scoring about 2 for *effectiveness* and *durability.* The high number of hard engineering strategies, however, did mean their score for *impact on environment* was less. Finally, the groyne profile shows there is more sediment on the east side of the groyne. This is, therefore, evidence that the groyne is effective at preventing the transportation of sediment by longshore drift = a larger beach = provide a natural barrier between the destructive waves and the settlement. This also shows that the beach replenishment is also working to build up the beach.

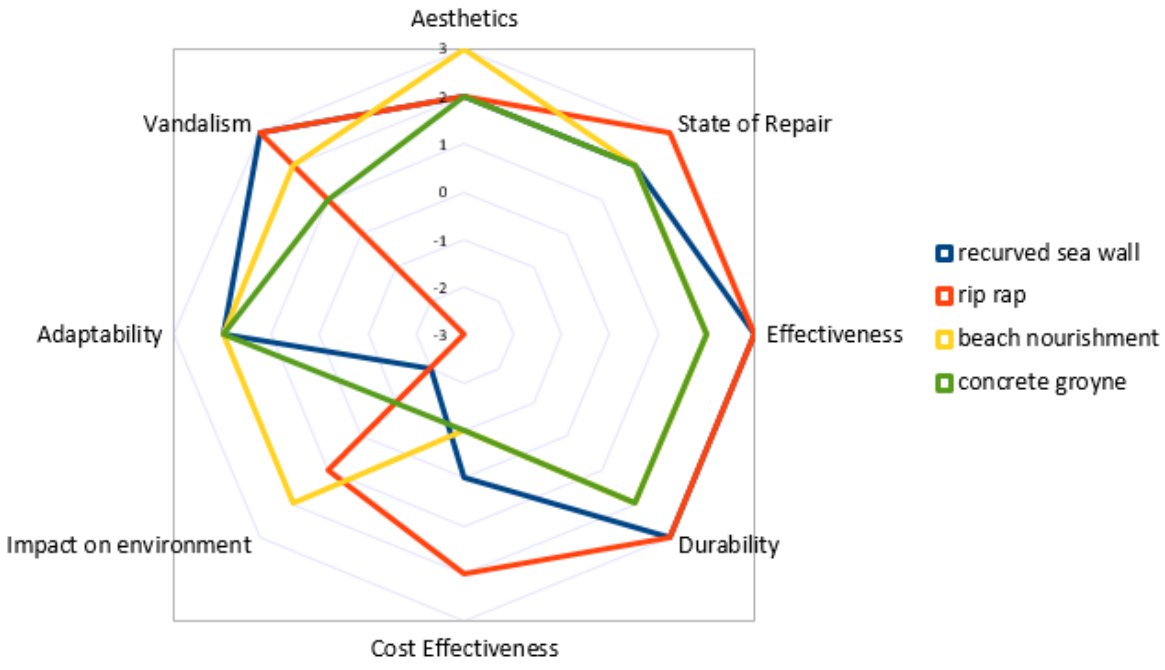
- Chesil Beach is at risk of erosion due to the destructive waves and the soft rock . More specifically, the wave count recorded that the average wave count is 14 waves/minute evidencing they are destructive. Furthermore the geology map shows that the underlying rock type is clay (soft rock). Having said this, the field sketch shows little evidence of erosion in Chesil Beach. Sea defences protecting Chesil Beach are shown in the field sketch. These include a curved sea wall, natural rock armour, revetments and beach nourishment. The radar graph shows the sea defences overall scored highly, however not as highly as Lyme Regis due to the evidence of wire rusting on the gabions. The sea defences scored well for adaptability, effectiveness and durability due to their strong building materials. Historical data showed evidence of flooding in the town behind Chesil Beach, evidencing the sea defences are not 100% effective at protecting the coastline.

WWW	EBI
Repeated test - *we repeated the wave count three times at each location*	Only repeated the test 3 times (at most). It would be more reliable to repeated the test 5-10 times and then took an average.
Same person collected data (*wave count, EQS)*	Human error. • *The number of waves could be miscounted.* • *Some people might pull the tape measure tighter than another person = different results. Our results would be more reliable if we made sure the same person collected the data each time.*
Checked data was similar to other groups • *I checked my wave count data with my team's data. Each measurement was only slightly different.* • *Our team checked our groyne profile data with other team data. Each measurement was only slightly different.*	Field sketches are dependent on your ability to draw. • *A field sketch of a location by one person can look very different to a field sketch of the same area drawn by another person. Instead you could take a photograph and annotate it with its key features.*
Used accurate equipment • *Accurate stop watch was used for wave count.* • *Accurate tape measure was used for groyne profile.*	Rock pools next to the groyne sometimes meant that measurements could not be taken.
Our sampling strategies were carefully chosen. • *The random sampling for our wave count prevented bias.* • *Systematic sampling (groyne profile) enabled us to collect a lot of data (every 2m up the groyne).* • *Stratified sampling (field sketch) ensured drew in a location where we could see all the sea defences (it represented the whole).*	We only recorded data on one day. Wave counts, field sketches and EQS data are affected by the weather and tides. • A location can look very different at different times of the day/year. • Waves can appear different in different weather conditions. Our data would be more reliable if we collected data multiple times across the year.
We used a wide range of primary and secondary data collection methods. Also our secondary data was up to date.	Weather can result in inaccurate results (esp. wave counts)
Our EQS used a variety of categories which allowed us to assess each sea defence in detail (*aesthetics, state of repair, effectiveness, durability, cost effectiveness, impact on environment, adaptability, vandalism).*	EQS is subjective – opinion based.

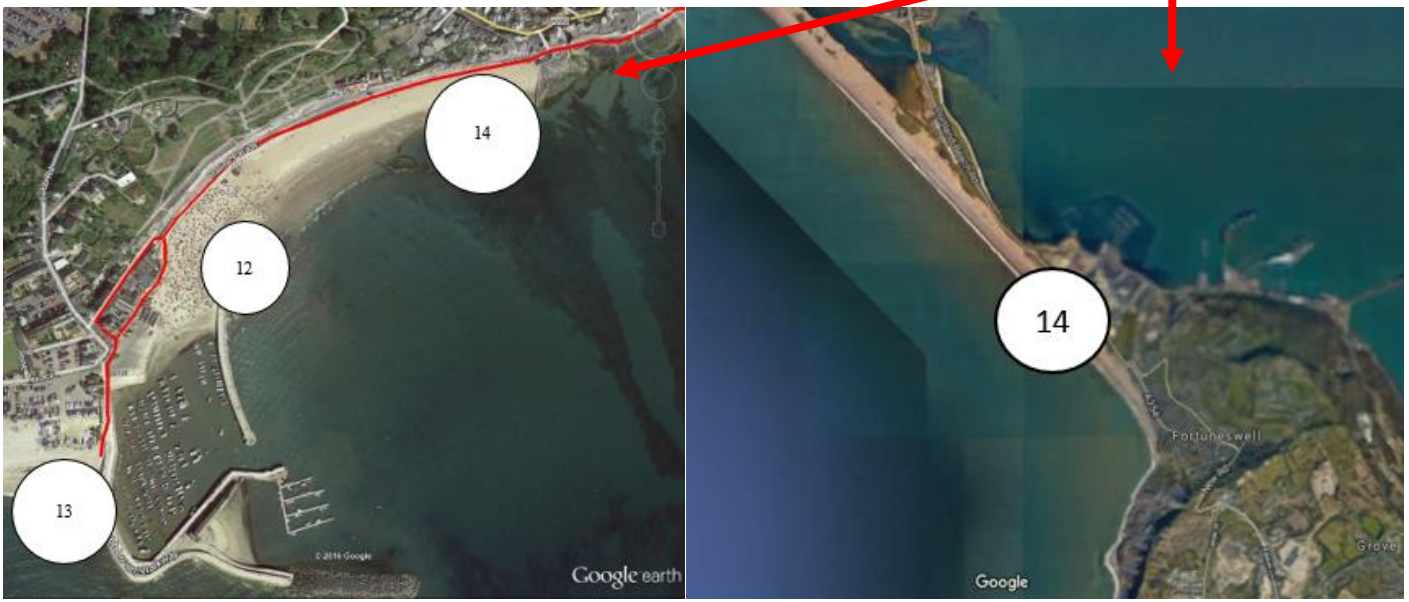
An inverted bar chart to show the data from the groyne profile test at Lyme Regis



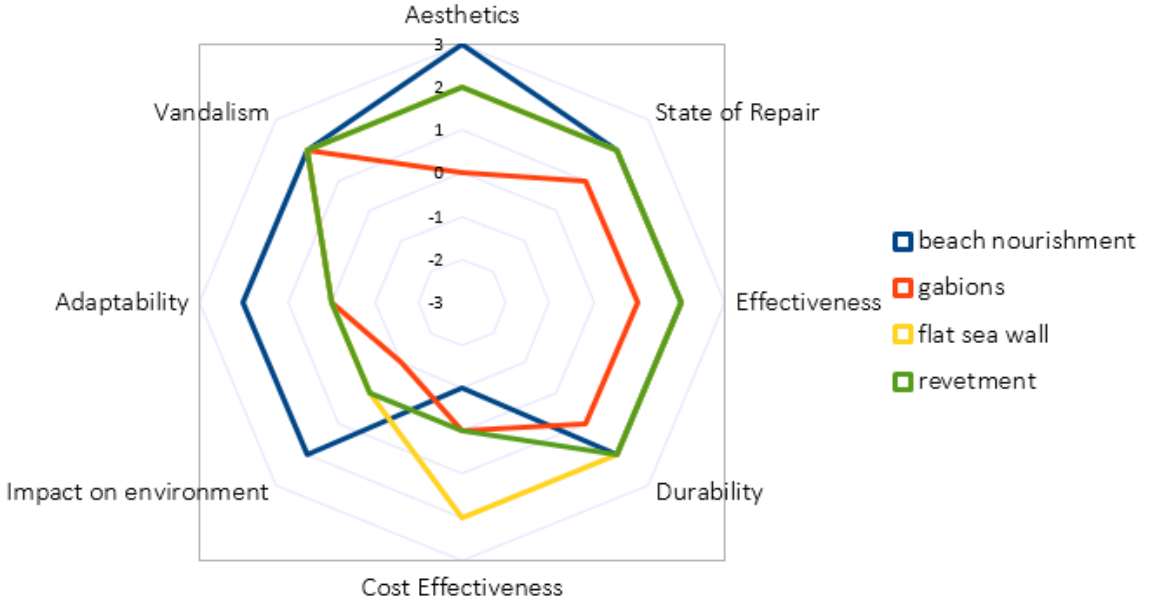
Radar Graph for the Coastal Management at Lyme Regis



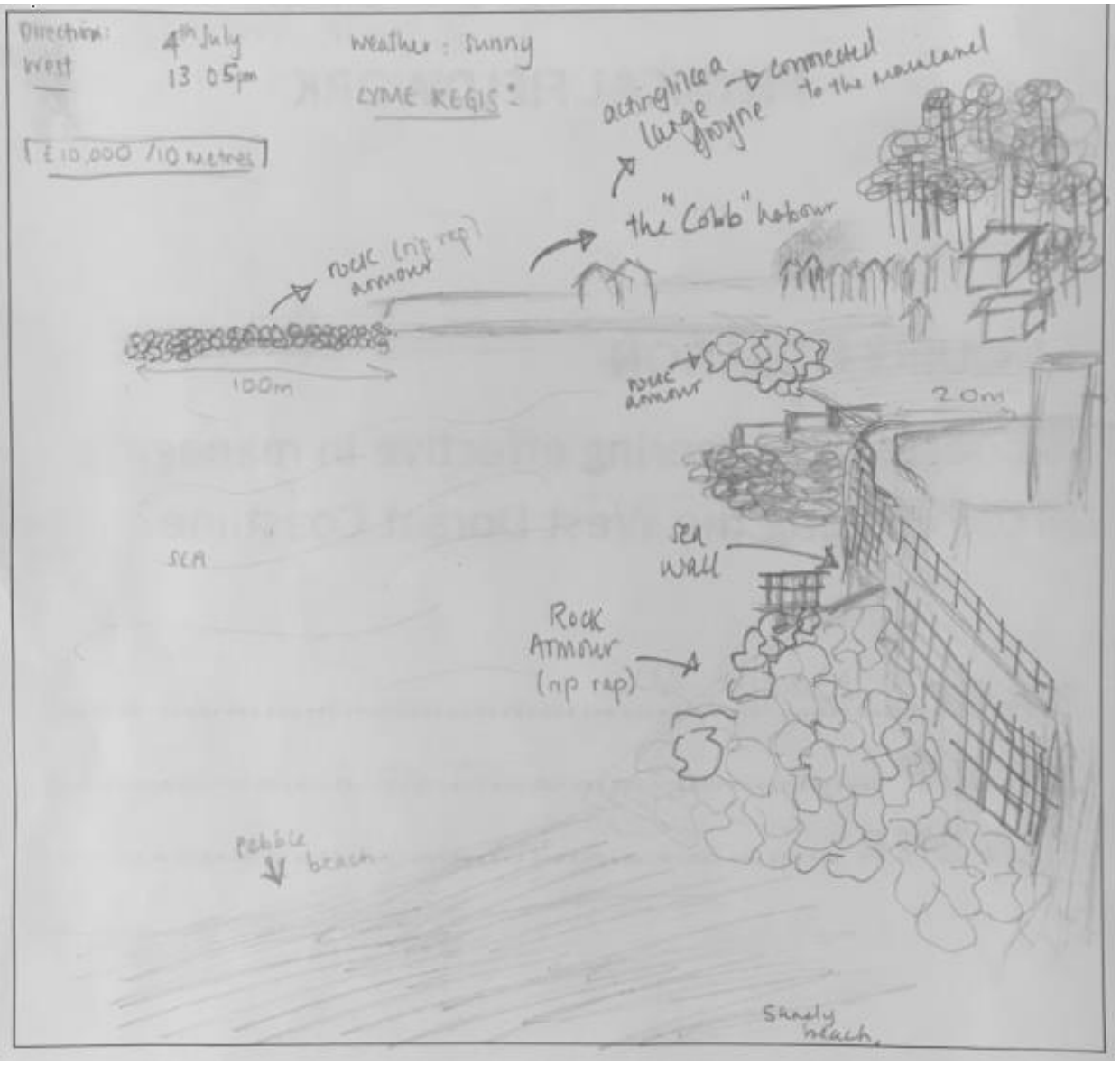
A proportional circle map showing the data from the wave count at Lyme Regis and Chesil Beach



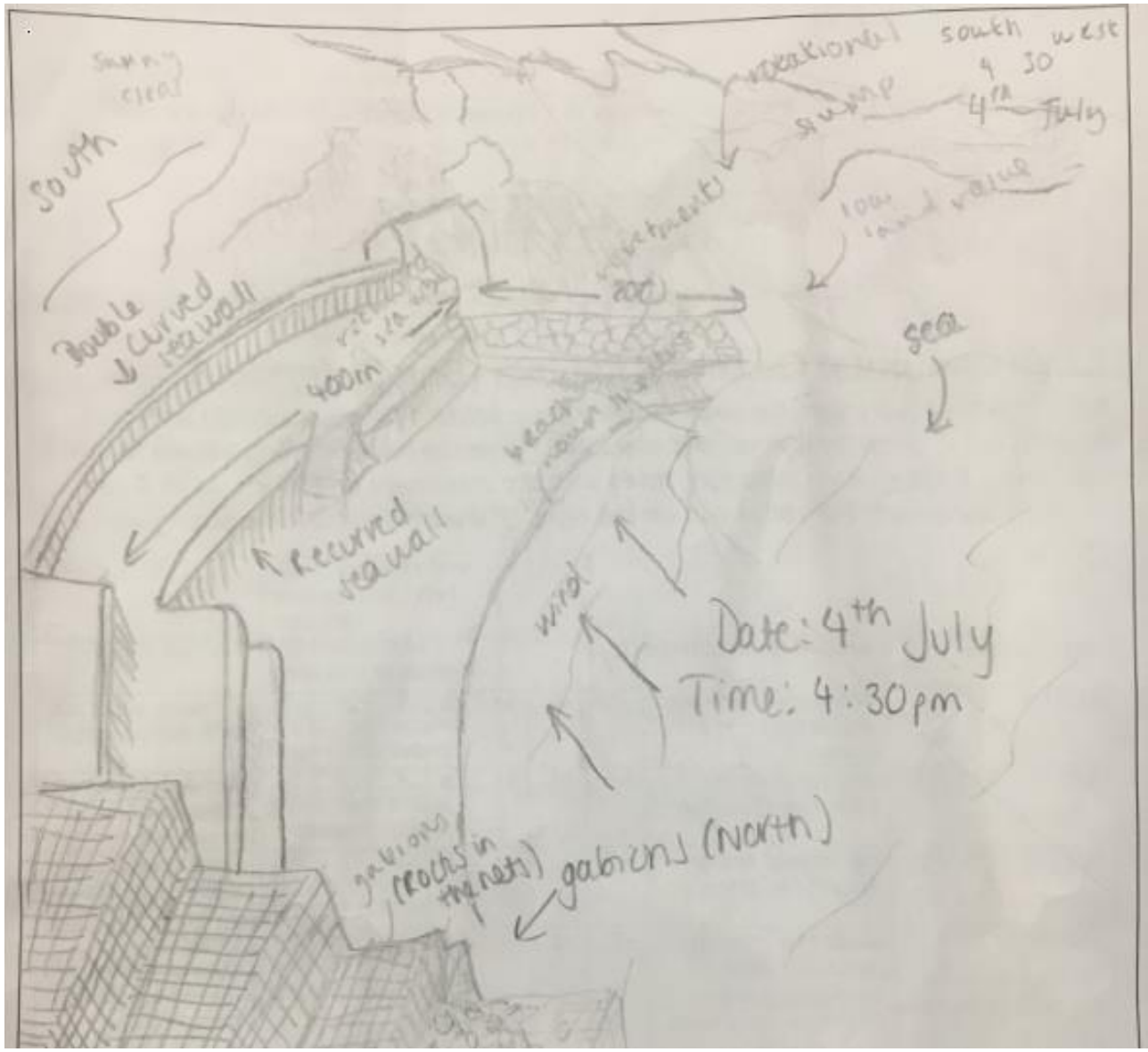
Radar Graph for the Coastal Management at Chesil Beach



Lyme Regis



Chesil Beach



HUMAN FIELDWORK: How is housing inequality evident in Brixton?

WHERE WE WENT:

We visited three locations within Brixton.

- *Site 1: Angell Town Estate, Site 2: Slade Gardens, Site 3: Brixton Village*.

Brixton is located in Lambeth, south London. It is one of 35 major districts that make up Greater London.

WHY WAS IT SUITABLE?

- Our study was to study housing inequality. As a result, we needed to visit an area where there is evidence of deprivation and inequality. Using census data we saw that Brixton is mostly deprived, being in the lowest decile for the income index and multiple indicator index. Census data and newspaper article also highlight the recent gentrification that has occurred meaning there are areas of higher and lower deprivation. This means it is suitable to study housing inequality.

  Urban deprivation is a standard of living that is below that of the average. Places suffering from urban deprivation have poor quality housing, poor building maintenance (leaking roofs, broken windows), abandoned buildings, pollution and fewer economic opportunities. Despite the large wealth found in parts of Brixton, many areas suffer from both urban decline and the people suffer from deprivation. It is particularly hard for the poorest people to have a decent standard of living because the prices of many things are more expensive, especially rents which account for a huge proportion of peoples incomes. Gentrification is the process where wealthier (middle class) people move into deprived areas, renovate and restore housing. This improves the general area, attracting new businesses = house prices rise. As a result many lower income residents are eventually priced out and are sometimes left with no place to go.

- There are three contrasting urban areas in Brixton, all within walking distance of each other. Each site has a different: size, type of housing and population.
- The location was suitable as it is only a 30 minute bus ride from school.
- It is a multi-ethnic community which is mainly residential.

❖ RISK ASSESSMENT FOR THE THREE STUDY SITES

ACTIVITY	THE RISK	HOW CAN WE REDUCE THE RISK
Walking to locations- uneven, unsteady pavements	Slips, trips and falls	• Wear appropriate footwear • Always follow footpaths, follow instructions of teachers and leaders. • Remain on the footpath.
Collecting data in a public place	Danger of interacting with strangers	• Always remain in a group • Having a designated meeting area • Always keep an adult or teacher in sight.
Walking along busy roads	Danger of traffic, crossing busy roads	• Always stay on pavement • Use designated crossings • Wait for green man to cross road

❖ DATA COLLECTION METHODS

	Justify our methodology (why I collected the data)	Why it is appropriate?	Limitations and how we can improve
PRIMARY	**Environmental Quality Survey** I completed an environmental survey at each site, to assess and compare the quality of the environment and housing to identify how it changes throughout Brixton. I judged the housing and environment using a scale (-2 to +2) on different criteria such as amount of dereliction, quality of building materials, evidence of green space and vegetation and overall feel of a residential area. This would clearly show if any housing inequality in terms of the quality of housing and environment differed throughout Brixton. *Sample size – a random location was chosen at each urban settlement. We used random sampling to avoid bias and because the area was quite large.*	**Advantages** This method makes it simple to judge the quality of an area and compare this with another area. This will help me identify the differences in several aspects of housing and the environment between the three locations in Brixton, and identify any inequalities that exists.	**Limitations** • It is subjective and can be biased as based on opinion. • Only assesses on a limited amount of criteria (housing, graffiti, litter…etc.). Certain aspects of the environment may be missed. • On different days the location might look different **Improvements** • Complete the EQS at different sites within one area to gain a better overall picture of the area. Also comparing scores between groups to reduce subjectivity and bias.
	Photographs I took two photographs of the housing at each site visited (Angell Town Estate, Brixton Village and Slade Gardens). It gave us clear and precise evidence to help me identify differences in the quality of environment and housing between the locations in Brixton *Sample – random. We randomly took 2 photographs of housing at each location, to avoid bias and capture a representation of large area.*	**Advantages** Photos give evidence to visually see the differences in quality of housing, between the 3 sites in Brixton and identify any inequality that exists.	**Limitations** • Only captures one particular moment in time, environments can change due to weather or at different times of the year. • Cannot see behind the photographer. As a result, the whole landscape and environment cannot be captured **Improvements** • Take more photographs so the 'whole environment' is covered. • Take pictures on different days and at different times to give a broader view of the environment.
	Land Value and Property Type Survey was used to measure the value of the land and type of property in a certain area. This would then allow me to identify the differences in price of housing, identifying inequalities throughout the 3 locations. It would also show me the differences in type of property, clearly differences in type clearly identify the inequalities in housing that exist in Brixton. *Sample Size – stratified. This was to generate results which are more representative of the whole population It is very flexible and applicable to many geographical enquiries.*	**Advantages** Clear and simple quantitative evidence. It allows us to effectively see the difference in land value in each location and help identify any inequalities that exist.	**Limitations** • Subject to personal opinion, because sometimes it is difficult to know exactly how many houses are in an area. • There could be two different land uses in the same block of land (e.g. flat above a shop). It can therefore be difficult to categorise as a whole. **Improvements** • When completing the land value survey we could use more categories to categorise types of building. Also using secondary data and asking residents and homeowners specific information about the size or cost of property rather than estimating.
SECONDARY	**Census Data shown on a choropleth map** Census data provides data on people and households in the UK (e.g. age, gender or employment) Mapping census data allows us to see the population's characteristics in a visual way and makes it easier to identify a settlement's characteristics. *Why use it?* We can compare different geographical locations to compare information on all aspects of the population. For example, we can compare the populations in our three locations in terms of housing, income and other socio-economic differences.	**Advantages** It is the most accurate data available on the whole population of an area. It can be used to compare a wide variety of data and characteristics of a population (e.g. income, housing)	**Limitations** • It is only ever done every 10 years, which allows for high levels of change (for example areas could be effected significantly by migration over a decade). • It takes months to collect, during which data is subject to change. • Households can give false information accidently through incorrectly filling in forms especially, or indeed give misleading information about their household. **Improvements** • Use alternative secondary data sources – *e.g. Crime data present on maps to show spatial variations and differences*.

	❖ DATA PRESENTATION	❖ ANALYSIS
RADAR GRAPHS	**Radar graphs were used to show data from the Environmental Quality Survey** ✓ Good, simple visual representation of data. ✓ They allow you to display several sets of data on one graph. ✓ Easy to compare. Alternatively a CHOROPLETH MAP could be used on a map of the area. This would allow you to see the differences in regards to their specific location, however you would not be able to display several sets of data at once.	The quality of the environment and housing in Slade Gardens was better than Brixton Village and Angel Town Estate, with Angell Town having the worst quality environment and housing. • Slade Gardens scored the highest available score (+ 2) for *housing repairs, litter, safety and greenery.* • *Angell Town* scored the lowest available score (-2) for *congestion, housing repair, greenery, litter, graffiti and safety.*
ANNOTATED PHOTOGRAPHS	**Annotated photographs** ✓ Good memory tool, especially if accompanied with detailed annotations. X Only show one view, at one point in time. Therefore may not be an accurate representation of the area Alternatively we could have used FIELD SKETCHES. These would mean we could focus on the features of the environment & housing relevant to our study	In Slade Gardens the houses are large (3+ bedrooms), new and well maintained. There is lots of greenery and gardens. In Brixton Village, while houses are quite small they are of a good quality. There is little greenery and a lack of parking, however good lighting = safer. There is lots of entertainment (bars, restaurants) In Angell Town there are mainly high rise small flats (1-2 bedrooms). The buildings are poorly maintained, with lots of graffiti and broken windows. There is very little greenery.
STACKED BAR CHART	**A stacked bar chart was used to show land value data.** ✓ Useful for comparing total values, as well as seeing the types of buildings found at each site. ✓ Simple to understand. ✓ Good visual representation of the land value at each site. Alternatively we could have used PIE CHARTS to represent our data. It would show the percentage of each type of land use as each segment.	Slade Gardens had the highest land value, with an overall value of £25.5 million. This was made up of predominately detached and semi-detached houses, which cost between £1 million to £1.5 million each. Brixton Village had the second highest land value, with an overall value of £15 million. This was made up of predominately commercial buildings (bars, restaurants, shops) and terraced houses, which cost £750,000 each. Angell Town had the lowest land value, with an overall value of £5.5 million. This was made up of predominately high and low rise flats, which cost between £150,000 and £200,000.
CHOROPLETH MAP	**Census Data was shown on a choropleth map.** ✓ Clear and visual to show data and identify differences.	Slade Gardens has less social deprivation than Angell Town and Brixton Village. Angell Town is in the 10% most deprived areas for social deprivation and housing deprivation within the UK.

❖ CONCLUSIONS

Our results show there is a housing inequality within Brixton, with the quality of housing and environment differing significantly between Slade Gardens, Brixton Village and Angel Town Estate.

- **This is supported by the stacked bar chart, which shows the land value data. Overall Slade Gardens has greater number of high value properties than the other two locations, especially compared to Angel Town which has the highest number of low-value properties. Slade Gardens' land value was estimated at £25.5 million, mainly made up of detached and semi-detached housing, whereas Angel Town's land value was estimated at £5.5 million, made up mainly of high rise and low rise flats. This was obviously shown in our annotated photographs which showed Slade Gardens had many large houses (4+ bedrooms) which averaged between £1 - £1.5 million, whereas Angell Town mainly having small flats (1-2 bedrooms) averaging between £150,000 and £200,000 each.**
- **Environmental quality survey data and annotated photographs, show that the environment in each location is very different, with Slade Gardens scoring very highly. At this location there was little graffiti, lots of greenery and a safe environment. The overall score at Slade Gardens was 17, with 7 out of the 12 scores achieving the highest mark of +2. Brixton Village scored highly with well maintained buildings. Angel Town had the lowest quality environment, with houses kept and maintained to a lower standard, cramped together with evidence of significant disrepair and some dereliction. The overall score at Angel Town was -3, with 5 of the 12 scores achieving the lowest mark of -2.**
- **Our secondary census data supports, with Angel Town being recorded within the 10% of the most deprived areas in the UK. On the other hand, census data shows that some parts of Slade Gardens are recorded as being in the 50% of the most deprived areas and therefore is far less deprived than Angel Estate and Brixton Village. Clearly identifying there is evidence of housing inequality in Brixton.**

WWW	EBI
The three locations we visited were well chosen allowing us to collect data in contrasting locations across Brixton.	Only repeated the EQS 3 times. As a result many houses at each location were not recorded. If I completed 5 EQS tests and then averaged my scores, it would be more reliable.
The data between groups in our class had only slightly different results/judgements, even though different groups collected their data at slightly different times.	I only took one standard photograph. This means many of the houses were missed in the photograph. I could improve this by taking a panoramic photograph at places within each location.
There were few anomalies in the data. *I checked this by comparing my data to the rest of my group.*	EQS is subjective – opinion based.
We used a good range of primary and secondary data collection methods (3x primary and 2x secondary – *census data/newspap*ers)	We only recorded data on one day. An urban area can look very different at different times of the day/year. Our data would be more reliable if we collected data multiple times across the year and at different times of the day.
Our secondary data was up to date (based on the most recent census data in 2011)	Human error. Someone could have missed a house or miscounted the amount of properties in their land value survey.
We did our EQS three times, which meant we could calculate an average across all 3 sites.	Our land value survey only had 6 categories and the only category for a non residential building was other. This made it difficult to assign the correct category for each building as other was used for shop, restaurant, bar, café…etc. They do not all have the same land value. To improve this we could use more categories.
Our EQS used a variety of categories which allowed us to assess environmental inequality in detail (*aesthetics, congestion, air quality, litter, graffiti)*	Our land value survey was based on estimates and average house prices. It would be more reliable if we used secondary data (zoopla) to determine the actual cost of each house/building we counted.

Annotated Photographs

ANGEL TOWN

High-rise flats. In each flat, there is very little floor space and only 1-2 bedrooms. Tends to be lower price and poor quality.

Very little greenery and vegetation. Not an attractive and friendly environment.

1970's build. Poor quality and of low maintenance. Not an attractive building to look at.

SLADE GARDENS

Lots of vegetation and greenery and lots of gardens. This adds value to the area and makes it look more appealing.

Pre-1950s housing. Town houses with 3-6 bedrooms and large floor plans. This means that the value of properties are high.

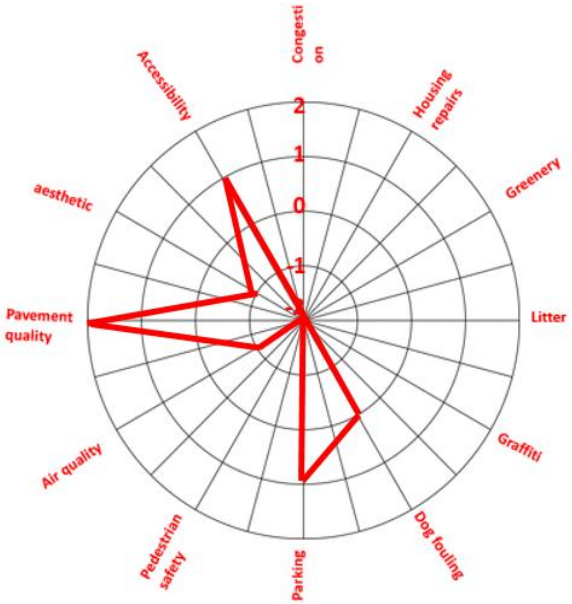
BRIXTON VILLAGE

Very little vegetation or greenery. The area is clean with only small evidence of litter and graffiti.

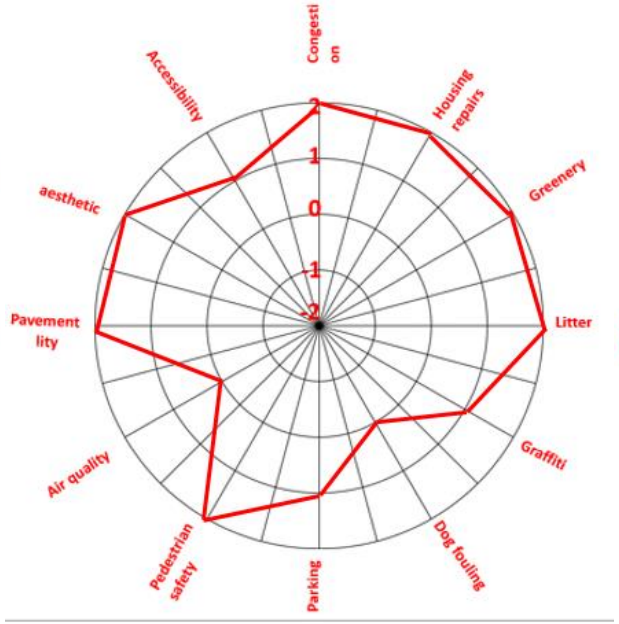
Terraced housing, with off street housing. Approximately 2-4 bedroom houses with medium sized floor plans.

Radar Graphs

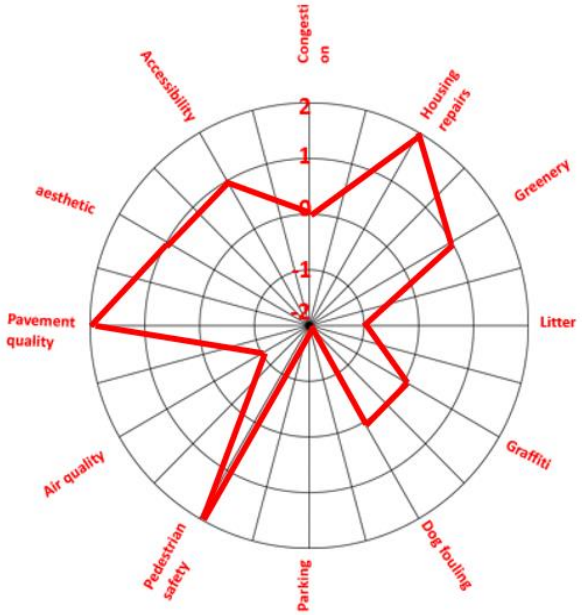
Angel Town



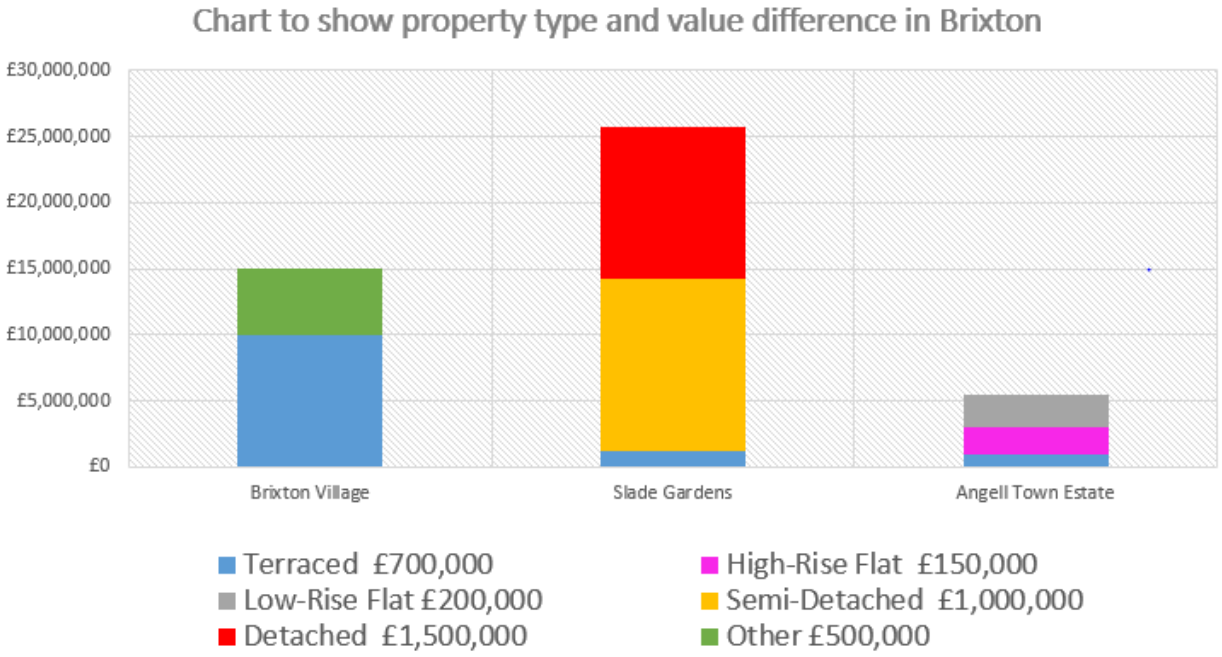
Slade Gardens



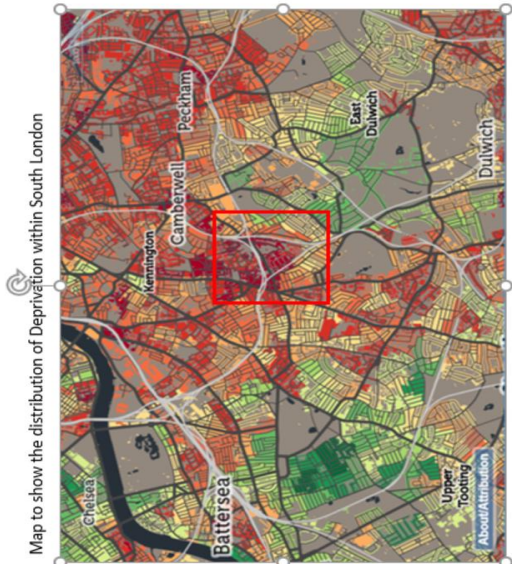
Brixton Village



Stacked Bar Chart



Choropleth Map showing Census Data



Year 10 History Knowledge Organiser

Key Terms

Ideology – beliefs which define how a country is run

Capitalism – belief in individual freedom and democracy

Communism – belief in state control to give equality

Colony – a country owned by another

Domino Theory – fear that if one country fell to communism then multiple others would

Accord – a formal agreement

DMZ – de-militarised zone – a place no armies can enter

Limited war – when you support a side in a conflict but don't send any of your troops

Referendum – countrywide vote on a single issue

Ho Chi Minh Trail – dirt paths and trails bringing supplies from China and North Vietnam into South Vietnam

Guerrillas – 'hit and run' tactics to avoid big battles

Counter-insurgency – fighting guerrillas through military attacks and winning local support

Pacification – winning the 'hearts and minds' of the locals

Napalm – jelly-like substance which burned to the bone

Search and Destroy – destroying villages suspected of supporting the Vietcong

Agent Orange – spray which poisoned plants

Booby traps – hidden devices that can kill or maim

Vietnamisation – Nixon's plan to de-escalate the war

Opinion poll – a test of public opinion

Silent Majority – Nixon's appeal to voters for support

Key Groups/Individuals

Ho Chi Minh – spiritual leader of North Vietnam

Ngo Dinh Diem – corrupt leader of South Vietnam

ARVN – army of South Vietnam

Vietcong – communist guerrilla fighters in South Vietnam

President Eisenhower – escalated involvement to fight communism

President Kennedy – sent military advisers to South Vietnam

President Johnson – passed the Gulf of Tonkin Resolution

President Nixon – promised peace then invaded Laos and Cambodia

Kim Phuc – 9 year old girl who ran scared from a napalm attack

Jeffrey Miler – a victim of the Kent State Shooting

Lt. Calley – lead perpetrator of the My Lai Massacre

Key Statistics

3 million – tonnes of explosive dropped on neutral Laos

58,000 – US soldiers died in the Vietnam War

84,000 – VC soldiers attacked 26 locations during the Tet Offensive

$400,000 – cost per VC killed through Operation Rolling Thunder

$168 billion – cost of the war to the US overall ($1 trillion today)

20,000 – US military advisers in Vietnam by the end of 1964

200 – miles of VC tunnel near Saigon

650,000 – Americans drafted to fight in the war

$3 billion – aid from China passed through the Ho Chi Minh Trail

24% - area of South Vietnam sprayed by herbicide 1964-70

Timeline

1954 – French defeat at Dien Bien Phu

1956 – Ngo Dinh Diem refuses to hold elections

1959 – Ho Chi Minh begins sending troops and weapons into the south of Vietnam

1961 – President Kennedy increases US involvement in Vietnam

1963 – Quang Duc, a Buddhist monk, sets fire to himself in Saigon

1964 – Gulf of Tonkin incident (and Resolution)

1965 – Operation Rolling Thunder launched; major increase in US troop numbers in Vietnam

1968 – Battle for Khe Sanh; Tet Offensive; My Lai Massacre

1969 – Nixon becomes US president; Nixon appeal for support from the 'silent majority'; President Nixon outlines the Nixon Doctrine; US opens secret peace talks with North Vietnam

1970 – Kent State shootings during progress against the Vietnam War; US and ARVN forces invade Cambodia

1971 – Lieutenant Calley found guilty of murdering civilians at My Lai; US and ARVN forces attack Laos

1972 – North Vietnamese Easter Offensive; US launch Operation Linebacker; Formal peace negotiations commence

1973 – Paris Peace Accords

1975 – Saigon falls to the North Vietnamese army

- History Paper 2 - Superpower relations and the Cold War Topic 1 -The origins of the Cold War 1941-1958

Timeline	Key events/Knowledge	Individuals/Keywords
1941 – Ideological differences between the East and West	The Soviet Union (USSR), Britain and the USA were ruled according to very different ideologies. Britain and the USA were capitalist and the USSR was communist.	**Communism** – The belief that all property should belong to the state, in order to ensure that every member of society has a fair share **Capitalism** – The belief that everyone should be free to own property and businesses and make as much money as they want
1943-1945 - The Grand Alliance and the wartime conferences	Tehran (1943) Yalta (1945) Potsdam (1945) The alliance was formed between USA, UK and USSR to mastermind the defeat of Germany and Japan in WW2.	**Joseph Stalin** (USSR), **Franklin D Roosevelt** (USA) , **Winston Churchill** (UK), **Harry Truman** (USA) , **Clement Atlee** (UK) **Reparations** – Payments in money or goods, after a war, from the losing country to the victors
1945 – USA's two atom bomb attacks on Japanese cities Hiroshima & Nagasaki	The blast at Hiroshima alone was equal to 12,000 tons of TNT used in ordinary bombs. It is estimated that over 120,000 Japanese civilians lost their lives due to the two bombs. USA's use of the atom bomb ends the war in the Pacific.	**Harry Truman** – US President that ordered the atom bombs to be used against Japan
1946 – Kennan/Novikov telegram & Churchill's Iron Curtail speech	George Kennan sent a telegram to the USA which contained messages that worried the American government. On the other hand, Nicolai Novikov reported back to the USSR outlining the US ambitions in Western Europe.	**George Kennan** – An American ambassador living in Moscow **Nicolai Novikov** – A Soviet diplomat working in Washington **Winston Churchill** – Prime Minister of the UK who coined the phrase 'Iron Curtain'
1947 – Marshall plan & Truman Doctrine	Truman announced that the USA would provide $400 million in aid to Greece and Turkey and send American civilian and military personal to the region. The Soviet response to this was Cominform (1947) and Comecon (1949)	**Isolationism** – Staying apart, not getting involved in the affairs of others **Containment** – Limiting the spread of something. In US foreign policy (during the Cold War), 'containment' meant preventing the spread of communism
1948 – The Berlin Crisis	Disagreements over how to govern Germany led to the Berlin blockade. The US response to the blockade was Operation Vittles: the Berlin Airlift.	**Bizonia** – USA & UK joining their zones **Trizonia** – France joining Bizonia
1949 – Formation of NATO	USA, Britain, France and nine other Western countries joined together in a military alliance known as NATO.	**Warsaw Pact** (1955) – An alliance formed by the Soviet Union consisting of Eastern European countries, as a response to West Germany joining NATO
1950-1958 – The Arms Race	USSR tested their own atom bomb in 1949. This ended the USA's nuclear monopoly. As a result, the race between the USA and USSR to build the most powerful nuclear weapon began.	**ICBM** – Intercontinental Ballistic Missile **Conventional** – Ordinary or normal
1956 – The Hungarian Uprising	Hungary's announcement of leaving the Warsaw Pact resulted in the Soviet Invasion of Hungary where up to 20,000 Hungarians had lost their lives in their attempts to fight off the Soviets.	**Imre Nagy** – Hungarian leader who threatened to leave the Warsaw Pact **Nikita Khrushchev** – Leader of the Soviet Union following Stalin's death in 1953 **Dwight D Eisenhower** – US president during the Hungarian Uprising

Year 10: French Free Time Activities, Film: Amelie

1	Aller au cinéma	To go to the cinema	18	L'homme de verre	The 'glass man'
2	Regarder un film	To watch a film	19	Amelie adore les petits plaisirs	Amelie loves small/simple pleasures
3	Le film d'amour	Love film	20	Un conte (de fées)	A tale (a fairy tale)
4	La comédie	Comedy	21	Une histoire	A story
5	Tomber amoureux/euse de	To fall in love with	22	Une vedette	A star/lead actor
6	Faire des ricochets	To skim stones	23	Les personnages	The characters
7	Ancien(ne)	Old/previous	24	Un prince charmant	A prince charming
8	Médecin	Doctor	25	Peur(s)	Fear(s)
9	Instituteur/trice	Primary School teacher	26	Bonheur	Happiness
10	Serveur/euse	Waitress	27	Tuer	To kill
11	Épicier/ière	Grocer	28	Rêver	To dream
12	Se moquer de (quelquun)	To make fun of (someone)	29	Le cafouillage	The troubles/mess/shambles
13	Nettoyer	To clean	30	Fantasque	Fanciful; whimsical
14	Ranger	To tidy	31	Isolé(e)	Lonely
15	Une maladie cardiaque	A heart defect/illness	32	Un nain de jardin	A garden gnome
16	Un appareil-photo	A camera	33	Les photomatons	Photo booth (photos)
17	Un moulin	A windmill	34	Bouleverser	To completely change

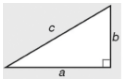
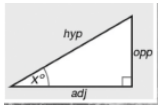
Year 10 – Summer 1 – Spanish – Diarios de motocicleta					
1	viajar	to travel	16	hacerse	to become
2	bailar	to dance	17	tratarse de	to be about
3	volver	to return	18	hacer dedo	to hitchhike
4	romper	to break	19	pelearse	to fight
5	Montar en	to ride (a motorbike)	20	sablear	to scrounge
6	caerse	to fall	21	llovió	It rained
7	reparar	to fix	22	nevó	it snowed
8	llegar	to arrive	23	hizo sol	it was sunny
9	completar	to complete	24	hizo mal tiempo	it was bad weather
10	quedarse	to stay	25	hizo buen tiempo	it was good weather
11	comprar	to buy	26	hizo viento	it was windy
12	mentir	to lie	27	Hubo niebla	It was foggy
13	gastar	to spend	28	El lago	The lake
14	discutir	to argue	29	el campo	the countryside
15	hacerse famoso	to be famous	30	la ciudad	the city

Year 10 – Summer 1 – Spanish – Diarios de motocicleta					
31	las montañas	the mountains	46	Los enfermos	The sick
32	el río	the river	47	médico	doctor
33	pintoresco	picturesque	48	simbólico	symbolic
34	pobre	poor	49	hospital	hospital
35	los pobres	the poor	50	sanatorio	hospital (South America)
36	rico	rich	51	vagabundo	tramp
37	la diferencia	the difference / the gap	52	motocicleta	motorbike
38	tener labia	to have the gift of the gab	53	piloto	pilot / driver
39	tener facilidad de palabra	to have the gift of the gab	54	la revolución	revolution
40	los enfermos	the sick	55	una revolución sin tiros	a revolution without guns
41	el leproso	person affected with leprosy	56	paciente	patient
42	una leprosería	a leper colony	57	el minero	miner
43	un sabelotodo	a know-it-all	58	La monja	The nun
44	dinero	money	59	comunista	communist
45	plata	money (slang)	60	El comunismo	communism

Unit 19 - proportion			
No.	**Question**	**Answer**	**Example**
19.1	Direct proportion	As one variable increases, the other variable increases	
19.2	Indirect proportion	As one variable increases, the other variable decreases	
19.3	The unitary method	Find one first	

W) Compound measures		
99	Speed	
100	Density	
101	Pressure	

Unit 20 – Pythagoras		
No.	**Question**	**Answer**
20.1	What is Pythagoras Theorem?	$a^2 + b^2 = c^2$ Used to find a missing **side** in right angled triangles when you know two sides
20.2	What is the hypotenuse?	Longest side in a right angled triangle (c)

Unit 21 - trigonometry		
No.	**Question**	**Answer**
21.1	Pythagoras Theorem	$a^2 + b^2 = c^2$
21.2	Hypotenuse 	Longest side in a right angled triangle (c)
21.3	Trigonometric ratios 	1. $sin\theta = \frac{opp}{hyp}$ 2. $cos\theta = \frac{adj}{hyp}$ 3. $tan\theta = \frac{opp}{adj}$
21.4	Sin 30	$\frac{1}{2}$
21.5	Sin 45	$\frac{\sqrt{2}}{2}$
21.6	Sin 60	$\frac{\sqrt{3}}{2}$
21.7	Cos 30	$\frac{\sqrt{3}}{2}$
21.8	Cos 45	$\frac{\sqrt{2}}{2}$
21.9	Cos 60	$\frac{1}{2}$
21.10	Tan 30	$\frac{\sqrt{3}}{2}$
21.11	Tan 45	1
21.12	Tan 60	$\sqrt{3}$

Year 10 – Maths – Summer 2 (Higher)

Unit 23 – Averages and range			
No.	**Question**	**Answer**	**Example**
23.1	How do you calculate the mean?	Add up all the data sets Divide by how many pieces of data there are	6, 3, 4, 7 $\frac{6+3+4+7}{4} = 5$
23.2	How do you calculate the median?	Put all the data in ascending order and find the middle value.	7, 2, 4, 8, 3, 9, 1 1, 2, 3, **4**, 7, 8, 9 4 is the median as it is in the middle
23.3	How do you calculate the mode?	Find the value that occurs the most	7, 2, 4, 8, 3, 9, 1, 9, 9 9 is the mode as it appears the most
23.4	How do you calculate the range?	Subtract the smallest value from the largest	7, 2, 4, 8, 3, 9, 1, 9, 9 9 – 1 = 8 therefore 8 is the range
23.5	How do you calculate mean from a frequency table?	$\frac{Total\ Fx}{Total\ F}$	
23.6	How do you calculate mean from a grouped frequency table?	1. Find the mid point of each group 2. $\frac{Total\ Fx}{Total\ F}$	

Unit 24 - sampling		
No.	**Question**	**Answer**
24.1	What is stratified sampling?	The data set has the same representation/proportion as the sample
24.2	What is proportional sampling?	The proportion in the sample is equivalent to the proportion in the whole
24.3	What is quantitative data?	Data that can be counted or measured (**N**umbers)
24.4	What is qualitative data?	Information that describes something (**L**etters)
24.5	What is discrete data?	Data that can only take certain values e.g. number of chairs
24.6	What is continuous data?	Data that can take any value e.g. height
24.7	What is a sample?	A selection taken from a larger group

Unit 25 – Scatter graphs		
No.	**Question**	**Answer**
25.1	What does positive correlation mean?	As one variable increases the other variable increases, this looks like: 
25.2	What does negative correlation mean?	As one variable increases the other variable decreases, this looks like: 
25.3	What does no correlation mean?	There is no relationship between the two variables, this looks like: 
25.4	What is a line of best fit?	A straight line drawn with a ruler that goes through the data with roughly the same number of points on each side of the line
25.5	What does interpolation mean?	Estimating a value within a given data set
25.6	What does extrapolation mean?	Estimating a value outside the give date set by assuming a trend

Language thought and communication

Piaget's theory
We learn through developing schemas (mental structures)
Language depends on thought
Thought and understanding first
Language develops after
Young children
Can have language without understanding but will not be able to use it effectively.
The development of language
Sensorimotor stage (0-2), children start to speak.
Pre-operational stage (2-7); talk about things not present.
Logical thinking
Concrete operational stage (7-11) children develop own ideas.

The Sapir-Whorf hypothesis
Not possible to think about something you have no words for.
Thinking depends on language, Language comes first, thought afterwards.
Strong version: Language determines thought
If there are no words for an object or idea then you can't think about it.
Weak version: Language influences thinking
Words help to 'carve up' the world. You can still imagine things with no words for them.
Which version is better?
Weaker version preferred. We have limited memory for things we have no words for.

Variation in recall of events
Native Americans: The Hopi
Hopi don't distinguish past, present and future. This affects the way they think about time.
Language affects recall of events
Memory for pictures affected by labels given (Carmichael et al).

Variation in recognition of colours
Native Americans: The Zuni
Zuni people only one word for shades of oranges and yellow and in a research study had difficulty distinguishing between them
Language affects recall of colour
Berinmo people had difficulty recalling colours as they only have 5 words for colours.

(-)Difficulties with cross cultural understanding, misunderstanding tasks or communicate answers
(-) sample issues Hopi only 1 PP.
(-) Ambiguous materials
Evaluation

Von Frisch's bee study
Aim: To describe dances of honey bees to understand their communication
Method: Put food close to hive (10-20 metres) and far away (up to 300m) observed bee 6000 times over 20 years.
Results: Round dance- moving in circle to show pollen less than 100 metres away waggle dance – Figure of 8 – shape points direction. 60% of bees went to sources at the distance indicated by the dances.
Conclusion: sophisticated commination system
Evaluation
(+) scientific value
(-) ignored the importance of sound made by bees
(-) Gould contradicting findings

Theory of non verbal behaviour
Darwin and evolution – natural selection genes for survival are passed to next generation.
NVC is adaptive – evolved in animals to express emotion e.g. teeth baring reduce death in a conflict.
Comparisons between human & animal behaviour. E.g. wrinkle nose at smell avoid breathing in something dangerous & wide eyes at surprise.

Body language
Communication through unspoken movements and gestures.
Open and closed posture
Closed= crossing legs/arms shows disagreement.
Open = uncrossed, shows acceptance.
Postural echo – copying each others position.
Tanner and Chartrand (2006): Participants rated new drink more highly when presented with postural echo.
Touch – includes high fives, slapping etc.
Fisher: if librarian touched student on hand when returning library books the librarian was judged more positively.

Eye contact
When two people look at each others eyes at the same time.

Expressing emotion: PPs judged emotions as more intense if faces looking straight at them (Adams and Kleck)

Regulates flow of conversation – Kendon study PPs looked away when about to speak and gave prolonged gaze when about to finish.

Signalling attraction - People who use eye contact are judged more attractive

Personal space: The distance we keep between ourselves and others.
Cultures: English distance larger than Arab. Arabs liked Englishmen better if they stood closer
Gender: Fisher & Byrne- Women feel most uncomfortable when PS invaded from side, men front.
Status: Zahn- those with similar status stand closer than those of unequal.

(+) all have real world applications
(-) Body lang studies unethical – no consent
(-) eye contact artificial tasks

Yuki's study of emoticons
Aim: To investigate differences in the interpretation of emoticons in Japan and America
Method: 6 emoticons shown with different combinations of eyes & mouths (sad, happy, neutral) asked to rate how happy face was.+
Results: Japanese rated happiness higher than Americans when happy eyes shown
Americans higher happiness rate when mouths where happy even with sad eyes.
Conclusion: cultural differences in the way emotion is interpreted in facial expressions.
Japan use eyes as cultural norm to hide emotions but harder to hide eye expression.

(-) artificial materials
(-) only tested one emotion
(-) rating scale too simplistic for emotions
(+) repeated study with photos and got same results
Evaluation

Evidence that NVC is innate
Neonate research – NVC displayed in newborns
Social releasers – certain NVC by newborns are adaptive
Facial expressions – neonates display an expression of disgust when given sour taste
Sensory deprived - blind children show similar facial expressions to sighted children.

Evidence that NVC is learned Cross-cultural research -
Cultural differences in personal space
Gestures – differences in meanings
Social learning theory

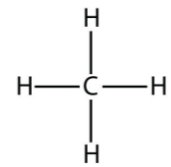
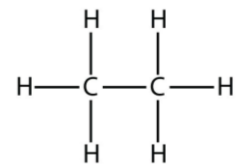
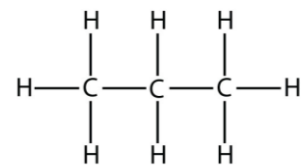
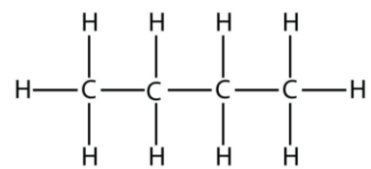
Human vs animal communication

Properties of human comm. not present in animal communication
Plan ahead and discuss future events – humans can discuss things that aren't present animals focus on present
Creativity – humans have open system combining many words together animals system is closed
Single vs multiple channels – human language is expressed through spoken, written, sign lang and social media. Animals tend to just use one channel

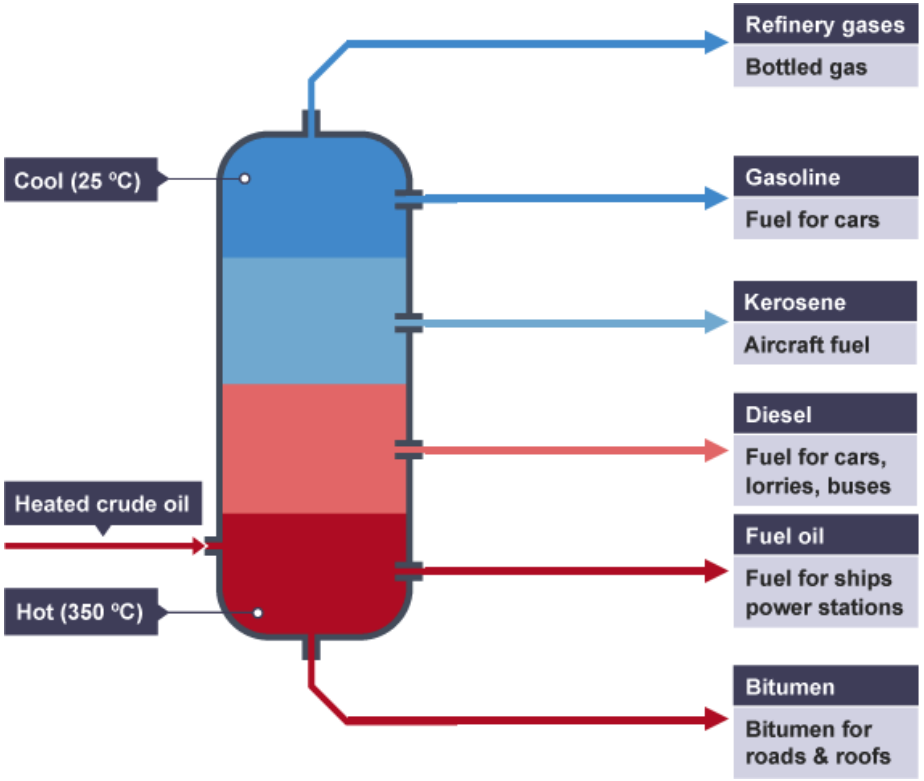
Purpose of animal communication
Survival – vocal signs and visual signs to increase offspring survival – e.g. velvet monkeys communicate danger with an alarm call
Reproduction – Peacocks stretch out their feathers like an umbrella to show genetic fitness
Territory – mark territory using scent marking e.g Rhino dung fence
Food - signals that draw attention to food source e.g. bee dance.

Chemistry Topic 7: Organic chemistry

1. Carbon compounds as fuels and feedstock	
Hydrocarbon	A chemical made of only carbon and hydrogen
Crude oil	A mixture of hydrocarbons found in rock
Alkanes	Saturated hydrocarbons (without double bond)
Alkene	Unsaturated hydrocarbon (with double bond). They turn bromine water from brown to colourless.
Fractional distillation	A process of separating crude oil using the different boiling points of fractions
Viscosity	How thick a liquid is
Flammability	How easily a fraction catches fire
Boiling point	The temperature at which a substance turns from a liquid to a gas
Combustion	A reaction where a fuel is oxidised releasing heat energy
Cracking	Breaking less useful long-chain alkanes into useful short-chain alkanes and alkenes

2. Alkanes		
General formula	C_nH_{2n+2}	
Name	Molecular formula	Displayed formula
Methane	CH_4	
Ethane	C_2H_6	
Propane	C_3H_8	
Butane	C_4H_{10}	

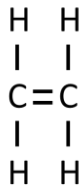
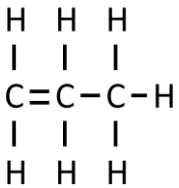
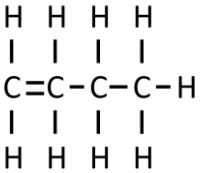
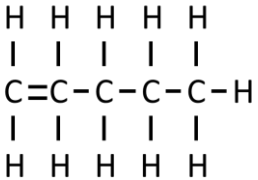
3. Fractional distillation	
1.	The column is cooler at the top than the bottom
2.	The crude oil is heated
3	The fractions evaporate and rise up the column
4	The fractions condense at different points according to their boiling point
5	The liquid fractions run off and are collected



4. Properties of hydrocarbons	
Property	Change as carbon change gets longer
Boiling point	Increases
Viscosity	Increases (less runny)
Flammability	Decreases

5. Cracking	
Type of cracking	Conditions
Catalytic	Hot (500°C) + catalyst
Steam	Very hot (850°C) + Steam
Short chain = desirable	Long chain = undesirable

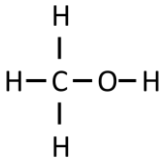
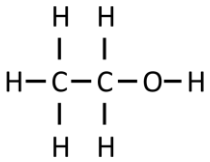
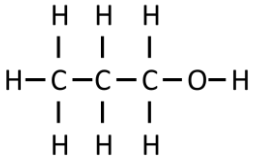
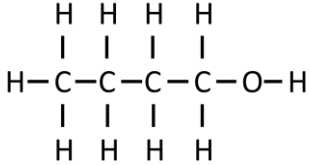
6. Alkenes (TRIPLE ONLY)

General formula	C_nH_{2n}	
Name	Molecular formula	Displayed formula
Ethene	C_2H_4	
Propene	C_3H_6	
Butene	C_4H_8	
Pentene	C_5H_{10}	

7. Reactions of Alkenes (TRIPLE ONLY)

Reaction	Observation
Oxidation (incomplete combustion)	Burn in air to produce smoky flames
Addition	Double bond opens to form single bonds. Reacts with hydrogen, water and halogens

6. Alcohols (TRIPLE ONLY)

Functional group	-OH	
Name	Molecular formula	Displayed formula
Methanol	CH_3OH	
Ethanol	C_2H_5OH	
Propanol	C_3H_7OH	
Butanol	C_4H_9OH	

7. Fermentation of alcohols (TRIPLE ONLY)

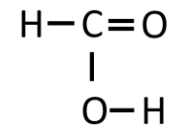
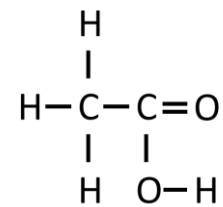
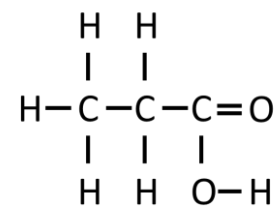
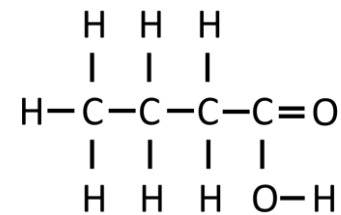
glucose $\xrightarrow{\text{yeast}}$ ethanol + carbon dioxide

$$C_6H_{12}O_{6(aq)} \xrightarrow{\text{yeast}} 2C_2H_5OH_{(aq)} + 2CO_{2(aq)}$$

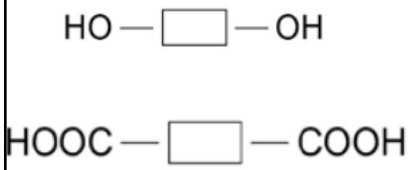
8. Reactions of alcohol (TRIPLE ONLY)

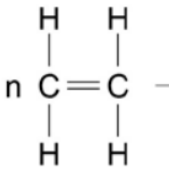
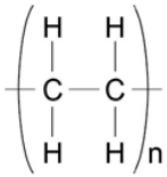
Reaction	Observation	Uses
Combustion	Burns with a clean flame	Spirit burners, biofuels
With Sodium	Hydrogen bubbles given off. Metal skates around surface	N/A
Oxidation	Oxidising agent changes colour	Making carboxylic acids

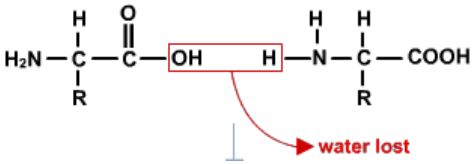
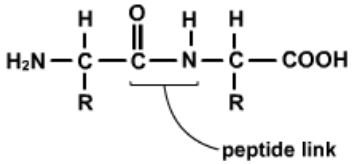
9. Carboxylic acids (TRIPLE ONLY)

Functional group	-COOH	
Name	Molecular formula	Displayed formula
Methanoic acid	HCOOH	
Ethanoic acid	CH_3COOH	
Propanoic acid	C_2H_5COOH	
Butanoic acid	C_3H_7COOH	

10. Synthetic and naturally occurring polymers (TRIPLE ONLY)	
Monomer	A small unit that joins together to make a polymer
Polymer	A long chain molecule made of many polymers
Synthetic	Man made
DNA	Deoxyribosenucleic acid. Natural polymer that codes genetic instructions. Formed of nucleotides in a double helix
Cellulose	Natural polymer made from glucose. Use in plant cell walls
Starch	Natural polymer made from glucose. Use in plant cells as a food store
Protein	Natural polymer made of amino acids. Used for growth and repair in cells. Also called a polypeptide.

11. Condensation polymerisation (TRIPLE HT ONLY)	
Monomer(s)	Polymer
Diol (2 alcohol) Dicarboxylic acid	Polyester (+ water)
	

11. Addition polymerisation (TRIPLE ONLY)	
Monomer(s)	Polymer
Alkenes	Long-chain alkane
 ethene	 poly(ethene)

12. Amino acids (TRIPLE HT ONLY)	
Monomer(s)	Polymer
Amino acid	Polypeptide (+ water)
	

Chemistry Topic 8: Chemical analysis

1. Keywords	
Pure substance	A single element or compound not mixed with any other substance. They have a specific melting and boiling point
Melting point	The temperature at which a solid turns to a liquid
Boiling point	The temperature at which a liquid turns to a gas
Formulation	A mixture that has been designed as a useful product eg fuels, cleaning agents, medicines and fuels
Chromatography	Use to separate mixtures and identify substances
Rf	$\frac{distance\ moved\ by\ substance}{distance\ moved\ by\ solvent}$

2. Identification of common gases		
Gas	Test	Observation
Hydrogen	Burning splint	Squeaky pop
Oxygen	Glowing splint	Relights
Carbon dioxide	Limewater	Goes cloudy
Chlorine	Damp Litmus paper	Bleached (goes white)

3. Flame tests (TRIPLE ONLY)	
Metal ion	Colour
Lithium (Li^+)	Crimson
Sodium (Na^+)	Yellow
Potassium (K^+)	Lilac
Calcium (Ca^{2+})	Orange-red
Copper (Cu^{2+})	Green
Flame emission spectroscopy: A sample is put in a flame and the light given out passed through a spectroscope that can identify the ions in the sample	

4. Metal hydroxides (TRIPLE ONLY)	
Metal ion	Observation with addition of sodium hydroxide
Aluminium (Al^{3+})	White precipitate which dissolves in excess
Calcium (Ca^{2+})	White precipitate
Copper (Cu^{2+})	Blue precipitate
Iron II (Fe^{2+})	Green precipitate
Iron III (Fe^{3+})	Brown precipitate

5. Testing for negative ions (TRIPLE ONLY)		
Negative ion	Reagent	Observation
Carbonate	Add carboxylic acid	Fizzes releasing Carbon dioxide
Halide	Add silver nitrate	Cl^- = white precipitate Br^-= cream precipitate I^-= yellow precipitate
Sulfate	Add Barium Chloride	White precipitate

Physics topic 5a: Forces

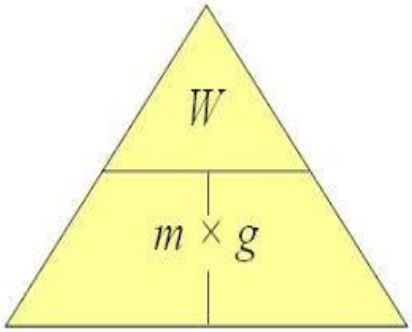
1. Forces keywords	
Force	Something that makes a change happen
Magnitude	The value of a force in newtons
Scalar	Things that have magnitude but not direct
Vector	Things that have a magnitude and a direction. Forces are always vectors
Contact force	Can only act when two things touch
Non-contact force	Can act on things not touching
Balanced (forces)	When forces are equal and opposite each other also called **equilibrium**
Unbalanced (forces)	When opposing forces are not equal to each other
Resultant (force)	The overall force once all the forces are considered
Force arrows	Show direction and size of a force
Newton	Unit force is measured in
Newtonmeter	A spring calibrated so it has a scale to measure force
Centre of mass	A point in the middle of an object where all its mass acts
Elastic	A material that returns to its original shape after being deformed
Plastic	A material that does NOT return to its original shape after being deformed

2. Types of force

Force	Between	Contact or non-contact	Example
Friction	Two moving surfaces	Contact	Brakes
Upthrust	An object and water	Contact	Boat
Reaction	Two stationary objects	Contact	Book on shelf
Air resistance	A moving object and air	Contact	Plane
Gravity	Two masses	Non-contact	You and the earth
Tension	Two ends of an elastic material	Contact	Spring
Magnetic	Magnets and magnetic materials	Non-contact	Magnet picking up a nail

3. Calculating weight

Symbol	Name	Calculated by..
W	Weight (N)	= Mass x Gravity
m	Mass (Kg)	= Weight ÷ Gravity
g	Gravitational field strength	= Weight ÷ mass
On earth g = 10 N/kg		



4. Calculating work

Symbol	Name	Calculated by..
W	Work (J)	= Force x Distance
F	Force (N)	= Work ÷ Distance
s	Distance (m)	= Work ÷ Force

$$W = Fs$$

5. Hooke's law

Symbol	Name	Calculated by..
F	Force (N)	= Spring constant x Extension
k	Spring constant (N/m)	= Force ÷ Extension
e	Extension (m)	= Force ÷ Spring constant

$$F = ke$$

6. Energy stored in a spring

Symbol	Name	Calculated by..
Ep	Elastic potential energy stored (J)	$Ep = \frac{1}{2}ke^2$
$\frac{1}{2}$	Half (0.5)	N/A
k	Spring constant (N/m)	$k = \frac{2\,Ep}{e^2}$
e	Extension (m)	$e = \sqrt{\frac{2\,Ep}{k}}$

$$Ep = \frac{1}{2}ke^2$$

To calculate extension:

1. Measure the original length of the object
2. Measure the stretched length of the object
3. Extension = stretched length – original length

7. Moments:

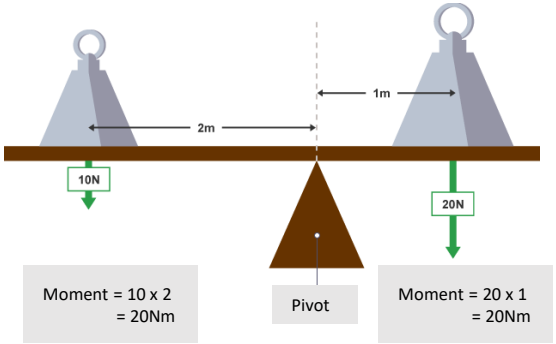
1.To calculate a moment you need to know:

- How much force is being applied (Newtons, N)
- The distance from the pivot that the force is being applied (Meters, m)

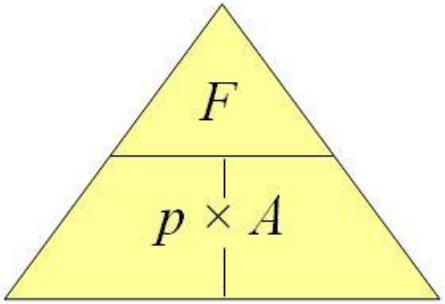
Moment = force x distance

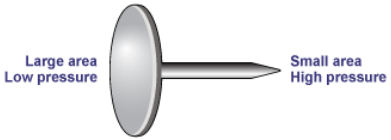
2.The unit for moment is newton metre (Nm)

3.A small force over a large distance can generate the same moment as a large force over a small distance.



8. Calculating pressure		
Symbol	**Name**	**Calculated by..**
F	Force (N)	= pressure x area
p	Pressure (Pa = n/m^2)	= force ÷ area
A	Area (m^2)	= force ÷ pressure





9. Calculating pressure in column of liquid (HT ONLY)		
Symbol	**Name**	**Calculated by..**
g	Gravitational field strength (10 N/Kg)	$g = \frac{p}{h\rho}$
p	Pressure (Pa =n/m^2)	$p = h\rho g$
h	Height (m)	$h = \frac{p}{g\rho}$
ρ	Density (kg/m^3)	$\rho = \frac{p}{gh}$
$p = h\rho g$		

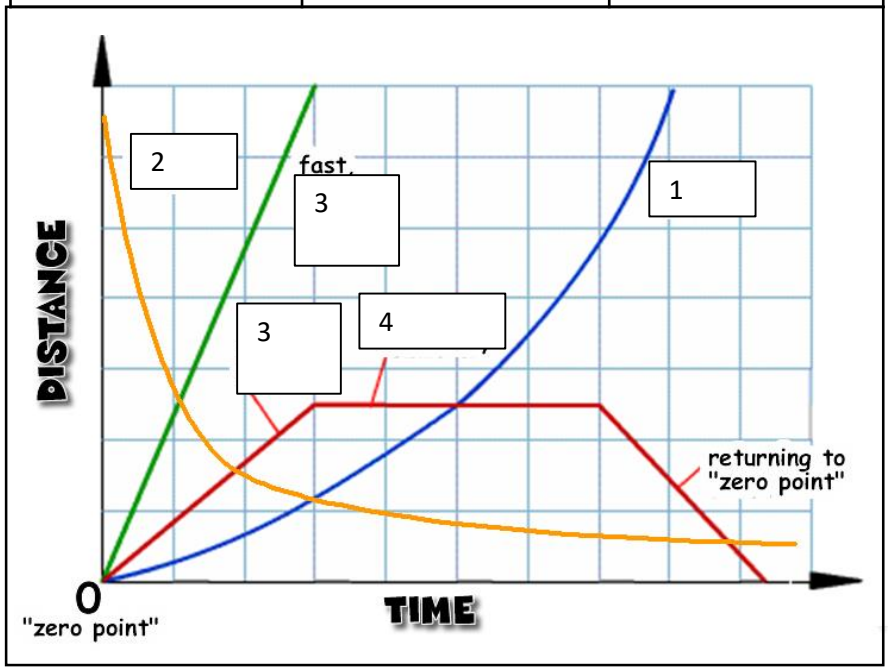
Physics Topic 5b: Forces in motion

1. Keywords	
Speed	Distance ÷ time. Scalar quantity
Velocity	Distance (in a certain direction) ÷ time. Vector quantity
Distance	How far and object moves. Scalar quantity
Displacement	The straight line distance from the start point to the end point. Vector quantity
Terminal velocity	The maximum speed reached when the forces are balanced

2. Typical speeds	
Walking	1.5 m/s
Running	3 m/s
Cycling	6 m/s
Sound	330 m/s

3. Calculating speed		
Symbol	**Name**	**Calculated by..**
S	Distance (m)	= speed x time
v	Speed/Velocity (m/s)	= distance ÷ time
t	Time (s)	= distance ÷ speed
S = v t		

4. D/T graph keywords		
Keyword	**Meaning**	**Position on distance time graph**
Accelerate	Speeding up	1
Decelerate	Slowing down	2
Constant speed	Staying the same speed	3
Stationary	Not moving	4
Speed	Distance covered in a certain time	The steepness of the line



5. Acceleration

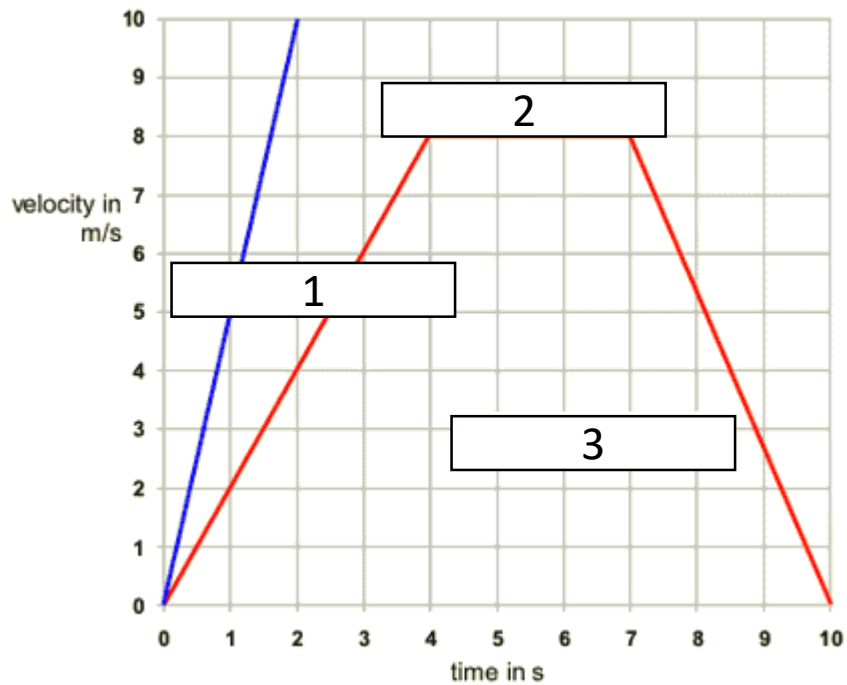
a	Acceleration (m/s^2)	$a = \frac{\Delta v}{t}$
Δv	Change in velocity (m/s)	$\Delta v = at$
t	Time (s)	$t = \frac{\Delta v}{a}$
$a = \frac{\Delta v}{t}$		

7. Uniform acceleration

$$v^2 - u^2 = 2as$$

v	Final velocity (m/s)
u	Start velocity (m/s)
a	Acceleration (m/s^2)
s	Distance (m)

6. Velocity-time graphs



1	Constant acceleration
2	Constant speed/velocity
3	Constant deceleration
HT	Area under graph = total distance travelled

8. Newtons laws of motion	
1st	If the resultant force on an object is zero the object either remains stationary or at a constant speed
2nd	Force = mass x acceleration
3rd	When two objects interact the forces are equal and opposite

9. Forces and braking	
Stopping distance	The thinking distance + braking distance
Thinking distance	The distance travelled in the time it takes to react (typically 0.2s)
Factors affecting thinking distance	1. Tiredness 2. Drugs 3. Alcohol 4. Distractions (phones)
Braking distance	The distance travelled under a braking force
Factors affecting braking distance	1. Road conditions (ice, water) 2. Tyre condition 3. Brake condition

10. Momentum (HT ONLY)		
p	Momentum (Kgm/s)	p=mv
m	Mass (Kg)	m=p÷v
v	Velocity (m/s)	v=p÷m
Conservation of momentum	The total momentum before = the total momentum after	

11. Changes in momentum (PHYSICS ONLY)		
$$F = \frac{m\Delta v}{\Delta t}$$		
F	force	N
$m\Delta v$	Change in momentum	Kgm/s
Δt	Change in time	s
To reduce the force we need to extend the collision time		

Physics topic 6: Waves

1. Keywords

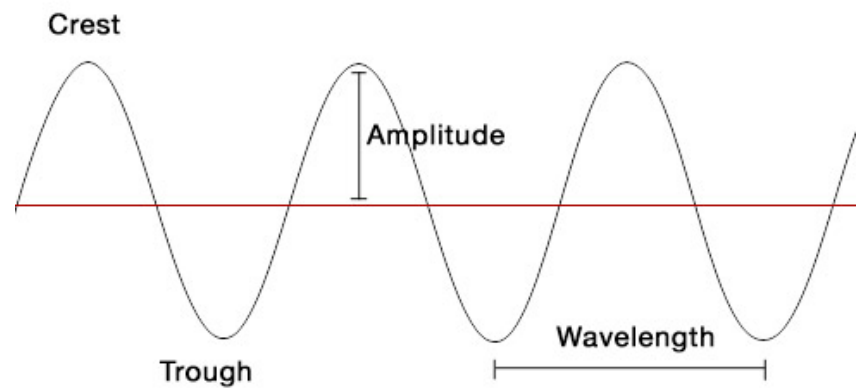
Transverse wave	A wave where the vibration is perpendicular to the direction of travel
Longitudinal wave	A wave where the vibrations are parallel to the direction of travel
Mechanical wave	A vibration that travels through a substance (e.g. sound)
Frequency	The number of wave fronts passing a fixed point every second (measured in Hz)
Period	The time for one complete wave
Ultrasound	Sound above 20,000Hz
Superposition	When two waves meet and affect each other
Reflection	When waves bounce off a surface
Echo	Reflection of sound that can be heard

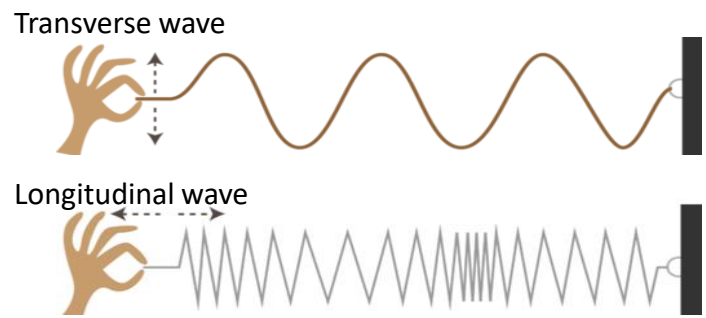
2. Period and frequency

$$T = \frac{1}{f}$$

T	Period (s)
f	Frequency (Hz)

3. Comparing types of wave





Comparing waves:	Light wave	Mechanical wave
Type of wave	Transverse	Longitudinal
Can they travel through a vacuum?	Yes	No. Mechanical waves can only pass through a solid, liquid or gas
Can they be reflected?	Yes. By smooth shiny surfaces	Yes. By smooth surfaces
Can they be absorbed?	Yes. By dark surfaces	Yes. Rough surfaces absorb sound
Can superposition occur?	Yes	Yes

4. Wave equation

$$v = f\lambda$$

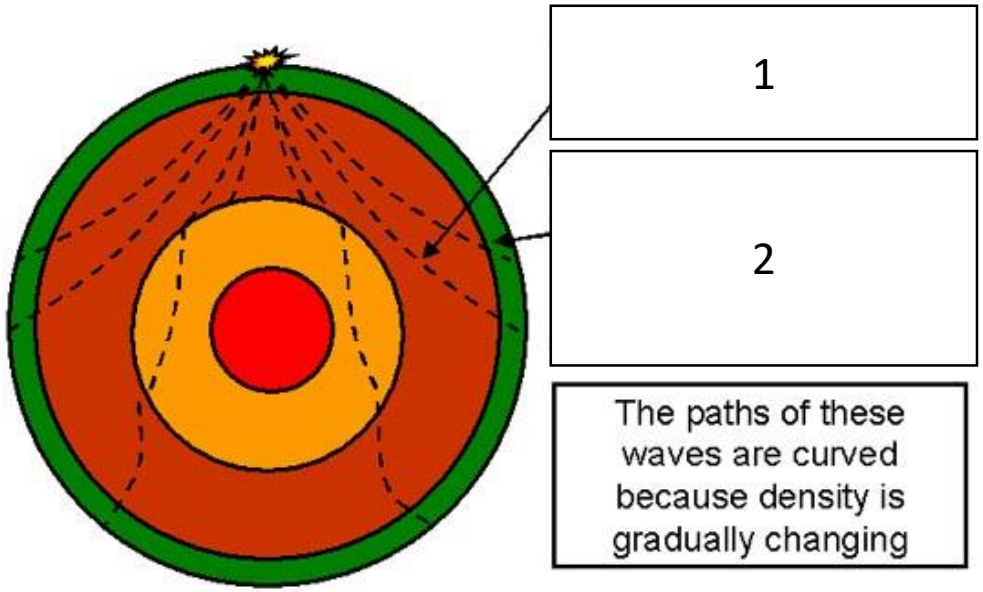
v	Wave speed (m/s)
f	Frequency (Hz)
λ	Wave length (m)

5. Uses of ultrasound (HT PHYSICS ONLY)

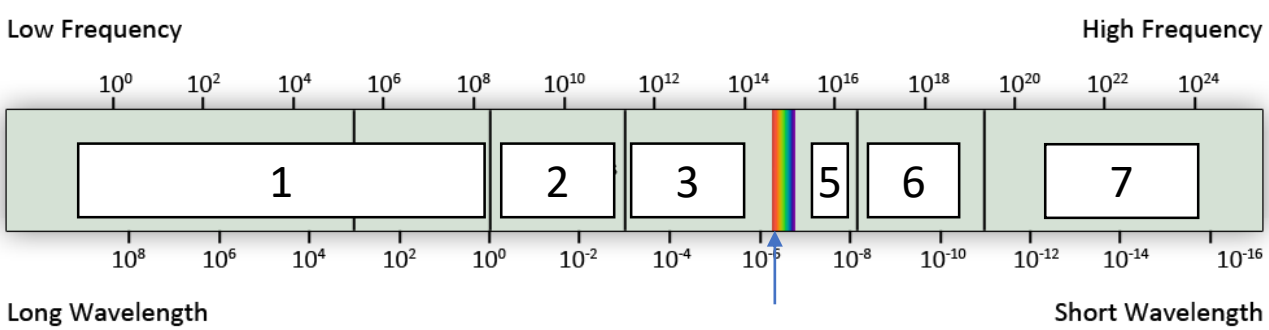
Use	How it works
Cleaning jewellery	The vibrations of the wave shake the dirt lose
Scanning the human body	The waves are partially reflected at different tissue boundaries
Industrial imaging	The waves can detect flaws in metal castings as they are partially reflected by cracks
Physiotherapy	Energy from the wave is absorbed by body tissue and relieves pain

6. Seismic waves produced by earthquakes (HT PHYSICS ONLY)

1	S waves	Transverse	Only travel through solid
2	P waves	Longitudinal	Travel through the earth and are refracted when they pass through different density medium

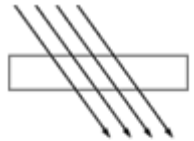


7. The electromagnetic spectrum



	Name	Notes
1	Radio	Produced by oscillations in circuits (HT)
2	Microwaves	
3	Infrared	Thermal energy
4	Visible	
5	Ultra violet	Skin damage
6	X rays	Cause cancer
7	Gamma rays	Cause cancer

8. The properties of EM waves on materials (HT ONLY)	
1	Transmit
2	Specular Reflection
3	Diffuse Reflection
4	Absorb
5	Refract



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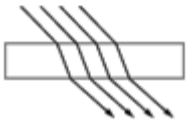
2

3

4



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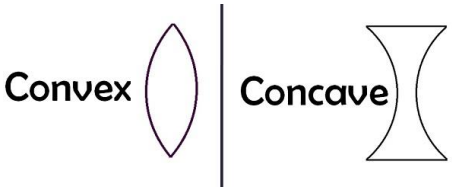
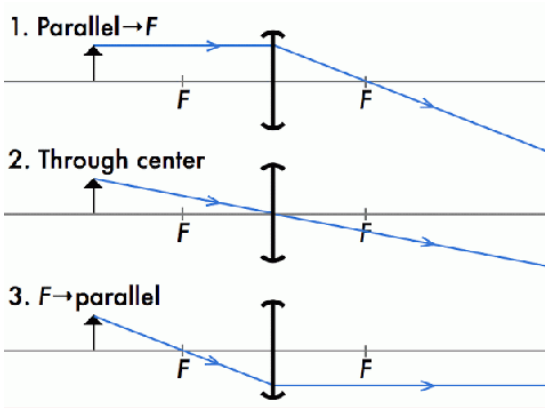
9. Uses of EM waves	
Name	Use
Radio	Radio and TV
Microwaves	Satellite communication, cooking food
Infrared	Electric heaters, cooking food, infra-red cameras
Visible	Fibre optic communication
Ultra violet	Energy efficient lamps, sun tanning
X rays	Imaging bones
Gamma rays	Radiotherapy, medical imaging





10. Lenses (physics only)

$$magnification = \frac{image\ height}{object\ height}$$

11. Black body radiation (physics only)	
emit	give out
absorb	Take in
Black body	An object that absorbs all the radiation shone on it. It is the best possible emitter

12. Perfect black bodies and radiation	
1	The intensity of black body radiation depends on temperature
2	The hotter the object the more radiation is emitted
3	The hotter the object the greater the increase in the proportion of shorter wavelengths
	White hot is hotter than red hot