

Knowledge Organiser

Year 11

Cycle 2 - CORE

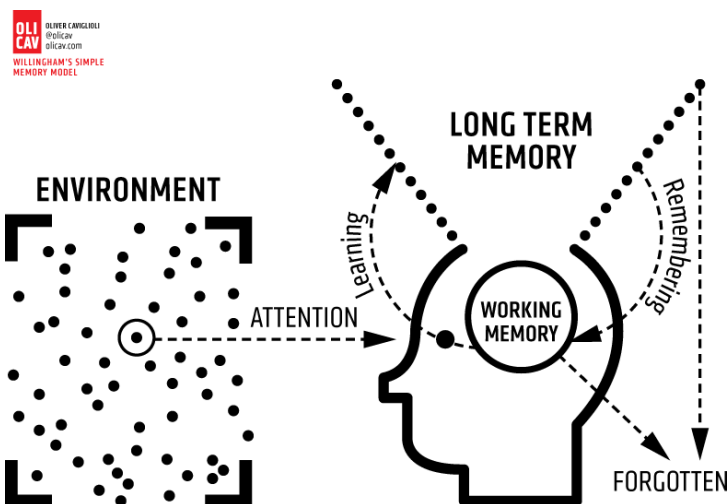
Name:



Inspiring Excellence

Using your Knowledge Organiser for homework

- Your Knowledge Organiser contains the essential knowledge that every student must know.
 - Regular use of the Knowledge Organiser helps you to recap, revise and revisit what you have learnt in lessons.
 - The aim is to help remember this knowledge in the long term and to help strengthen your memory
 - You will use the Knowledge Organiser to help learn during homework.
 - You will be assessed on the knowledge from your Knowledge Organiser; the more you revisit information the more likely it will be remembered for lessons, assessments and exams.
-
- For each homework you will be asked to look at a particular section of your Knowledge Organiser.
 - Make sure you follow the homework timetable below so that you do the right homework for the right subjects each day.
 - Each day (Monday to Friday) you will study 2 subjects for 30 minutes each.
 - All Knowledge Organiser homework is completed in your blue Knowledge Workbooks
 - All Maths and English homework is completed on SPARX and must be 100% completed each week.



Homework Timetable Year 11

	Monday	Tuesday	Wednesday	Thursday	Friday
Subject 1	Science	Geog/History	Maths	Option Block F	Maths
Subject 2	English	Option Block E	English	Science	Option Block G

How to use your Knowledge Organiser

In your blue knowledge book you will always write the date, subject heading and ensure that they are underlined with a ruler.

Task 1: Questions

Where a subject includes questions to answer, you must answer these in your blue book. This is the main task to do as a minimum. If you have additional time, or where there are no questions, then do the following Tasks 2-4

Task 2: The Cover – Write – Check method

1. Study the relevant section of your Knowledge Organiser for several minutes.
2. Cover the Knowledge Organiser.
3. In your blue book, write out what you can remember.
4. Check the Knowledge Organiser to see if you got it right.
5. Correct any mistakes in purple pen.
6. Repeat the process – even if you got it 100% correct.
7. Complete sections that you have previously studied using the same process.

Task 3: Free recall

1. Pick a section of the Knowledge Organiser you have studied recently.
2. Without looking at the Knowledge Organiser write down everything you can remember about the topic.
3. Check the Knowledge Organiser to see how much you got right.
4. Correct any mistakes and add any missing parts in purple pen.

Task 4: Elaboration

1. Once you have completed the Cover – Write – Check method, add any additional details you can to your notes.
2. Remember your Knowledge Organiser only contains the core knowledge, there is much to learn beyond it so practise adding more detail when you can.



Year 11 Core Cycle 2
Knowledge Organiser Contents Page

Subject	Page Number
English	5-10
Geography	11-18
History	19-33
Life Skills	34-35
Maths	36-37
Religion Philosophy and Ethics	38
Science	39-47

Start with Week 1. Each week, complete the next colour block. Write each word out 3 times and each definition once. Write as much of the theme/character information as you can remember. Check it all with a purple pen. Tick what is correct, fix what is wrong.



Coombeshead Academy Inspiring Excellence			English Learning Area		Jekyll and Hyde – Robert Louis Stevenson	
wk	keyword	definition	example			
Week 1	Tragedy	The main character falls from greatness because of a fatal flaw in their personality.	<i>The tragedy of Macbeth</i> is the full title of the play.			<p>Supernatural and Heroism</p> <p>Supernatural: In Shakespeare's time, the powers of evil were thought to be absolutely real; to most people Hell was an actual place and the Devil a constant threat to their souls. In particular there was a fascination with witches and witchcraft. Hundreds of innocent people (mostly women) were executed as suspected witches. The interest came from the very top, led by King James I himself who published a book on the subject called <i>Demonology</i>. When Shakespeare came to write his play, he knew that his audience would find the theme of evil and the supernatural very interesting indeed.</p> <p>Heroism: Macbeth is a tragic hero because he started the play as a good man, but the manipulations of the Weird Sisters and his wife brought out his baser qualities. This leads to Macbeth's moral corruption and downfall by the play's end. It is clear Macbeth begins the play as a loyal friend and decent man.</p> <p>Stretch: Create a mind-map of characters that fit these themes and add quotations.</p>
	Protagonist	The leading character in a text.	Shakespeare often uses the name of the protagonist in the title – they are then called the titular character. Examples: <i>Macbeth</i> , <i>Othello</i> , <i>Julius Caesar</i> .			
	Hamartia	The fatal flaw leading to the downfall of the leading character.	"no spur to prick the sides of my intent, but only vaulting ambition"			
	Hubris	Excessive ambition/self-confidence (that is the fatal flaw of Macbeth)	"Then live, Macduff: what need I fear of thee?"			
	Paradox	A statement used that seems contradictory.	"Fair is foul, and foul is fair."			
Week 2	Aside	A speech in a play that is intended to be heard by the audience but unheard by the other characters in the play.	"If good, why do I yield to that suggestion/Whose horrid image doth unfix my hair" Only the audience hear Macbeth's first thoughts of murder.		Week 2	<p>Act I</p> <p>On a bleak Scottish moorland, Macbeth and Banquo, two of King Duncan's generals, discover three strange women (witches). The witches prophesy that Macbeth will be promoted twice: to Thane of Cawdor (a rank of the aristocracy bestowed by grateful kings) and King of Scotland. Banquo's descendants will be kings, but Banquo isn't promised any kingdom himself. The generals want to hear more, but the "weird sisters" disappear.</p> <p>Soon afterwards, King Duncan names Macbeth Thane of Cawdor as a reward for his success in the recent battles. The promotion seems to support the prophecy. The King then proposes to make a brief visit that night to Macbeth's castle at Inverness.</p> <p>Lady Macbeth receives news from her husband about the prophecy and his new title. She vows to help him become king by whatever means are necessary</p> <p>Stretch: How does Lady Macbeth meet/defy expectations of Shakespeare's women?</p>
	Echo	When a character uses the words/phrases used earlier by another character to create a link between them.	"So fair and foul a day I have not seen." Macbeth echoes the witches ("Fair is foul and fairs is fair") to create a link between him and the supernatural.			
	Masculine imagery	Metaphor/simile/personification associated with characteristics linked to men in a given time period.	"with his brandish'd steel, Which smoked with bloody execution"			
	Hero	A person who is admired for great or brave acts or fine qualities	"For brave Macbeth—well he deserves that name"			
	Traitor	A person who betrays someone or something, such as a friend, cause, or principle.	"That most disloyal traitor" (Duncan about the original Thane of Cawdor)			


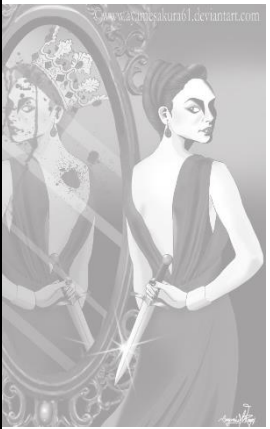
Week 3	Foil	A character who is presented as a contrast to another.	Banquo throughout the play is seen as (almost) perfect and honest, compared to Macbeth who is seen as flawed and power-hungry.	Week 3	
	Aural	Images or methods associated with sound.	Rhyming used by the witches, "When the hurlyburly's done, When the battle's lost and won". 5		

	Gender expectations (challenged)	The gender roles during the Jacobean era were fairly similar to the Elizabethan ones. Men assumed a dominant position in the society.	Come, you spirits That tend on mortal thoughts! unsex me here, And fill me from the crown to the toe top full Of direst cruelty;		Act II	Macbeth returns to his castle, followed almost immediately by King Duncan. The Macbeths plot together to kill Duncan and wait until everyone is asleep. At the appointed time, Lady Macbeth gives the guards drugged wine so Macbeth can enter and kill the King. He regrets this almost immediately, but his wife reassures him. She leaves the bloody daggers by the dead king just before Macduff, a nobleman, arrives. When Macduff discovers the murder, Macbeth kills the drunken guards in a show of rage and retribution. Duncan's sons, Malcolm and Donalbain, flee, fearing for their own lives; but they are, nevertheless, blamed for the murder.	
	Regicide	The murder of a King	Macbeth can't say it (because it is so bad). He says "this business" and "horrid deed" instead. These are called euphemisms.		Week 4		Act III Macbeth becomes King of Scotland but is plagued by feelings of insecurity. He remembers the prophecy that Banquo's descendants will inherit the throne and arranges for Banquo and his son Fleance to be killed. In the darkness, Banquo is murdered, but his son escapes the assassins. At his state banquet that night, Macbeth sees the ghost of Banquo and worries the courtiers with his mad response. Lady Macbeth dismisses the court and unsuccessfully tries to calm her husband. Lady Macbeth and Macbeth then discuss Banquo's murder but Macbeth begins to think about Macduff, the man he considers to be most dangerous to him. Stretch: (Mock question) How is Macbeth presented in this scene?
Week 4	Symbolises	When a writer uses something to stand for/represent something else.	"Come let me clutch thee" (Macbeth trying to hold the illusory dagger)				
	Conscience	A person's sense of right and wrong that guides their actions	"We will proceed no further in this business"				
	Soliloquy	When a character speaks their innermost thoughts, heard only by the audience.	"Is this a dagger which I see before me?"				
	Comic Relief	A short comic scene in a play which is mostly a tragedy	"nose-painting, sleep and urine" (the porter talking about being drunk)				
	Tension	The sense that something is about to happen	"And yet I would not sleep" (Banquo unable to sleep on the night of the murder)				

How to reminder:

Each week, complete the next colour block. Write each word out 3 times and each definition once. Write as much of the theme/character information as you can remember. Check it all with a purple pen. Tick what is correct, fix what is wrong.

Week 5	Jacobean	The time period relating to the rule of James I of England.	1603-1625. Macbeth was written in 1606	Week 5	<p>Act IV</p> <p>Macbeth seeks out the witches who say that he will be safe until a local wood, Birnam Wood, marches into battle against him. He also need not fear anyone born of woman (that sounds secure, no loop-holes here). They also prophesy that the Scottish succession will still come from Banquo's son. Macbeth embarks on a reign of terror, slaughtering many, including Macduff's family. Macduff had gone to seek Malcolm (one of Duncan's sons who fled) at the court of the English king. Malcolm is young and unsure of himself, but Macduff, pained with grief, persuades him to lead an army against Macbeth.</p> <p>Stretch: Draw images to represent the 3 apparitions. Add quotations to support your interpretations.</p> 
	Personification	Giving human qualities or emotions to something that is not human	"Bleed, bleed poor country!" (Macduff)		
	Euphemism	Replacing a harsh word/phrase with one that is milder	<i>"But Banquo's safe?" (Macbeth – he can't bear to say murdered or dead)</i>		
	Irony	Using language that is the opposite of what you mean	<i>"But Banquo's safe?" (Macbeth – he actually means is Banquo dead?)</i>		
Week 6	Suspicious	Having or showing a cautious distrust of someone	"I fear thou played'st most foully for 't."	Week 6	<p>Act V</p> <p>Macbeth feels safe in his remote castle at Dunsinane until he is told that Birnam Wood is moving towards him. Malcolm's army is carrying branches from the forest as camouflage for their assault on Macbeth's stronghold. Meanwhile, an overwrought and conscience-ridden Lady Macbeth walks in her sleep and tells her secrets to her doctor. She commits suicide. As the final battle commences, Macbeth hears of Lady Macbeth's suicide and mourns. In the midst of a losing battle, Macduff challenges Macbeth. Macbeth learns Macduff is the child of a caesarean birth (loophole!), realises he is doomed, and submits to his enemy. Macduff triumphs and brings the head of the traitor Macbeth to Malcolm. Malcolm declares peace and goes to Scone to be crowned king.</p> <p>Stretch: How does Lady Macbeth contrast with her previous characterisation?</p> 
	Tyrannical	Using power in a cruel or oppressive way.	"Thou liest, abhorred tyrant"		
	Dynamic characters	Characters who change across the play.	Such as Macbeth and Lady Macbeth		
	Hallucination	Where someone sees something that doesn't exist outside their mind.	"Is this a dagger which I see before me?"		

Week 7	Imperative sentences	Sentences that give an instruction or order.	"Beware the Thane of Fife"	Week 7	Ambition and Power in Macbeth  <p>Shakespeare set Macbeth in the distant past and in a part of Britain that few of his audience would have been familiar with. Scotland is shown as a wild and savage place ruled over by a weak king (Duncan) who relies on his warrior thanes to keep control. However, through the character of Macbeth, Shakespeare goes on to show that having too much ambition and total control of power is just as bad. By the end of the play Malcolm has become King and it seems likely that he will be much fairer and treat his people justly.</p> <p>Stretch: What might Shakespeare's message to his audience be? How would they react? Think about what you know about context.</p>
	Exclamatory sentences	Sentences that show heightened emotion by having a ! at the end	"Fly good Fleance, fly, fly, fly!"		
	Formal	A type of speech used in serious situations	"All our service In every point twice done and then done double" (Lady Macbeth welcoming Duncan)		
	Methods	Anything the writer is doing to create a particular effect	Imagery, single word choice, lexical sets, repetition, sentence type, symbolism..and lots more		
	Chivalry	Behaviour with high moral, and social codes.	Faith, charity, justice, prudence, resolution, truth, diligence, hope and valour "Valiant cousin"		
Week 8	Divine right of Kings	Kings get their authority directly from God	"by the grace of Grace" (Malcolm about being King)	Week 8	 <p>Appearances and Reality in Macbeth</p> <p>In <i>Macbeth</i>, things are never quite what they seem. Characters say one thing yet mean something else and use euphemisms to hide reality. Wicked and violent acts such as murder are covered up or the blame is shifted onto someone else. The Witches mislead Macbeth, or they at least make suggestions which allow him to mislead himself. Ghosts, visions and apparitions occur regularly. All of these things contribute to the many contrasts which exist in the play; almost nothing is as it should be.</p> <p>Stretch: How do the characters of Macbeth and Lady Macbeth fit into this theme? Think about gender expectations.</p>
	Binary opposites	Set up as being directly opposite to each other	Lady Macduff and Lady Macbeth		
	Domestic	Things related to the home (Lady Macduff cares primarily about this, not politics or battles)	"to leave his wife, to leave his babes, His mansion and his titles" (Lady Macduff)		
	Kingship	The roles and responsibilities of being a King	"Hail, King of Scotland!" (rejoicing when Malcolm is crowned as he will be a good King)		
Week 9	Guilt	Deep regret and having behaved in a way you know to be wrong	"who would have thought the old man to have had so much blood in him" (LM)	Week 9	

	Tyrant	A cruel and oppressive ruler	"Tyrant, show thy face!"			<div> Key Characters (pick 1) <input type="checkbox"/> Create a character sheet <input type="checkbox"/> Create a mind map <input type="checkbox"/> Plot their activities and actions <input type="checkbox"/> Draw their picture using evidence from the play <input type="checkbox"/> Write a letter home from their perspective <input type="checkbox"/> Write a script between two characters <input type="checkbox"/> Write what happens to a character after the play Macbeth * Lady Macbeth * The Witches * MacDuff * Malcom </div>
	Reflective	Thinking deeply about past events	"Life's but a walking shadow" (M)			
	Motif	A recurring idea or symbol in a text	"Will these hands ne'r be clean?" (LM)			
	Broken speech	Where a character's speech is not fluent, often showing agitation or nervousness	"out, I say!—One: two: why, then, 'tis time to do't.—Hell is murky!—" (LM)			
Week 10	Ambition	A strong desire to achieve something	"Stars, hide your fires; Let not light see my black and deep desires"		Week 10	<div> A03 – Social Context – <i>(Influences on the book and author)</i> Developing Cultural Capital - Themes Read a newspaper article on a theme from the play that's linked to current events. Tasks: <input type="checkbox"/> Print them out and highlight literary techniques. (pick 1) <input type="checkbox"/> Write a summary of the article <input type="checkbox"/> Find two conflicting articles Example: – Modern witches. Representation of witches in literature (Harry Potter?) – Any newspaper article about the Royal family – Independence/ Laws/ identity – Find an article about someone who was a hero (NHS workers) </div>
	Analyse	To examine a text in detail to interpret it	English questions often say "Analyse this text....."			
	Chaos and order	Scotland to go from a state of confusion to everything being in place according to the beliefs of that time	"We shall not spend a large expense of time Before we reckon with your several loves, And make us even with you." (Malcolm)			
	Connotations	An idea or feeling that a word creates in the reader/audience	The connotations of "blood" on LM's hands are: violence, fear and death.			

KO Extension/Revision tasks: Language Paper 2

Writing non-fiction texts (Q5):

Have a look at the following webpages:

<https://www.bbc.co.uk/bitesize/guides/zwt3rdm/revision/2>

<https://www.bbc.co.uk/bitesize/guides/zps4qty/revision/1>

You can also use the information in your KO to help you.

Plan and write a speech on one of the following topics:

1. Your school has recently started selling nothing but burgers and chips in the canteen.
2. Facebook has introduced a new rule banning anyone from under the age of 18 from using it.

Comparing and Contrasting Writers' Viewpoints and Perspectives:

<https://filestore.aqa.org.uk/sample-papers-and-mark-schemes/2019/june/AQA-87002-INS-MQP18A4-JUN19.PDF>

1. Put the above link into your web browser.
2. Read the two sources.
3. Consider how the writer's talk about their journeys. Make some notes on each.
4. Jot down key quotations that really tell you something about the journeys. Note any writer's methods.

E.G. 'storm-shaken old steamship'. The sibilance here provides the reader with a vision of the chaos of the weather as it batters the ship. The reader can imagine the ferocity of the waves as they fight the vessel.

Summarising Information (Q2):

1. Insert this link into your web browser:

<https://filestore.aqa.org.uk/sample-papers-and-mark-schemes/2020/november/AQA-87002-INS-NOV20.PDF>

2. Read and highlight important information in the following question:

You need to refer to Source A and Source B for this question. Both writers are accompanied by another person on their adventure: Simon in Source A, and Marius in Source B. Use details from both sources to write a summary of what you understand about the differences between the two companions, Simon and Marius.

Hopefully, you understand that the question wants you to write about the differences between Simon and Marius across the sources.

1. Make bullet point notes on how Simon is presented.
2. Make bullet point notes on how Marius is presented.
3. Think of 3 key points to make: is one helpful, one unhelpful? Is one ill, the other well? There are lots of things you could say.
4. Try writing up a response based upon your bullet points- model answers can be found on the AQA website under 'assessment resources'.



Year 11 Cycle 2 Geography Knowledge Organiser – UK Physical Landscapes - Rivers



Week 1 – Tuesday 10th December 2024

Lesson 1 – Drainage Basin

Key Terms:

Drainage Basin: The area which is drained by a river and its tributaries. Sometimes referred to as the catchment area.

Watershed: Higher ridge of land and the boundary between one drainage basin and another.

Drainage density: The total length of all the streams in the basin divided by the total area of the basin.

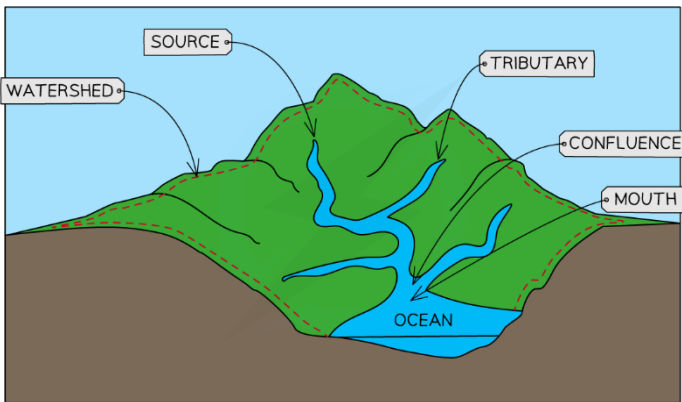
Content:

Source: Where a river begins.

Tributary: A smaller river flows that into a larger river.

Confluence: A place where two rivers meet.

Mouth: Where a river meets the sea.



Questions:

1. What is a drainage basin?
2. What is a watershed?
3. What is the drainage density?
4. Define the 4 key terms of a drainage basin

Lesson 2 – River Long Profile

Key Terms:

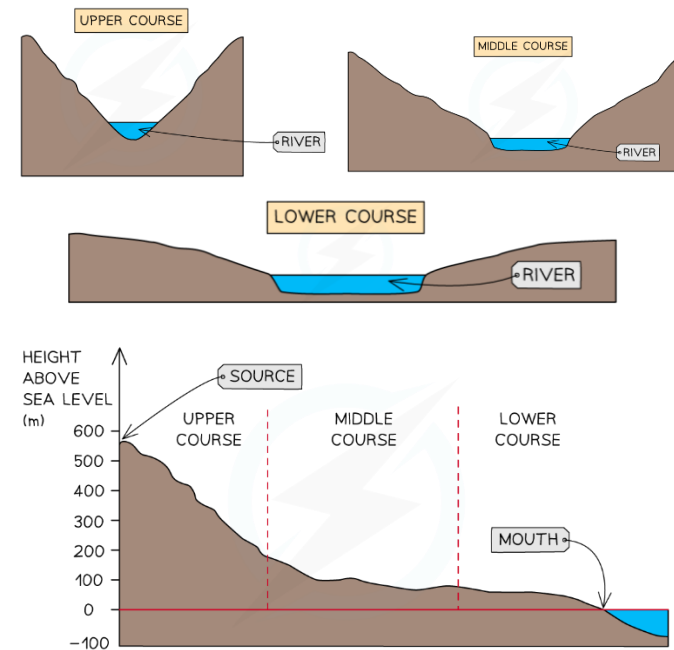
River profile: Shows changes in the height (altitude) of the course of a river from its source to its mouth.

Upper course: Shallow channel, steep valley sides and vertical (up and down) erosion.

Middle course: Deeper channel, gentle valley sides and lateral (side to side) erosion.

Lower course: Deep channel, flat floodplains and deposition dominant.

Content:



5. What is a river profile?

6. How many courses does a river have?

7. Draw a cross section for each of the different courses

8. Draw a long profile cross section of a river

Lesson 3 – River Processes

Key Terms:

Erosion: Wearing away and removal of material by a force.

Transportation: The movement of material through the force of water.

Deposition: When a river does not have enough energy to carry its material and it drops it.

Bedload: Large material that is deposited by a river.

Content:

Hydraulic Action:

Force of the water removes material from the bed and banks of the river.

Abrasion: Material carried in the river scrape the banks.

Attrition: Material being carried hits each other.

Corrosion: Material is dissolved by the slightly acidic water.

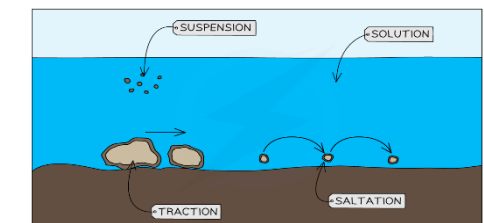
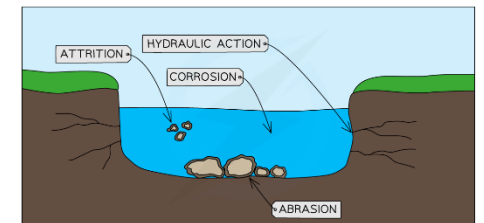
Traction: Large rocks are rolled along the river bed.

Saltation: Material bounces along the river bed.

Suspension:

Material carried within the water flow.

Solution: Material is dissolved in the water.



9. Describe the 4 types of erosion

10. Describe the 4 types of transportation

11. What is deposition?

12. What is bedload?



Week 2 – Tuesday 17th December 2025

Lesson 4 – V-Shape Valley and Interlocking spurs

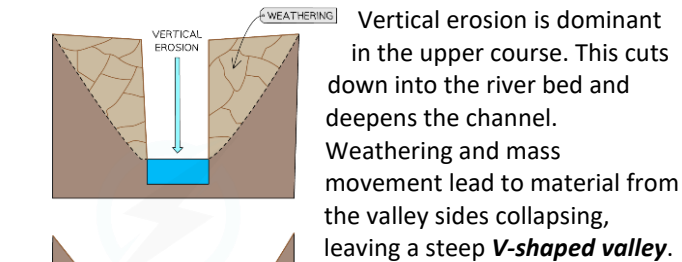
Key Terms:

Vertical erosion: The wearing away and deepening of the river bed.

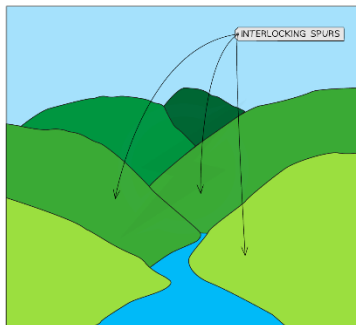
Weathering: The breaking down or dissolving of rock and minerals in situ (in place).

Mass movement: Downslope movement of materials, such as rock, soil, or mud due to gravity.

Content:



When a river is not powerful enough to cut through hard rock so flows around it, forming **interlocking spurs**.



Questions:

1. What is vertical erosion?
2. How are V-shaped valleys formed?
3. Draw a diagram of a V-shaped valley
4. How are interlocking spurs formed?

Lesson 5 – Waterfall and gorge

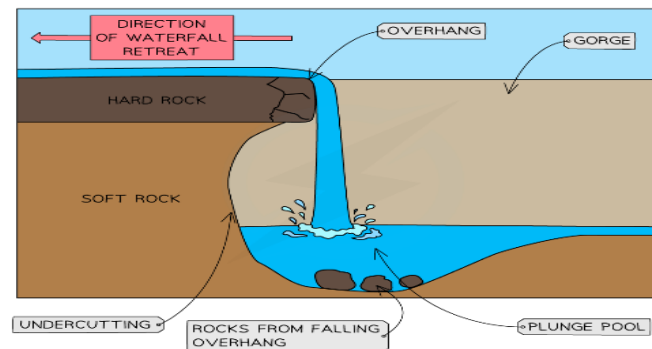
Key Terms:

Plunge pool: A deep hole created by erosion at the base of a waterfall.

Gorge: Narrow valley with steep sides created when a waterfall retreats backwards up the river channel.

Content:

- The soft rock erodes (hydraulic action and abrasion) quicker, undercutting the hard rock and creating a plunge pool.
- This leads to the development of an overhang of hard rock which eventually over time, collapses.
- The overhang falls into the plunge pool increasing abrasion and making the plunge pool deeper.
- The process then begins again and the waterfall retreats upstream leaving a steep sided gorge.

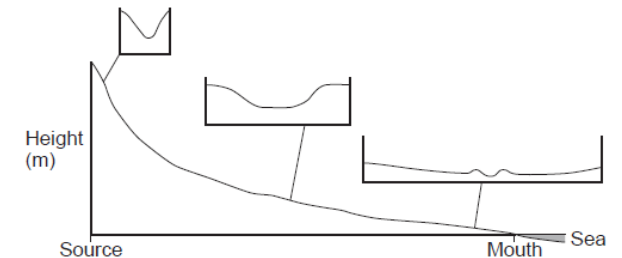


5. How are waterfalls formed?
6. Draw a diagram of a waterfall
7. What are the two types of erosion that create waterfalls?
8. What is a gorge?

Seneca and Exam Question Practice



1. Using the figure below, describe how the cross profile of the river valley changes downstream (2 marks)



2. Identify the landform shown in the figure below (1 mark)





Year 11 Cycle 2 Geography Knowledge Organiser – UK Physical Landscapes - Rivers



Week 3 – Tuesday 7th January 2025

Lesson 6 – Meanders

Lesson 7 – Oxbow Lake

Lesson 8 – Floodplain and Levees

Key Terms:

Lateral erosion: Erosion on the sides/banks of a river.

Thalweg: Line of fastest flow of water or the deepest water along a river course.

Key Terms:

Oxbow Lake: A meander that has become separated from the main channel.

Deposition: When a river drops the material it was carrying due to a decrease in velocity (speed) of the water.

Key Terms:

Floodplain: Flat expanses of land on either side of a river.

Levee: Natural embankments along the sides of a river.

Discharge: The volume of water which flows through a certain point in a given time. Usually measured in cubic meters per second.

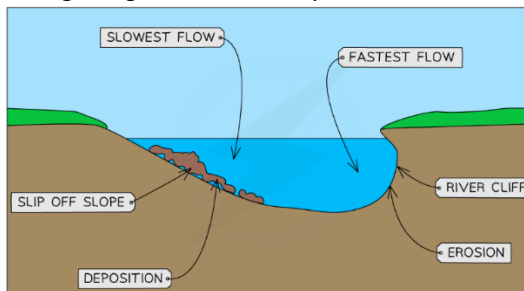
Content:

The fastest water flow is on the outside of the river bends, leading to erosion:

- The erosion (hydraulic action and abrasion) undercuts the riverbank forming a river cliff
- The riverbank collapses and the edge of the meander moves further out

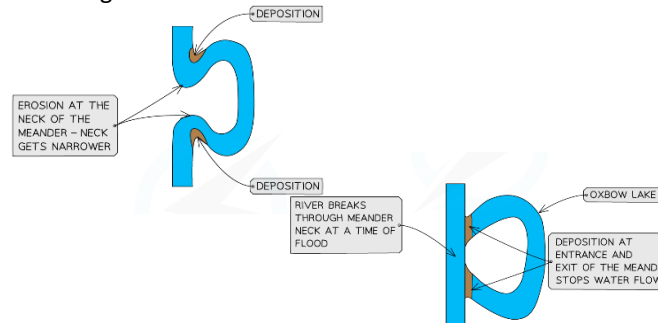
The slowest flow is on the inside of the river bends, leading to deposition:

- The deposits form a slip-off slope
- Deposition on one side and erosion on the other leads to the meander migrating across the valley



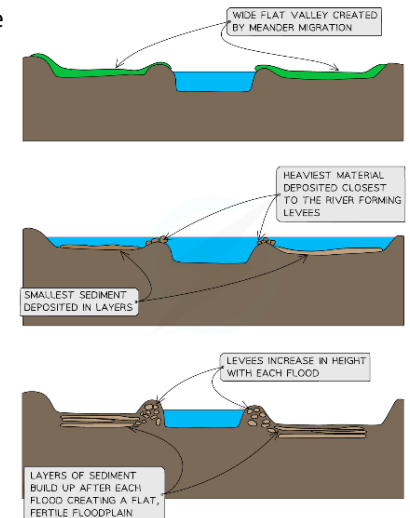
Content:

- With distance downstream the size of the meanders increases
- The erosion on outside bends can eventually lead to the formation of a meander neck
- At a time of the flood, the river may cut through the neck of the meander forming a straighter course for the water
- The flow of water at entry and exit from the meander will be slower, leading to deposition
- The meander becomes cut off from the main river channel, forming an oxbow lake



Content:

- The migration of meanders leads to the formation of the floodplain
- High discharge may cause the river to overflow the banks
- More of the water is in contact with the land surface as the water spreads across the floodplain
- Increased friction reduces velocity and material is deposited across the floodplain gradually increasing the floodplain height
- The heaviest material is deposited first nearest to the river channel forming natural embankments called levees



Questions:

1. What is lateral erosion?
2. What two types of erosion happen on a meander?
3. Explain the formation of a meander
4. Draw a cross section of a meander

5. What is an oxbow lake?
6. What is deposition?
7. Explain the formation of an oxbow lake
8. Draw a diagram of an oxbow lake

9. What is a floodplain?
10. Explain the formation of a floodplain
11. What is a levee?
12. Draw a diagram of a levee



Week 4 – Tuesday 14th January 2025

Lesson 9 – Estuaries

Lesson 10 – River landforms mapwork

Seneca and Exam Question Practice

Key Terms:

Estuaries: An area where a freshwater river or stream meets the ocean.

Key Terms:

OS Map: A detailed map produced by the British map-making organisation – Ordnance Survey.

Grid References: Map references indicating a location using vertical and horizontal lines identified by numbers.



1. Explain how a meander may be formed by both erosion and deposition. Use **one or more** diagrams to support your answer (4 marks)

Content:

- Large deposits of sediment form mudflats and salt marshes
- These are the result of the interaction between the river and tides:

- Incoming tides bring in sediment which mixes with the sediment being carried by the river
- When the incoming tide of salt water meets the freshwater of the river, the river velocity drops and deposition occurs
- The deposited sediment builds up in layers to form mudflats which rise above the water surface, particularly at low tide
- Eventually the vegetation starts to grow on the mudflats and form salt marshes



Content:

Upper course on an OS Map:

Upland area and contour lines close together to show the steep valley sides. Narrow blue line to show a narrow river channel.



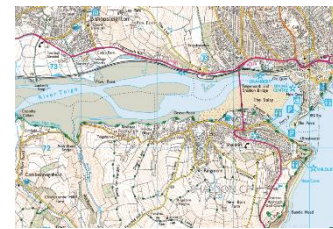
Middle course on an OS Map:

Contour lines become further spread out to show the floodplains and blue channel becomes wider and meanders (bends/curves).



Lower course on an OS Map:

Very wide channel and can show an estuary/mudflat (brown area within the channel). River enters the sea (mouth).



2. Using the figure below, describe **two** characteristics of an estuary (2 marks)



Questions:

1. What is an estuary?
2. What causes deposition to occur?
3. What do the deposited layers create?
4. What is formed when vegetation grows on a mudflat?

5. What is an OS map?
6. What does the upper course look like on an OS map?
7. What does the middle course look like on an OS map?
8. What does the lower course look like on an OS map?



Year 11 Cycle 2 Geography Knowledge Organiser – UK Physical Landscapes - Rivers



Week 5 – Tuesday 21st January 2025

Lesson 11 – River Tees

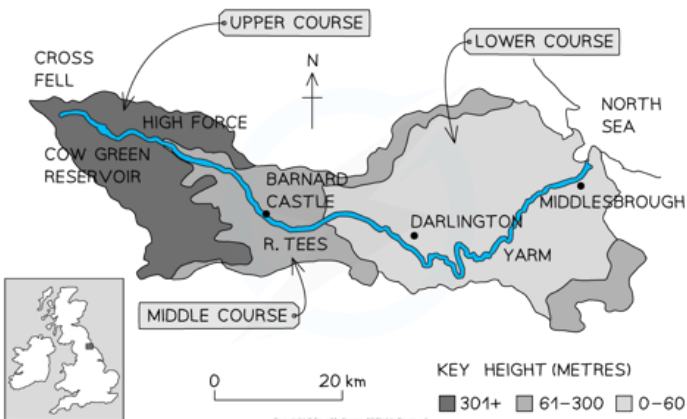
Key Terms:

River Tees: Located in north-east England. It is 85 miles from source to mouth. It flows eastwards from the source in the Pennines to the mouth where it flows into the North Sea.

Content:

Features along the River Tees:

- High Force Waterfall (UK's largest waterfall) and a steep sided gorge.
- Meander at Darlington.
- Meander, oxbow lake, floodplain and levees around Yarm.
- Large estuary and mudflats that supports wildlife.



Questions:

1. Where is the River Tees?
2. What is the name of the waterfall?
3. What can be found at Yarm?
4. What is the estuary like?

Lesson 12 – Flood Hydrographs

Key Terms:

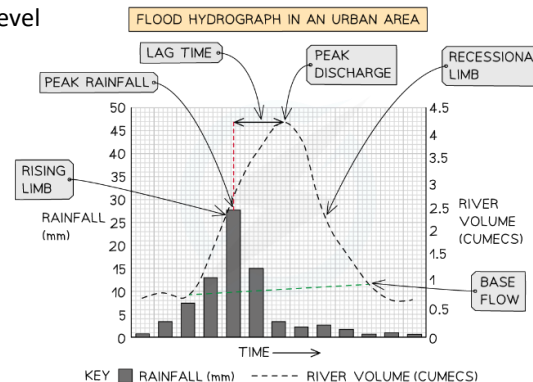
Flood hydrograph: A graph that shows how a drainage basin responds to a period of rainfall.

Discharge: The volume of water which flows through a certain point in a given time. Usually measured in cubic meters per second.

Content:

Features of a flood hydrograph:

- **Base flow:** Normal level of the river
- **Peak rainfall:** Highest rainfall level
- **Rising limb:** Increase in river discharge
- **Peak discharge:** Highest level of river discharge
- **Lag time:** Time difference between peak rainfall and peak discharge
- **Recessional limb or falling limb:** River discharge falling to normal level



Lesson 13 – Factors affecting flood hydrographs

Key Terms:

Surface runoff: The flow of water across the surface when the land is unable to absorb it.

Impermeable: A surface that does not allow water to pass through it, therefore stays on the top.

Content:

Physical factors that affect flood hydrographs:

- **Relief:** Steep slopes encourage a rapid transfer of water towards river channels.
- **Precipitation:** Torrential rainstorms or prolonged rainfall can lead to sudden flash floods as rivers cannot contain the volume of water.
- **Geology:** Impermeable rocks encourage water to flow overland and into rivers.

Human factors that affect flood hydrographs:


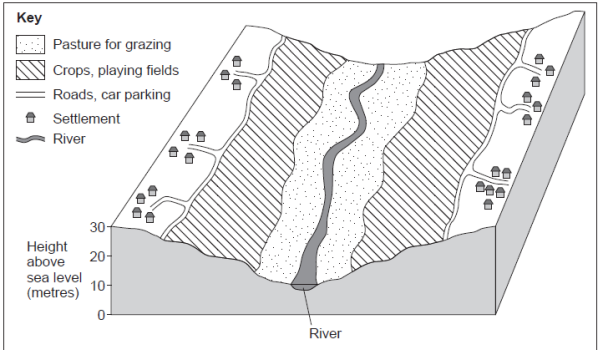
- **Urbanisation:** Building on floodplains creates impermeable surfaces, such as tarmac and increases surface runoff.
- **Deforestation:** Less interception from trees means more water hits the ground and surface runoff increases.
- **Agriculture:** Soil left unused and exposed can lead to an increase in surface runoff. Rain can also flow quickly along the ploughed furrows (narrow trenches).

5. What is a flood hydrograph?
6. What is the peak rainfall and peak discharge?
7. How is the lag time calculated?
8. Draw a sketch of a flood hydrograph

9. What is surface runoff?
10. What is impermeable?
11. Describe 3 physical factors that affect hydrographs
12. Describe 3 human factors that affect hydrographs



Week 6 – Tuesday 28th January 2025

Lesson 14 – Flood protection – hard engineering	Lesson 15 – Flood protection – soft engineering	Seneca and Exam Question Practice
<p>Key Terms: Flood risk: The predicted frequency of floods in an area.</p> <p>Hard engineering: Involves the building of entirely artificial structures to reduce or stop the impact of river processes.</p>	<p>Key Terms: Soft engineering: Involves managing a river using natural materials and mimicking natural processes to protect more vulnerable areas.</p> <p>Afforestation: The process of planting large numbers of trees on land which has few or no trees on it.</p>	<p> SENECA AQA Geography: 3.3.2, 3.3.9 & 3.3.10</p> <p>1. Explain how physical factors can affect flood risk (4 marks)</p>
<p>Content: Dam and reservoir: A barrier (made on earth, concrete or stone) built across a valley to interrupt river flow and create a man-made lake (reservoir) which stores water and controls the discharge of the river.</p> <p>Embankments: Raised banks constructed along the river; they effectively make the river deeper so it can hold more water. They are expensive and do not look natural but they do protect the land around them.</p> <p>Flood Relief channels: Building new artificial channel which are used when a river is close to maximum discharge. They take the pressure off the main channels when floods are likely, therefore reducing flood risk</p> <p>Channel straightening: Removing meanders from a river to make the river straighter. Straightening the river (also called channelising) allows it to carry more water quickly downstream, so it doesn't build up and is less likely to flood.</p>	<p>Content: Flood plain zoning: Restricts different land uses to certain locations on the flood plain. Areas close to the river are kept clear of high value land uses such as housing.</p> <p>Flood warning: Rivers are monitored by satellites and computers so flood risk can be predicted. Areas at risk are warned so preparation can take place. For example, flood gates, sand bags and moving valuable items.</p> <p>Afforestation: Planting trees can intercept rainfall, slowing the transfer of water to river channels reducing the risk of flooding. It also creates habitats and increases biodiversity.</p> <p>River restoration: This is where previously a course of a river has been changed artificially is returned to its original course. It uses natural processes and features (meanders, vegetation and wetlands) so slow down river flow and reduce the likelihood of flooding downstream.</p>	<p>2. Using the figure, explain how soft engineering strategies can help to reduce the impact of river flooding (4 marks)</p>
<p>Questions:</p> <ol style="list-style-type: none"> 1. How does dams and reservoirs reduce flood risk? 2. How do embankments reduce flood risk? 3. How does flood relief channels reduce flood risk? 4. How does channel straightening reduce flood risk? 	<ol style="list-style-type: none"> 5. How does flood plain zoning reduce flood risk? 6. How do flood warnings reduce flood risk? 7. How does afforestation reduce flood risk? 8. How does river restoration reduce flood risk? 	



Year 11 Cycle 2 Geography Knowledge Organiser – UK Physical Landscapes - Rivers



Week 7 – Tuesday 4 th February 2025		
Lesson 16 – Harbertonford flood protection	Lesson 17 – River fieldwork	Lesson 18 – River fieldwork techniques
<p>Key Terms: Harbertonford: A village on the A381 near Totnes set on the River Harbourne - a tributary of the Dart. It has flooded 21 times in 60 years.</p> <p>Channelisation: A method of river engineering that widens or deepens rivers to increase the capacity for flow volume at specific sections of the river.</p>	<p>Key Terms: Geographical investigation: The use of enquiry skills to formulate a hypothesis and then collect data to test the hypothesis.</p> <p>Hypothesis: A testable statement about the relationship between two or more variables.</p> <p>Sampling: Taking a predetermined number of observations from a larger population.</p>	<p>Key Terms: Primary data: Data you collect yourself (or in groups) in the field.</p> <p>Cross-sectional area: The length between the edge of one bank to the other.</p>
<p>Content: Why does Harbertonford need flood protection?</p> <ul style="list-style-type: none"> • Properties built on low-lying flood plain. • Main road increases surface runoff. • Confluence of 3 rivers. • Narrow valley (descending 300m in 12km). <p>How is the flood risk reduced in Harbertonford?</p> <ul style="list-style-type: none"> • The Palmer Dam used to control the flow of the river. • Riverbed was lowered to increase capacity. • 200m wall has been created to protect residential area from overtopping. • 1km upstream a wildlife area created containing flood-resistant trees and shrubs. <p>Is it a success?</p> <ul style="list-style-type: none"> • Scheme cost £2.6 million, • Wildlife is doing well. • Residents are protected. • Residents downstream are experiencing fast river flows. 	<p>Content: Potential hypothesis:</p> <ul style="list-style-type: none"> • The long profile of a river becomes gentler as you move downstream • Channel width increased with distance along the long profile • Velocity increases along the long profile of a river • Discharge increases along the long profile of a river • Channel depth increases with distance along the long profile of a river • Bedload becomes smaller and more rounded along the long profile of a river <p>Potential risks: Slippery or uneven surfaces, deep or fast flowing water, cold water</p> <p>Sampling: Systematic sampling – sampling sites at equal intervals downstream – will help remove bias in site selection, whilst ensuring that your data best illustrates any changes downstream. Access can be an issue and some sites may be moved.</p>	<p>Content: There are several ways to collect fieldwork data. This should be done several times along the river profile.</p> <p>Gradient: Clinometer to measure the gradient.</p> <p>Velocity: Flow meter to measure the speed of the water.</p> <p>Width: Use a tape measure to measure the river from edge to edge across the surface of the channel.</p> <p>Discharge: Measure the cross-sectional area of a river using a tape measure and multiply it by the velocity.</p> <p>Depth: Measure the depth of the river at 3 points in the middle and calculate the average.</p> <p>Bedload: Measure the long-axis of 10 pieces of bedload and identify their shape using Power's Roundness Index.</p>
<p>Questions:</p> <ol style="list-style-type: none"> 1. Where is Harbertonford? 2. Why did Harbertonford need flood protection? 3. How is the flood risk reduced in Harbertonford? 4. Has the flood protection been successful? 	<ol style="list-style-type: none"> 5. Give 4 potential hypotheses for river fieldwork 6. What are the potential risks with river fieldwork? 7. What is sampling? 8. What sampling is used for river fieldwork and why? 	<ol style="list-style-type: none"> 9. What is primary data? 10. How can gradient, velocity and width data be collected? 11. What is a cross-sectional area? 12. How can discharge, depth and bedload data be collected?



Week 8 – Tuesday 11th February 2025

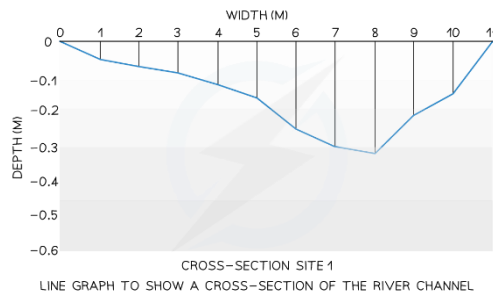
Lesson 19 – River data presentation

Key Terms:

Data presentation: A visual way to look at the data and make interpretations.

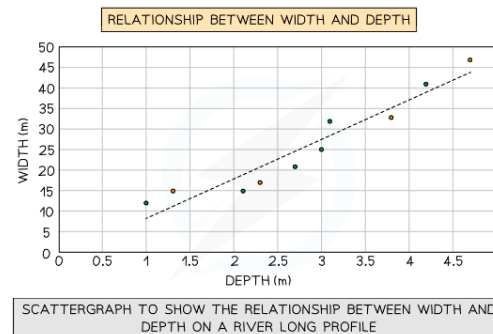
Content:

Line graphs: To show river cross sections of a river channel



Scatter graphs:

Shows the relationships between different factors.



Questions:

1. What is data presentation?
2. What can line graphs show?
3. Draw a sketch of a line graph showing a cross section
4. What can a scatter graph show?

Lesson 20 – River data analysis

Key Terms:

Analysis: The act of studying something in detail to understand more about it.

Central tendency: A single value that attempts to describe a set of data by identifying the central position within that set of data.

Interquartile range (IQR): A measure of how spread out the data is from the mid-point.

Content:

Measures of central tendency:

Mean: Calculated by adding up all the values and dividing by the number of values in the data set.

Median: The middle value of the data set once the numbers are arranged in rank order.

Mode: The value which occurs most frequently in a set of data.

Measure of dispersion:

Range: The spread of data around the average. Calculated by subtracting the largest value from the smallest value.

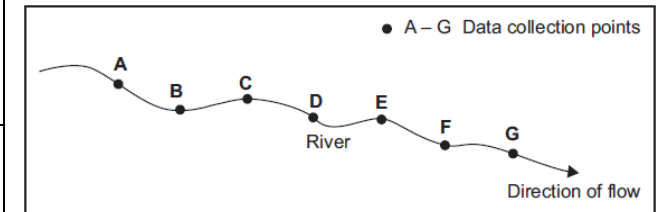
Quartiles and inter-quartile ranges (IQR)

1. Rank the data and calculate the overall median.
2. Calculate the median for the set of numbers below (LQ) and above (UQ) the overall median.
3. Calculate the Interquartile Range (IQR) by calculating the difference between the UQ and LQ.

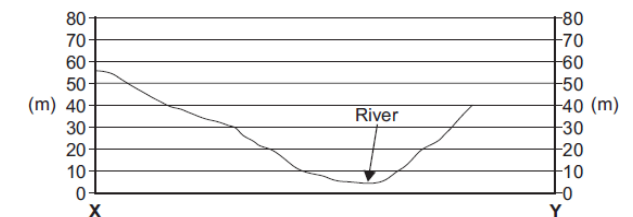
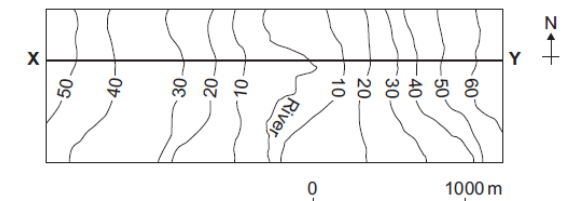
5. What does central tendency mean?
6. Describe the 3 measures of central tendency
7. What is interquartile range?
8. How do you calculate quartiles and inter-quartile range?

Exam Question Practice

1. Name the sampling method using in the figure below (1 mark)
2. Suggest why the type of sampling shown in the figure is not always possible in a fieldwork enquiry (2 marks)



3. Complete the cross section from X-Y on the figure (1 mark)
4. Describe the slope of the land from point X to the river (1 mark)



Spain reaches the ‘New World’ c1490-1512. 1.1 Spanish Exploration

1	In the 1490s Spain had ambitions to expand its religious influence and trade prospects abroad. Crusades were used to achieve both these aims. Most of Europe was mapped. The Spice Trade with the East Indies was well established. Portugal and Spain were rivals.
---	---

Key Events

2	1479 – Spain politically united under joint rule of Ferdinand and Isabella.
3	1484 – Columbus approached King John of Portugal for sponsorship – refused.
4	1486 – Columbus approached Ferdinand and Isabella for sponsorship – refused.
5	1490 – Spain religiously united – drove out Muslims and Jews.
6	1491 – Ferdinand and Isabella sponsored Columbus.
7	1492 – Columbus’ first voyage. Landed on San Salvador. La Navidad built on Haiti. Conquest of Granada.

Key Concepts/Questions

Explain the importance of Queen Isabella’s sponsorship of Columbus for Spanish exploration.	<ul style="list-style-type: none">• Pious and crusading spirit.• Crusades aimed to convert people to Christianity in unknown lands. The Catholic Church approved of these so normally approved similar expeditions.• The Pope (head of the Catholic Church) supported them.• Isabella believed she’d benefit spiritually if Spain funded expeditions.• Crusades justified the expansion of the Spanish Empire and gaining of treasure.• The Catholic monarchs realised Crusades could increase their wealth, and make them more powerful against their European rivals (England, France, and Portugal).
What challenges were there on Columbus’ voyage in 1492?	<ul style="list-style-type: none">• Finding ships and crew - Martin and Vicente Pinzon helped Columbus get ships and crew. 2 caravels (small and fast sailing ships) – the Nina and the Pinta 1 carrack (masted sailing ship used for commerce/trade) – the Santa Maria (flagship)• Rivalry at sea - Columbus had to change routes to avoid Portuguese caravels.• Sailors’ fears - Columbus kept 2 different logs of the journey to stop sailors getting worried. One was accurate and he kept secret so not to worry his crew but to keep an accurate record, whereas the other log recorded shorter distances again so he did not worry his crew.• Possible mutiny - As the sailors had not spotted land for so long, they came close to mutiny. They allowed Columbus 2 more weeks before they said they would mutiny and turn back.• Quarrels - Columbus and Martin Pinzon disagreed on the route. Columbus struggled to keep control.• Land - On the 10th October, after 6 weeks at sea, the crew finally spotted land.



Key Words

8	Crusade	A campaign for religious change, often seen as a ‘holy war’.
9	The ‘Catholic monarchs’	Isabella I of Castile and Ferdinand II of Aragon, King and Queen of Spain
10	The East Indies	The lands and islands of South and South-East Asia, which became popular for their spices - the ‘Spice islands.’
11	The Spice Trade	Trade between Asia and Europe in spices e.g. pepper and ginger.
12	Christendom	The worldwide community of Christians.
13	Christopher Columbus	The son of a weaver and a seaman, he was an explorer and navigator who completed four voyages across the Atlantic Ocean, opening the way for the widespread European exploration and colonization of the Americas.
14	Navigation	To plan and follow a route.
15	Sponsorship	To give someone financial support.
16	Imperialism	Extending a country's power and influence through colonization, use of military force, or other means. To build an Empire.
17	Annexation	To incorporate land into another state's political boundaries.
18	Colony	A country or area under the full or partial political control of another country and occupied by settlers from that country.
19	Settlement	A place, typically one which has previously been uninhabited, where people establish a community.
20	Expedition	A journey undertaken by a group of people with a particular purpose, especially that of exploration.
21	Monopoly	Complete control – in this case over trade with another country.
22	Conquistador	An armed adventurer and explorer who went to the New World looking for gold, glory, and power.
23	Mutiny	The refusal to obey the orders of a person in authority e.g. the captain.

Spain reaches the ‘New World’ c1490-1512. 1.2 Columbus reaches the New World

1	Columbus’s voyage of exploration and discovery reached the ‘New World’ in 1492. Columbus explored the area looking for gold and founded a settlement at La Navidad, Haiti. Contact with the Caribbean natives was peaceful at first, but conflict later arose. Portugal and Spain both believed they had a claim to the New World – the dispute was resolved through the Treaty of Tordesillas, 1494.
---	---

Key Events

2	October 1492 – Columbus discovered San Salvador Island (Guanahani).
3	November 1492 – Rebellion! Martin Pinzon sailed away in the Pinta, without Columbus’ permission, to look for gold.
4	December 1492 – Santa Maria wrecked on a reef. Columbus used its timbers to build La Navidad.
5	March 1493 – Columbus sailed back to Europe on board the Nina, landing first in Portugal, then Spain.
6	1494 – Treaty of Tordesillas was agreed which divided the "New World" into land, resources, and people claimed by Spain and Portugal.

Key Concepts/Questions

Explain the importance of the Treaty of Tordesillas 1494.	<ul style="list-style-type: none"> The treaty gave Spain most of the New World. Ferdinand and Isabella were now in a position to claim Mexico, North America and most of South America, in addition to the Caribbean. This meant any gold and silver found in these territories would go only to Spain. Spain now had a major incentive to explore further and conquer much of the New World; as a way of obtaining gold, silver, tobacco and other resources.
Explain two consequences of Columbus’ return to Spain in March 1493.	<ul style="list-style-type: none"> Rewards - Isabella and Ferdinand encouraged Columbus to carry out another voyage. Columbus was given new titles, a new coat of arms and issued a pension for life. He was also given powers to govern lands in the New World. The role of the Pope - The Pope gave Isabella and Ferdinand his support for the new ‘Spanish Indies’. He was excited by Columbus’ discoveries and wanted Christianity to spread to these lands. Rivalry with Portugal - King John believed he had claim to the lands Columbus had discovered. This led to talks with Spain to determine who had rights over what lands as Spain were getting ready to send Columbus back to govern.
Explain the importance of the settlement at La Navidad (1492) for Spanish exploration of the New World.	<ul style="list-style-type: none"> 1st indication that Spaniards were in the New World to stay and therefore explore further. The fort gave the men somewhere to live. La Navidad protected sailors from attack. Important for all further Spanish exploration in the New World because it showed that while some native tribes were friendly, others were not and resented the entry of the Spanish into their world.

Key Words

7	San Salvador	An island that Columbus discovered in the Caribbean (known as Guanahani to the natives).
8	Natives	People who lived on the Island Columbus discovered – were referred to as ‘Indians’ as they originally thought they had landed in India.
9	La Navidad	Columbus built a fort for protection. Founded a settlement.
10	Martin Pinzon	Helped Columbus get ships and crew. BUT then rebelled – sailed away in the Pinta to look for gold, without asking Columbus for permission.
11	The Pinta	Columbus’ ship – Martin Pinzon sailed away on it.
12	The Santa Maria	Columbus’ flagship. Wreckage used to build La Navidad.
13	The Nina	Columbus’ smallest ship.
14	Ceiba trees	Trees that produced light, fluffy balls of kapok that could be spun into thread or woven into cloth.
15	Tainos	A tribe of native people living on the Caribbean islands, who were usually peaceful.
16	Caribs	A tribe of native people living on the Caribbean islands who were usually war-like, and possibly cannibals.
17	Pope	Head of the Catholic Church. Gave support to Ferdinand and Isabella.
18	Treaty of Tordesillas 1494	An agreement between Spain and Portugal. An imaginary line was drawn from the North to the South Pole. All lands to the West were for Spain. Lands to the East were for Portugal.
19	Cannibals	A person who eats the flesh of other human beings.
20	Samana	On way back to Spain, Columbus and his crew landed here (now the Dominican Republic). Men went ashore and found dried human heads and large canoes. An exchange went wrong and erupted into violence. They learnt that the natives could be hostile.



Spain reaches the ‘New World’ c1490-1512. 1.3 Spanish claims in the Caribbean

1	Contact with the Caribbean natives in 1492 was peaceful at first, but conflict later arose. Columbus made 3 further voyages. Spanish settlement, from 1493 onwards, had significant effects on the New World and the natives. Following Columbus’ discovery of the New World, the Spanish government needed to develop an imperial policy to enable it to control trade and religion in the newly discovered lands.
---	---

Key Events

2	1493 - Columbus’ second voyage. He became Governor of Haiti on this voyage.
3	1496 – Columbus left the settlement at Isabela – left his brothers Bartholomew and Diego Columbus in charge.
4	1499 - Francisco de Bobadilla replaces Columbus as Governor in Santo Domingo after reports of Columbus’ brutality reach Spain.
5	1500 - Columbus is sent back to Spain.
6	1512 – The Laws of Burgos – these established the encomienda system.

Key Concepts/Questions

Explain the importance of Santo Domingo for Spanish control of the New World.	<ul style="list-style-type: none"> 1496 – Columbus left the settlement at Isabela, placing his brothers, Bartholomew and Diego, in charge. Bartholomew abandoned Isabela and set up a new colony at Santo Domingo. 1498 – Columbus returned from Spain to find the settlement at Santo Domingo in uproar. Columbus calmed the revolt by offering the settlers some rights – land and native labourers to work on it. However, discontent continued, and Columbus responded by hanging several Spaniards and natives. Columbus appealed to Ferdinand and Isabella for help. They sent representative Bobadilla to replace Columbus as governor. Bobadilla upheld the settlers’ complaints and in 1500, Columbus was taken back to Spain to face trial.
Explain the importance of Roman Catholic missionaries for the development of the New World.	<ul style="list-style-type: none"> In 1503, Ferdinand and Isabella issued a series of rules about educating the Indians: <ul style="list-style-type: none"> -Indians were to live in towns and pay taxes. -Taught about Christianity and expected to live as Christians. -Taught how to read, write and dress. Reports reached Spain about the abuses of Indians. Dominicans were sent to stop the mistreatment, as the Spanish were shocked at the mistreatment of natives. The conversion of the region was viewed as crucial for colonization. The missions created by members of Catholic orders were often located on the outermost borders of the colonies. The missions facilitated the expansion of the Spanish empire through the religious conversion of the indigenous peoples occupying those areas. While the Spanish crown dominated the political, economic, and social realms of the Americas and people indigenous to the region, the Catholic Church dominated the religious and spiritual realm.
Explain two consequences of Spanish settlement in the New World.	<ul style="list-style-type: none"> Gold mines set up in Haiti – most of the work done by natives. Tainos and Carib societies destroyed in order to provide work for the Spanish. Columbus had captured natives to sell as slaves – Isabella not pleased and sent slaves back to Haiti. Encomienda system set up. Nicolas de Ovando set this up in 1502. Diseases like smallpox killed many natives. 1492 around 500,000 natives. By 1507 only 60,000.

Key Words

7	Isabela	Columbus formed a new settlement ‘Isabela’ – but it was unsuccessful because of the poor location and most Spanish settlers were more interested in gold.
8	Santo Domingo	Bartholomew Columbus built Santo Domingo after abandoning Isabela.
9	Las Cortes	The Spanish Parliament – mainly nobles and middle-class men.
10	Francisco de Bobadilla	Representative of the Spanish government, sent to replace Columbus in the New World.
11	Encomienda	A Spanish labour system that rewarded conquerors with the labour of particular groups of conquered non-Christian people. The laborers, in theory, were provided with benefits by the conquerors for whom they laboured, such as protection from other tribes.
12	Encomendero	The name given to a man in charge of an encomienda.
13	Smallpox	An infectious disease caused by a virus. Symptoms = rash that develops into blisters in the mouth and skin. Can cause blindness and death. Survivors have pock-marked skin.
14	Imperial policy	The policy developed by the Spanish government towards its growing empire in the New World.
15	Monopoly	Complete control – in this case, over trade with another country.
16	Franciscan	A member of a Roman Catholic religious community (monk) seeking to persuade people to become Christians by example – by living a life of poverty and humility, as Christ had done.
17	Dominican	A member of a Roman Catholic religious community (monk) seeking to persuade people to become Christians by teaching and preaching about Christ.
18	Casa de Contratación	House of Trade – to ensure Spain controlled all trade with the Caribbean.
19	Catholic Missionaries	Catholic monks and nuns – taught natives about Christianity.
20	Laws of Burgos December 1512	Laws maintained the encomienda system – which turned the natives into slaves. Allowed Spanish officials to punish natives who broke the laws.

The conquistadors, 1513-1528. 2.1 The start of an Empire

Key Words

1	Between 1513 and 1528, the Spanish conquistadors conquered Panama, Cuba, Mexico and Peru, and circumnavigated the globe. Between 1511-1514 Velázquez conquered Cuba, giving Spain complete control over the Caribbean. Magellan's voyage around the globe resulted in the opening up of the Pacific for trade and exploration and gave Spain control over the Philippines.
---	--

Key Events

Vasco Núñez de Balboa conquers Central America		Diego Velázquez de Cuéllar conquers Cuba	
2	1509 – Balboa rescued a Spanish expedition in trouble on mainland America.	7	1511 – Hatuey a native chief living in Haiti, flees to Cuba with 400 natives to escape Spanish cruelty. Velazquez and 300 conquistadors pursue them.
3	1510 – Founded the first permanent settlement on mainland America, Santa María la Antigua del Darién.	8	1512 – After strong native resistance, Hatuey is captured and burned alive.
4	1511 – Confirmed, by King Ferdinand, as captain general and governor of Darién.	9	1513 – Massacre at Caonao – 1000s of natives killed.
5	1513 – Expedition across Isthmus of Panama – found the Pacific and claimed it and surrounding lands for Spain.	10	1514 – Conquest of Cuba complete. City of Santiago de Cuba founded and becomes capital of Cuba.
6	1514 – Planned an expedition to sail south on the Pacific. Replaced as governor by Pedrarias Dávila. Arrested for treason, tried and beheaded.	11	1515 – City of Havana founded.

12	Conquistador	An armed adventurer and explorer who went to the New World looking for gold, glory and power.
13	Isthmus	A narrow strip of land, with sea on both sides.
14	Balboa	Spanish explorer and conquistador.
15	Darién	Abandoned Indian village – became a Spanish settlement called Santa María la Antigua del Darién.
16	Panama	Founded as a Spanish territory under Pedrarias Dávila.
17	Pedrarias	Royal Governor of Panama.
18	Gaspar de Espinosa	Pedrarias Dávila's second in command.
19	Velázquez	Spanish explorer and conquistador who conquered Cuba.
20	Hatuey	A native chief who had escaped from Haiti with 300 followers. Captured in 1512. Burned to death.
21	Massacre at Caonao, 1513	2000 native people were massacred by the Spanish, who ran amok in the village.
22	Ferdinand Magellan	Voyage opened up Pacific for trade and exploration.
23	Circumnavigate	To travel (usually sail) around the world.

Key Concepts/Questions

Explain 2 consequences of Balboa's exploration of the Isthmus of Panama.	<ul style="list-style-type: none"> Panama was founded as a Spanish territory under Pedrarias as Royal Governor and became an important colony. From Panama, Pedrarias explored the Pacific coast. Balboa is also credited as being the first European to see the Pacific Ocean from the New World. The route through Panama led to Magellan's circumnavigation of the World. Balboa helped establish the first stable European settlement on the mainland of South America. The colony of Darien in Panama helped Spain establish a vast colonial empire in the Americas.
Write a narrative account analysing the key events of the Spanish conquest of Cuba.	<ul style="list-style-type: none"> Velázquez sailed from Hispaniola to create a Spanish settlement on Cuba, beginning a war with the native Tainos people. The native population was defeated, which made it possible for the Spanish to begin colonising the island. The first Spanish settlement was founded in Havana, which gave the Spanish a base from which to colonise the rest of the island. As the Spanish spread across the island, they captured the native population and placed them on reservations, removing this threat to their authority. Tobacco plantations made Cuba an extremely successful colony for the Spanish, who started using it as their main base in the Caribbean.
Explain two consequences of the voyage of Magellan (1519-22)	<ul style="list-style-type: none"> It established the earth was round and that Columbus was correct in his belief that the East Indies could be reached by sailing westwards. It opened up the Pacific, leading to the exploration of the East Indies and the Philippines. Ships could also sail up the Pacific coast opening up the west coast of North America to exploration and trade. By the mid 1540s, places such as California were being visited by Spanish explorers. New trade route was found. It meant that Spain could claim the Spice Islands – as they had found a western route to it. It brought prestige to Spain – Magellan and his ships were the first to complete a voyage of global circumnavigation.

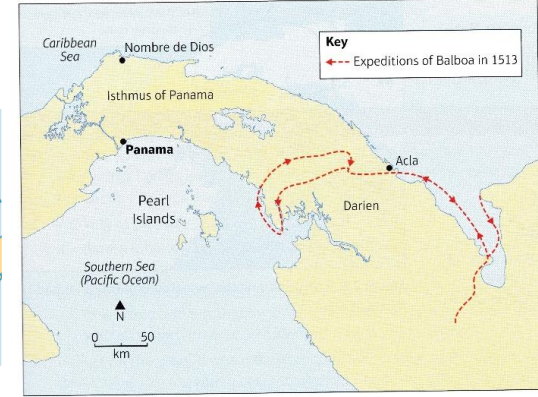


Figure 2.2 A map showing the expeditions of Balboa in 1513.

The conquistadors, 1513-1528. 2.2 The conquest of Mexico

1	Cortés' 1519 expedition to Mexico resulted in the collapse of the Aztec Empire and in Spanish control over Central America. The Spanish invasion had far-reaching effects for the Aztecs.
---	---

Key Events

2	1519 – Cortés' expedition to Mexico. They arrived March 1519 and were given La Malinche (Mayan woman who became an interpreter).
3	October 1519 – Massacre at Cholula.
4	November 1519 – The Spanish entered Tenochtitlan. Montezuma submitted to the Spanish and became a 'puppet ruler'.
5	June 1519 – Montezuma was killed and the Spanish were forced out of Tenochtitlan during the Night of Tears.
6	August 1521 – Tenochtitlan fell to the Spanish and the Aztecs surrendered.
7	1523 – Cortés was named as Governor of New Spain.
8	1528 – Cortés was removed as Governor and returns to Spain.



Key Words

9	Hernán Cortés	Spanish explorer and conquistador who conquered Mexico.
10	Flotilla	A small fleet of ships or boats.
11	Aztec Empire	Worshipped many Gods. Human sacrifices.
12	Tenochtitlan	Aztec capital – 300,000 people (pronounced Ten-och-ti-clan).
13	Malinche	Cortés' mistress and interpreter.
14	Montezuma	Ruled the Aztec Empire.
15	Cholula	Massacre of 3000 people.
16	Tlaxcalan	A native tribe who became allies with the Spanish.
17	'Puppet King'	A person who appears to be ruling, but in reality someone else is telling them what to do.
18	Night of Tears	Spaniards are massacred as they flee from Tenochtitlan and spend nearly a year re-grouping and planning.

Key Concepts/Questions

Explain two consequences of the Spanish conquest of the Aztecs.	<ul style="list-style-type: none">One consequence of the conquest of the Aztecs was the human cost. Evidence to support this is that when Cortes arrived in Mexico there were about 25 million Aztecs in the empire. However by 1555 there were only about 6.2 million Aztecs left. Over 2/3rds of the population had died from war, disease and famines. This meant that the Aztec society and culture was destroyed. Therefore, Spanish conquest of the Aztecs had the consequence of removing the Aztec culture and leaving a vacuum for the Spanish to fill.Another consequence of the Spanish conquest of the Aztecs was the spreading of Christianity. Evidence to support this is Franciscan and Dominican Friars went to Mexico and attempted to convert the Aztecs. They used the hierarchy of Aztec society to spread Christianity. This meant that the Aztec's polytheistic religion was replaced by the monotheism of Christianity and was absorbed into the structure of Aztec society. Therefore the conquest of the Aztecs led to the spreading of Christianity and the death of the polytheism of the Aztecs.
Write a narrative account analysing the key events of Cortés' expedition to Mexico, 1519.	<ul style="list-style-type: none">February 1519 – Sailed from Cuba, despite Velázquez's attempts to stop him.March – Landed on the Yucatan Peninsula and claimed the land for Spain.April – Fought Tabascan natives and took control of city of Pontonchon. They made peace with the Tabascans and became allies with them. Cortés was given Mayan woman, La Malinche who acts as an interpreter.July – Re-established a Spanish settlement at Vera Cruz. Sunk his ships.August – Met by cheering natives at Cempoala and became allies with them.September – Fought Tlaxcalans – enemies of the Aztecs –made peace and allies with them.

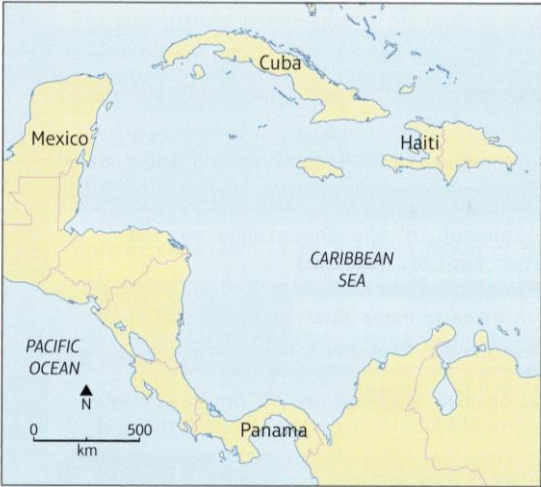
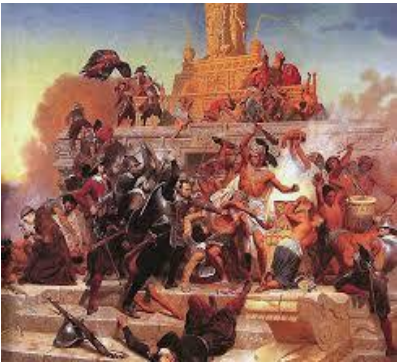


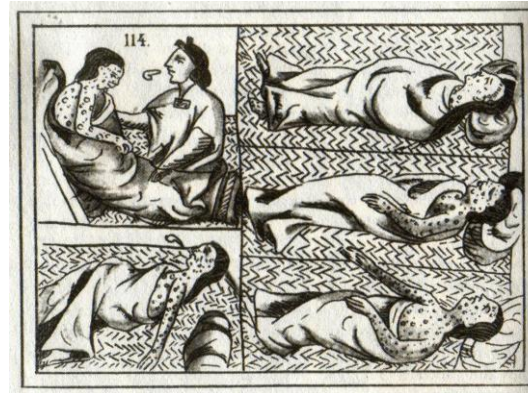
Figure 2.13 Outline map of the Caribbean and Panama.

The conquistadors, 1513-1528. 2.3 The impact of Spain in the New World

1	The capture of Tenochtitlan marked the end of the Aztec Empire, enabling Cortés, as Governor and Captain-General, to turn Central America into New Spain. The Spanish invasion had far reaching effects for the Aztecs.
---	---

Key Events

2	1519 – Cortés first set foot in Mexico. It was home to 25 million natives.
3	1523 – Cortés was given title of Governor and Captain-General of New Spain.
4	1528 – Cortés was removed as Governor and returned to Spain.
5	1555 – There were only 6.2 million natives left in Mexico.



Key Words

6	New Spain	The name given by Spain to the Aztec Empire conquered by Cortés, centred on Mexico.
7	Council of the Indies	A council of Spanish officials originally set up by Ferdinand and Isabella to study the problems of colonisation in the Caribbean. It was based in Spain. By the time of Charles I, it exercised supreme power over the administration of Spanish lands in the New World.
8	Encomienda	A Spanish labour system that rewarded conquerors with the labour of particular groups of conquered non-Christian people. The laborers, in theory, were provided with benefits by the conquerors for whom they laboured, such as protection from other tribes.
9	Monotheistic	The belief that there is only one god.
10	Polytheistic	The belief in or worship of more than one god.
11	Tribute	Payment made regularly to ensure protection/show dependence on a ruler e.g. natives paid tribute to encomenderos such as gold.
12	Tenochtitlan	The capital of the Aztec empire: founded in 1325; destroyed by the Spanish in 1521; now the site of Mexico City.
13	Charles I/V	King of Spain from 1516-1556/Holy Roman Emperor from 1519 (grandchild of Ferdinand and Isabella).
14	Friars	A member of a religious orders of men. Franciscan/Dominican friars worked with the Aztecs to convert them to Christianity.
15	Hierarchy	Order of importance.

Key Concepts/Questions

Explain two consequences of the Spanish conquest on the Aztecs.	<ul style="list-style-type: none"> One consequence of the conquest of the Aztecs was the human cost. When Cortés arrived in Mexico there were about 25 million Aztecs in the empire. By 1555 there were only about 6.2 million Aztecs left. Over 2/3 of the population had died from war, disease and famines. This meant that the Aztec society and culture was destroyed. Therefore, Spanish conquest of the Aztecs had the consequence of removing the Aztec culture and leaving a vacuum for the Spanish to fill. Another consequence of the Spanish conquest of the Aztecs was the spreading of Christianity. Franciscan and Dominican Friars went to Mexico and attempted to convert the Aztecs. They used the hierarchy of Aztec society to spread Christianity. This meant that the Aztec's polytheistic religion was replaced by the monotheism of Christianity and was absorbed into the structure of Aztec society. Therefore the conquest of the Aztecs led to the spreading of Christianity and the death of the polytheism of the Aztecs.
Explain the importance of Cortés' actions as Governor and Captain-General of New Spain for Spanish control of Mexico.	<ul style="list-style-type: none"> Cortés claimed the land for Spain and founded new cities, which encouraged more Spaniards to move to and settle in New Spain. Cortés built Mexico City, which became an important seat of political power from which Spain could control the rest of the country. Cortés introduced Catholicism and requested large numbers of friars from Spain, who converted a lot of the native population and spread the Spanish language. This decreased resistance to Spanish rule. Cortés encouraged agriculture and thousands of plants were cultivated across the country, increasing New Spain's independence as a colony and encouraging settlement of the whole country.
Explain the importance of the encomienda system in the establishment of a Spanish empire.	<ul style="list-style-type: none"> The Encomienda system was important for the establishment of a Spanish empire because it enabled the Spanish to control the land. Evidence to support this is that the Spanish Encomenderos controlled all of the land in the New World but obeyed the laws of Spain and produced what the Spanish wanted. For example, cloth, silver gold, maize and avocado pears. This shows that the encomienda system was important for the establishment of a Spanish empire because it meant that the New World followed the laws and needs of Spain and supplied Spain with materials that it wanted. Therefore the Encomienda system enabled the Spanish to control the land in the New world and establish an empire. The Encomienda system was important for the creation of a Spanish empire because they ensured that the Spanish would want to colonise the New World. Evidence to support this is that the Encomienderos were like 'little dictators' who could do as they like with their Encomiendas and the peoples who lived on them. The land was passed from father to son like a kingdom. This shows that the encomienda system was important for the creation of a Spanish empire because it provided an incentive for Spanish people to move to and settle in the New World. Therefore the encomienda system resulted in the establishment of a Spanish empire.

The Spanish Empire, 1528-1555. 3.1 Pizarro and the conquest of the Incas



1	Francisco Pizarro, a conquistador and mayor of Panama city, launched a series of expeditions southwards to find Peru, which eventually brought him into contact with the Incas. Pizarro's third expedition arrived in Peru in 1532 to find an empire weakened by smallpox. In 1533, Pizarro had Atahualpa executed and installed Manco, his half-brother, on the throne, leading to the Inca revolt and the siege of Cuzco, 1536-37.
---	--

Key Events

2	1524 – Pizarro's first expedition.
3	1526-27 – Pizarro's second expedition.
4	1530-32 – Pizarro's third expedition.
5	16th November 1532 – Battle of Cajamarca . The ambush and seizure of the Inca ruler Atahualpa by a small Spanish force led by Francisco Pizarro. The Spanish killed thousands of Atahualpa's commanders, and unarmed attendants in the great plaza of Cajamarca. The capture of Atahualpa marked the start of the conquest of the Inca.
6	1533 – The murder of Atahualpa.
7	1536 – Revolt of the Incas.
8	1536-37 – The Siege of Cuzco.



Key Words

9	Francisco Pizarro	A conquistador, best known for his expeditions that led to the Spanish conquest of Peru and defeat of the Inca.
10	Inca Empire	A civilization which flourished between 1400-1532 CE along the Andes Mountains in South America, in modern day Peru, with the capital city of Cuzco.
11	Inca	'Ruler' or 'emperor'. Huayna Capac was his people's Inca. Inca also refers to people living in the Inca Empire.
12	Huaya Capac	A powerful Inca Emperor.
13	Atahualpa and Huascar	Sons of Huaya Capac.
14	Manco	The half brother of Atahualpa and Huascar – Pizarro installed him as Inca.
15	Civil War	A war between organised groups within the same country.
16	Smallpox	An infectious disease caused by a virus. Symptoms: a rash that develops into blisters in the mouth and skin. It can cause blindness and death. Survivors have pock-marked skin. This disease reached Peru in 1527 thanks to Spanish expeditions.
17	Encomienda	A Spanish labour system that rewarded conquerors with the labour of particular groups of conquered non-Christian people. The laborers, in theory, were provided with benefits by the conquerors for whom they laboured, such as protection from other tribes.
18	Viceroy	A ruler exercising authority in a colony on behalf of a monarch. They were appointed to govern Spanish territories.
19	Mangrove swamp	Mangroves are small trees that grow along many tropical coastlines. They form dense barriers for people trying to land.
20	La Capitulación de Toledo	July 1529 – Authorized Pizarro to conquer Peru.

Key Concepts/Questions

Explain two consequences of the Siege of Cuzco (1536-37) for the Spanish conquest of Peru.	<ul style="list-style-type: none">Spanish atrocities throughout the 10 months further lowered morale among the Inca troops, which led to their eventual surrender.Manco Inca withdrew from Cuzco and launched a new Inca state elsewhere, which meant that the Spanish were able to continue their conquest of Peru without any significant threat.The Spanish destroyed the Inca settlement at Cuzco and built a Spanish settlement over the top of it, which provided them with a base to help them colonize the rest of Peru.<ul style="list-style-type: none">The conquistadors took gold and silver, shipping some back to Spain.Disease devastated the Inca population reducing it by 93% by 1591.
Write a narrative account analysing the Spanish conquest of Peru in the years 1528-48.	<ul style="list-style-type: none">In 1528 Pizarro secured a licence from the Spanish Crown that resulted in him being named Governor of Peru.In 1530 Pizarro arrived in Peru and took advantage of the Inca Civil War, which weakened opposition to Spain's forces.Pizarro was able to launch a successful attack against Atahualpa, who was executed in 1533.The capital, Cuzco, was attacked in 1533 and this led to the setting up of a new capital at Lima.In 1536 the Incas revolted against Spanish rule, leading to a ten-month siege of Cuzco which ultimately resulted in a victory for Spain.Despite some resistance in 1548, Pedro de la Gasca was able to establish Spanish authority over Peru.
Explain the importance of Pizarro's expedition of 1526-27 for the growth of the Spanish Empire.	<ul style="list-style-type: none">Pizarro's expedition of 1526-27 brought evidence to Spain of Inca wealth, including llamas, silver and gold.Pizarro's discoveries in his expedition meant that he wanted to launch a further expedition to Peru. However, he was refused permission to do so by the governor of Panama, so he returned to Spain in 1528 to petition the king to approve an expedition to conquer Peru. This resulted in a licence called La Capitulación de Toledo in July 1529, giving Pizarro permission to launch an expedition aimed at adding Peru to the Spanish Empire.

The Spanish Empire, 1528-1555. 3.2 Expansion of the Spanish Empire



Key Words

9	Acquiring	Gold and silver objects were acquired either as gifts through barter or by stealing. These were melted down and formed into ingots (block of gold or silver).
10	Prospecting	The process of searching for gold and silver. The Spanish began prospecting for gold. Many employed natives to wash out surface gold from streams and rivers.
11	Mining	Digging for gold and silver. In the 1530s the Spanish took over existing gold mines from the natives. In the 1540s , extensive deposits were found and silver mines opened.
12	Smelt	The process of heating the rock until the mineral turns to liquid.
13	Ore	A naturally occurring solid material from which a metal or valuable mineral can be extracted e.g. gold or silver.
14	Viceroy	A ruler exercising authority in a colony on behalf of a monarch. They were appointed to govern Spanish territories.
15	Cabildos	The town councils in the New World that managed daily life following orders from the Viceroy.
16	Audiencia courts	Courts that managed justice in the New World.
27	Bartolomé de las Casas	A priest who travelled to the New World in 1512. He wrote about the atrocities faced by the natives, and he supported New Laws.
18	La Paz 1548	A town that was founded to commemorate the ending of Pizarro's revolt and to demonstrate that Spain was the highest authority – not the conquistadors.

1	The discovery of silver led to the development of mining towns with increased use of slave labour and brought significant wealth to the Spanish Empire. The New World was conquered for Spain by the conquistadors, but the Spanish government had to find a way of governing this newly won territory effectively. The city of La Paz, founded in 1548, became the administrative centre of the Spanish Empire.
---	--

Key Events

2	1524 – The Council of the Indies was formed. This was responsible for the governing of the Spanish Empire, and controlled the colonies and territories.
3	1527 – Bartolomé de las Casas entered a monastery and wrote 'A Short Account of the Destruction of the Indies.'
4	1542 – The New Laws were created which intended to improve the lives of the natives.
5	1545 – Silver was found in Potosi Mountain (Bolivia). It was mined by Spanish.
6	1546 – Silver was found in Zacatecas mountains (Mexico). By 1550 there were 34 mines mining for silver.
7	1548 – Silver was found in Guanajuato region (Mexico). It was mined by Spanish.
8	1548 – La Paz was founded. It became the centre of Spanish authority in the New World..

Key Concepts/Questions

Explain two consequences of the discovery of silver in the Spanish Empire for Spain.	<ul style="list-style-type: none"> The huge quantities of silver being shipped back encouraged more Spaniards to move to the New World to seek their fortunes. The job and wealth opportunities led to vast mining camps being formed in the area around Potosi, increasing the number of Spaniards settled in the New World. Spaniards moved to the region from Spain due to an increase in the number of skilled jobs available, for example, those connected to the mining industry. Supply routes and new towns, most notably La Paz, became established on the route connecting Potosi with Lima, entrenching Spanish control.
Write a narrative account analysing the conquistador revolt in Peru, 1544.	<ul style="list-style-type: none"> The New Laws were unpopular among the encomenderos as they reduced their power and took away the right to pass their land to heirs. This led to a serious revolt in Peru led by Gonzalo Pizarro, brother of Francisco Pizarro. The rebellion was initially successful, and Gonzalo was able to rule the Inca territory for two years. However, the arrival of a Spanish army resulted in his execution and the restoration of Spanish authority. The revolt posed a problem about how Spain could govern its territories and control the rebellious encomenderos and conquistadors. This led to the founding of La Paz in 1548.
Explain the importance of viceroys for governing Spain and its Empire in the New World.	<ul style="list-style-type: none"> Viceroyalties in the New World were powerful as they governed on behalf of the Spanish government. They were the official representative of the Spanish crown. The laws they passed affected both Spanish and native people.

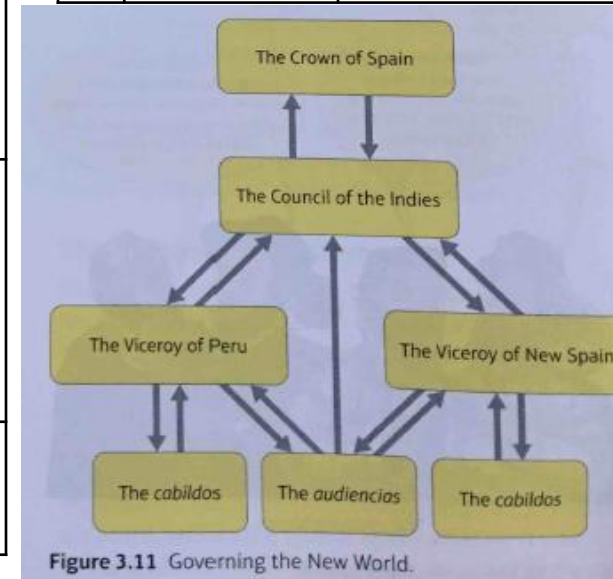


Figure 3.11 Governing the New World.

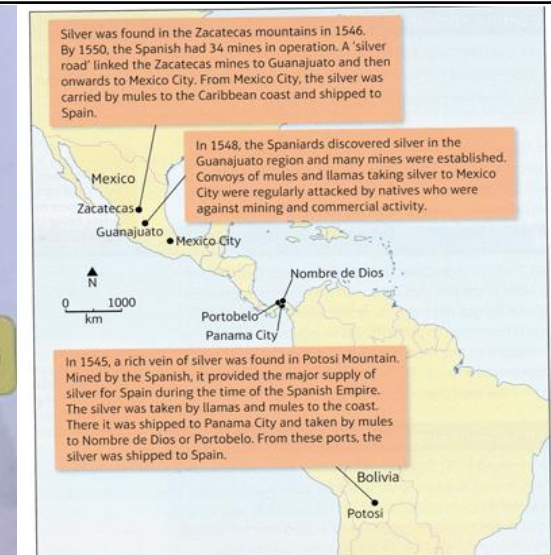


Figure 3.9 Silver mines in the New World.

The Spanish Empire, 1528-1555. 3.3 The impact of the New World on Spain

1	Silver, and some gold, was used to make coins and played an important role in enabling Spain to trade with the wider world. Spain’s monopoly of trade with the New World led to the development of Seville as a port, and growing labour shortages led to an expansion of the slave trade. A system of government, based in Castile, Spain, was developed to govern the New World. The role of the Casa de Contratación and the Council of the Indies was to regulate trade.
---	--



Key Events

2	1520s – Bullion (treasure) arrived in Spain.
3	1522 – The Spanish government sent fleets of ships to escort returning ships into port.
4	1542 – Full scale war with France. Attacks on Spanish treasure fleets intensified.
5	1542-46 – Spain adapted ships and developed systems to protect their fleets.
6	1543 – Consulado de Mercaderes (merchants’ guild) was founded.
7	By 1555 – Seville had the monopoly on trade with the New World.



Key Words

8	Monopoly	Complete control – in this case, over trade with another country.
9	Bullion	A word that refers to all kinds of treasure – but mainly gold and silver.
10	Pieces of eight	Silver coins.
11	Inflation	A situation where prices rise more quickly than wages.
12	Privateers	Private ships that were licensed by rival governments (e.g England, France, Portugal) to attack, sink or capture enemy ships.
13	Broadside	A ship firing broadside fired its canons from the sides of the ship.
14	Galleons	Spanish ships.
15	‘Tierra Firma’	A convoy system to protect ships. This route sailed to South America.
16	‘New Spain’	A convoy system to protect ships. This route sailed to Mexico.
17	Seville	A port in Spain. It became one of wealthiest cities in Europe by 1550.
18	Casa de Contratación	House of Trade – A system of government, based in Castile, Spain, was developed to govern the New World.
19	Consulado de Mercaderes	A merchant’s guild (group) that worked with the Casa de Contratación to control trade with the New World.
20	Council of the Indies	Controlled all matters involving New World. They sent orders to the Viceroy in the new World.
21	Encomienda	A Spanish labour system that rewarded conquerors with the labour of particular groups of conquered non-Christian people. The laborers, in theory, were provided with benefits by the conquerors for whom they laboured, such as protection from other tribes.

Key Concepts/Questions

Explain two consequences of the encomienda system in the New World.	<ul style="list-style-type: none">• The encomienda system brought the land under the control of Spanish families, who imposed Spanish laws and systems on the New World. This increased Spanish control.• Encomiendas were hereditary (passed from father to son). As a result, families moved to the New World and settled permanently, creating a permanent society.• Native labour formed part of the encomienda system. As a result, millions of natives became enslaved.• The most lucrative encomiendas were reserved for the biggest investors, which meant that more people were encouraged to join and invest in conquest expeditions, leading to further conquest.
Write a narrative account analysing the effect of silver on Spain’s economy.	<ul style="list-style-type: none">• 75% of the treasure that arrived in Spain went to Spanish merchants and conquistadors. The rest went to the Spanish treasury.• It was used to make ‘pieces of eight’ (pesos), which allowed extensive trade with other European countries.• Demand for goods increased, which enabled foreign traders to put up their prices.• This led to inflation as Spanish merchants passed on price rises to ordinary people, many of whom demanded higher wages.• The silver was vital to support Spain’s European Empire, equipping soldiers to make war against France (1542-46) and providing ships to guard the treasure fleets.• However, as Spain’s economy was based on the looted silver, people did not have to make money in other ways, with the result that Spanish industries developed more slowly than in other European countries.
Explain the importance of the New Laws (1542) for governing the New World.	<ul style="list-style-type: none">• The laws were intended to improve the rights of the native people, but encomenderos opposed them and the Viceroy of Peru refused to implement them.• This led to revolts in Peru: the most serious (1544) had to be put down by the Spanish government and led to a temporary halt in the Spanish conquest of the New World in 1550.• Though forced to suspend the New Laws, Charles I insisted that encomiendas be passed back to the Crown on the death of an encomendero, with Royal Agents in charge. The agents continued to exploit the native people, against the wishes of Las Casas.

Henry VIII & His Ministers Knowledge Organiser 1. Chapter 1 HVIII & Wolsey, 1509-29. 1.1 HVIII, Renaissance Prince 1.2 The rise of Wolsey & his policies

1	Henry VIII’s accession to the throne was greeted with enthusiasm. Some described him as a ‘Renaissance Prince.’ For 15 years Wolsey dominated Henry’s government. The nobility didn’t like Wolsey. He made domestic and financial reforms. His position became weaker as he abused his power.
---	---

Key Events

2	1509 – Henry VIII becomes king
3	1515 – Wolsey becomes Chief Minister, Cardinal & Lord Chancellor
4	1518 – Wolsey made Papal Legate
5	1525 – Amicable Grant
6	1526 – Eltham Ordinances

Key Questions

7. Did Henry have the right character & outlook for ruling England. List his strengths & weaknesses.	<p><u>Strengths</u>: Deeply religious. Confident. Alpha male!! Popular. Talented – sports, jousting, musical.</p> <p><u>Weaknesses</u>: Stubborn. Some viewed him as harsh. Would not compromised. Too focused on war. Did he delegate too much to his advisors? Diplomatic?</p>
8. How and Why did Wolsey rise to power?	Was charming and gifted – gained his degree aged 15. Became his college’s treasurer in Oxford and built up skills & undertook huge rebuilding project– showed ambition and arrogance.
9. What were Wolsey’s main reforms in England? Were they successful?	<p><u>Justice</u>: Wolsey used the Star Chamber, a royal court set up by Henry VII. Many people thought he wanted revenge on the upper classes, who had often treated him badly because of his low birth status. He also punished those he had a grudge against.</p> <p><u>The Amicable Grant 1525</u>: Henry VIII wanted to invade France but had no money. Wolsey passed a tax without asking parliament. People had to pay 1/6 of their income – they had 10 weeks to find the money. In 1525 men in Suffolk fought back. The collection was stopped. Wolsey did not attempt to pass taxes again.</p> <p><u>Enclosure</u>: Enclosure meant fencing off land and it caused poverty in rural areas. In 1517 he set up an enquiry into enclosure. He brought 260 court cases against landowners. He became very unpopular amongst wealthy landowners of England. In 1523 angry landowners stopped him from investigating further. Wolsey achieved very little and Enclosure continued to take place.</p> <p><u>The Eltham Ordinances</u>: The King’s palaces were dirty, people were badly behaved and money was wasted. So Wolsey drew up a list of rules known as the Eltham Ordinances. These included: sacking servants who were sick or not needed, meals were at set times, dogs were banned.</p>

Key Words

10.	Jousting	Sporting contest on horseback – try to knock to ground.
11.	Accession	Becoming king or queen.
12.	Betrothed	Formal engagement to marry.
13.	Royal Progress	Royal tour of the kingdom. To be admired & to meet people.
14.	Renaissance	Revival of European art and culture.
15.	Courtly love	Elite entertainment – noble gentlemen attempted to win the hearts of women through songs, poetry and quests. Women pretended they were uninterested.
16.	Lord Chancellor	Most important post in Henry’s government, advised king on all matters
17.	Archbishop of York	second most important religious appointment in England, after the Archbishop of Canterbury.
18.	Cardinal	Senior leader in the RC Church.
19	Pope	Head of the RC Church.
20.	Moveable goods	Possessions that could be moved from one location to another e.g. furniture, livestock.
21.	Royal household	Membership of nobles and servants ensured king was provided with food, clothing and spiritual guidance.
22.	Privy Chamber	Small group of King’s closest noble friends. Looked after his personal needs. Huge influence.
23.	Royal Council	Group of advisers chosen by the king and selected mainly from nobility and church.
24.	Court	Body of people made up of the monarch’s key servants, advisers and friends. Courtiers.
25.	Parliament	Made up of the House of Lords and the House of Commons. Passed laws & taxation.
26.	Justices of the Peace	Kept law and order.
27.	Enclosure	Fencing off land.
28.	Subsidy	A tax.
29.	Amicable Grant	A new direct tax in 1525. Caused resentment.
30.	Eltham Ordinance	Reforms of the domestic and political aspects of household.

Henry VIII & His Ministers Knowledge Organiser 2. Chapter 1 HVIII & Wolsey, 1509-29. 1.3 Wolsey's Foreign Policy. 1.4 Wolsey, Catherine, the succession and annulment.

Key Words

1	Wolsey managed to increase English influence in Europe. Field of the Cloth of Gold, Treaties of London and Bruges were successes. BUT England struggled to compete with France and the HRE. Wolsey failed to secure an annulment and this led to his downfall.
---	--

Key Events

2	1518 - Treaty of London
3	1520 – Field of Cloth of Gold – successful but expensive.
4	1522 – 25 – 2 nd French war – Failure.
5	1525 – 29 – Support for France. Alliance. War against Charles V. Divorce = focus.
6	1530 – Wolsey's fall from power & died.

Key Questions

7. 'Wolsey's foreign policy failed to turn Henry into a leading player in Europe.' Argue FOR & AGAINST.	<p><u>FOR</u>: There had been big failures. War against France 1522-25. Treaty of Westminster 1527. War against Charles V 1528. Treaty of Cambrai 1529. War was very expensive.</p> <p><u>AGAINST</u>: There had been successes. Treaty of London, Field of Cloth of Gold, Treaty of Bruges.</p>
8. Which reason do you think was the most important in encouraging Henry to seek an annulment – his need for a son, moral concerns over his marriage or his love for Anne Boleyn?	<p>-He believed the marriage to be <u>against God's will</u> (moral concerns)</p> <p>- He wanted a new wife and <u>a male heir</u></p> <p>- He had fallen <u>in love</u> with Anne Boleyn</p>
9. 'Wolsey's failure to gain an annulment for Henry was the main reason why he fell from power in 1529.' How far do you agree?	<p>AGREE: Failed to weaken the grip Charles V had over Pope. Wolsey as Cardinal was expected to have sway over the Pope but was unable to persuade him. Henry was disappointed with Wolsey's failure to gain divorce. The rise of the Boleyn faction meant pressure on Henry grew.</p> <p>DISAGREE: Wolsey was unable to control nobles in court. Weakened his power base. He had few allies. Foreign policy failures weakened him. Wolsey failed to acknowledge and deal with the problems he faced.</p>

29

10.	Habsburg	Royal Catholic family that ruled Spain during Henry VIII's reign.
11.	Holy Roman Empire	Group of different states and kingdoms covering a large area of central Europe.
12.	Trade embargo	Hostile act of cutting trade links with another country.
13.	Consummated	Confirming a marriage by having sex.
14.	Regent	A person who governs the kingdom in the king's absence.
15.	Annulment	A legal term declaring that a marriage was never valid, and therefore never existed. Only granted by pope.
16.	Praemunire	Treason by a member of the clergy as a result of working in the interests
17.	Battle of the Spurs	1515 Henry defeated French army. Captured Therouanne & Tournai.
18.	Treaty of London 1518	Aimed to end warfare with England, France & Spain. Non aggressive foreign policy.
19	Field of Cloth of Gold 1520	Henry met Francis I of France. Wanted to show off. Great success.
20.	Treaty of More 1525	Once Charles had won at Battle of Pavia he didn't repay Henry for his help. England sided with France and signed Treaty of More.
21.	Treaty of Westminster 1527	Wolsey helped organize League of Cognac. Alliance w
22.	Treaty of Cambrai 1529	Francis made peace with Charles V. Wolsey informed at last minute. England no longer treated as an ally.
23.	Succession	Next in line
24.	Catherine of Aragon	Henry's first wife.
25.	Anne Boleyn	Henry's second wife.
26.	Cardinal Campeggio	Involved in the divorce case.
27.	John Fisher	Supported Catherine. He opposed the annulment.
28.	Thomas More	Advisor to the king. Opposed the annulment.
29.	Charles V	HRE
30.	Leviticus	Argument used by Henry to gain an annulment. Bible extract.

Henry VIII & His Ministers Knowledge Organiser 3. Chapter 2 HVIII & Cromwell, 1529-40.

2.1 Cromwell's rise to power, 1529-34. 2.2 Cromwell and the king's marriages.

Key Words

1	Henry wanted huge religious and government reforms. Cromwell helped to gain Henry his divorce from Catherine of Aragon and worked as his chief minister from 1533-40. Henry married Anne Boleyn in 1533. In May 1536, she was found guilty of treason and adultery and was beheaded. By 1536, Henry was in love with Jane Seymour. Cromwell played a key role in bringing down Anne Boleyn.
---	---

Key Events

2	1529 – Wolsey's fall from power. Cromwell MP for Taunton.
3	1533 – Cromwell = Henry's chief minister.
4	1535 – Cromwell Vicegerent in Spirituals / Vicar general – Church reform.
5	1536 – Cromwell = Lord of the Privy Seal.
6	1536 – Catherine of Aragon died. Anne Boleyn executed. Married Jane Seymour. Dissolution of monasteries – 1536-40.

Key Questions

7. Why did Henry want to divorce Catherine of Aragon?	<ul style="list-style-type: none"> Validity of the marriage in the eyes of God. Loved Anne Boleyn. Wanted a son / male heir. Marriage was curded.
8. Explain why Cromwell rose to become Henry's chief minister.	<ul style="list-style-type: none"> Gained complete trust of Henry VIII. Secured divorce from Catherine of Aragon. Ambitious. Experience with Wolsey. Focused. Cromwell's solution was radical and involved transferring the powers held in Rome to the king. Parliament was used – Act in Restraint of appeals. Power with church and Crown – not Rome.
9. How much responsibility should be attached to Cromwell for the fall of Anne Boleyn?	<ul style="list-style-type: none"> Anne Boleyn fell from power as she failed to provide Henry with a son. She was suspected of adultery. By 1536, Henry was in love with Jane Seymour. Cromwell played a key role in bringing down Anne Boleyn by gathering evidence against her.

10.	Adultery	When a married person has sex with someone else.
11.	Papal bull	Document issued by the Pope – view / instructions.
12.	Dissolution of the monasteries	Closure of monasteries by Henry VIII 1536-40.
13.	Thomas Cromwell	Henry's chief minister.
14.	Adviser	Gave advice.
15.	MP	Member of Parliament.
16.	Royal Council	Henry's circle of trusted advisors.
17.	Thomas More	A councillor to Henry VIII, and Lord High Chancellor of England.
18.	Anne Boleyn	Crowned queen June 1533.
19	Act in Restraint of Appeals 1533	Became basis of granting Henry's divorce.
20.	Chancellor of the Exchequer 1533	Leading role in Chancery (financial).
21.	Master of the Rolls 1530	Senior position in legal system.
22.	Break with Rome	Henry VII head of the Church & State
23.	Jane Seymour	Married Henry 30 May 1536.
24.	Treason	Plotting against king / Queen.
25.	Execution	Killed.
26.	Protestant	A religion – separate from Catholic church.
27.	Succession Act	Gave king power to appoint any successor at any time.
28.	Edward VI	Jane Seymour's son.
29.	Pilgrimage of Grace	Rebellion in 1536.
30	Henry Fitzroy	Henry's illegitimate son.

Henry VIII & His Ministers Knowledge Organiser 4. Chapter 2 HVIII & Cromwell, 1529-40.

2.3 Cromwell and government, 1534-40. 2.4 The fall of Cromwell.

Key Words

1	Cromwell wanted to improve the way Henry's kingdom was governed. He developed a smaller Privy Council, Court of Augmentations and Court of First Fruit and Tenth. Act of Union 1536. Role of Parliament increased. Henry married Anne of Cleves but only lasted 6 months. Henry fell in love with Catherine Howard. Cromwell fell from power.
----------	---

Key Events

2	1536 – Act of Union. Court of Augmentations.
3	March 1539 – Marriage negotiations with Cleves family.
4	January 1540 – Henry VIII married Anne of Cleves
5	1540 – Court of First Fruit & Tenth
6	July 1540 – Cromwell executed. Henry marries Catherine Howard.

Key Questions

7. 'The main changes to Henry VIII's system of government and finance in the years 1534-40 was a greater role for Parliament.' How far do you agree?	<ul style="list-style-type: none"> Royal Council Financial system – New government departments. E.g. Court of Augmentation and Court of First Fruit and Tenth. Parliament changes - Statute Law – Henry's divorce. Ensured MPs were well managed. Pressured people to get them to vote the way he wanted. Government departments.
8. A need for a son, or the need to protect his kingdom. Which reason do you think most influenced Henry in his decision to marry Anne of Cleves & why?	<ul style="list-style-type: none"> Cromwell encouraged Henry to remarry. England needed allies – More religious reform without opposition from a Catholic Queen. Henry fancied her based on her portrait.
9. 'Thomas Cromwell fell from power because of the actions of the Duke of Norfolk.' How far do you agree?	<p><u>MARRIAGE</u>: Whilst Cromwell survived the fall of Anne Boleyn, the fiasco of the Cleves marriage weakened Cromwell's relationship with Henry at a crucial time.</p> <p><u>RELIGION</u>: Cromwell's use of his power as Vice-Regent by producing the Ten Articles and Bishops' Book went much further than making Henry Head of the Church. This clashed with Henry's conservative outlook and the Six Articles in 1539 reversed many of these changes.</p> <p><u>ENEMIES</u>: With his position weakening, rivals led by Gardiner and Howard gathered information against him and presented it to the King.</p>

10.	Bureaucracy	Way of managing a country.
11.	Statute Law	Act of Parliament agreed by both houses & signed by the monarch.
12.	Act of Annates	Banned the payment of a tax to Rome from the salaries of clergy.
13.	Heresy	Religious view against official opinion.
14.	Act of Attainder	Act of Parliament that declares a person guilty of treason.
15.	Cromwell	Key minister to Henry VIII.
16.	Royal Council	important advisory body to the king – day to day running.
17.	Privy Council	20 permanent advisers - lawyers / professionals.
18.	Council of the North	Royal body first set up in 1472 to improve how the north of England was governed. Was strengthened. Maintained law and order.
19	Act of Union	1536 – Wales formally a part of England.
20.	Court of Augmentations	1536 – dealt with property and income gained from dissolution of monasteries.
21.	Court of First Fruit & Tenth	1540 – collected tax from clergy that had previously been sent to Rome.
22.	'King in Parliament'	King with approval of House of Commons & House of Lords.
23.	Anne of Cleves	Henry's 4 th wife.
24.	Cleves	Small kingdom in north of HRE.
25.	Duke of Norfolk	Thomas Howard – competed with Cromwell for influence over Henry VIII.
26.	Catherine Howard	Lady in waiting to Anne of Cleves. Young and flirty!
27.	Consummated	Complete a marriage by having sex.
28.	Excommunicated	Banished / sent away / removed.
29.	Allies	Friends.
30.	Protestantism	The faith, practice, and Church order of the Protestant Churches.

Henry VIII & His Ministers Knowledge Organiser 5. Chapter 3 The Reformation & its impact, 1529-40.

3.1 The Break with Rome. 3.2 Opposition to, and impact of the Reformation, 1534-40.

Key Words

1	Henry started his reign as a strong Catholic. But broke away to secure his divorce from Catherine of Aragon. 1534 – Act of Succession & Act of Supremacy. Oaths & treason law. Opposition was limited. 1534-40 further Protestant direction – English Bible.
---	--

Key Events

2	1533 – Elizabeth Barton arrested and interrogated
3	1534 – Act of Succession, Supremacy, Treason Act. Barton executed.
4	1536 – 1 st set of Royal Injunctions issued to clergy.
5	1538 – 2 nd set of Royal Injunctions issued by Cromwell.
6	1539 – Six Articles (Catholic Doctrine)

Key Questions

7. Which do you think was more significant in increasing Henry's power: The Act of Supremacy or Act of Succession? Why?	<ul style="list-style-type: none"> • Act of Supremacy – England no longer under Pope's control. Henry head of English Church. Henry now had powers previously held by the Pope. BUT its practical significance must not be overstated. In practice, the pope had played a very small part in the affairs of the English church. • Act of Succession - Only children of Henry's second marriage would inherit throne. It completely changed the order of the succession. It established Anne Boleyn's position as queen by law. It was a significant step towards the final break with Rome.
8. Was the opposition to the break with Rome a serious threat to Henry? Why?	<ul style="list-style-type: none"> • 3 key figures opposed Reformation: Elizabeth Barton, Thomas More, John Fisher. • Most people accepted religious changes.
9. 'In the years 1534 – 40 the English Church changed very little.' How far do you agree?	<ul style="list-style-type: none"> • English church pushed towards a more Protestant direction – English Bible. • Superstitious practices, e.g. praying to relics were banned. • Act of Supremacy. • The Six Articles. • BUT Many elements of the Catholic Church service remained, e.g. traditional mass.

10.	Sacraments	Special church ceremonies – baptism / marriage.
11.	The Eucharist	Bread and wine in church service. Last supper.
12.	Transubstantiation	Belief that bread and wine is transformed into body / blood Jesus.
13.	Indulgences	Certificate issued by Catholic church – forgiveness.
14.	Pilgrimage	Journey for religious reasons.
15.	Anti-Clericalism	Opposition to clergy.
16.	Vicegerent	King's deputy. Responsibility for running church.
17.	Celibate	unmarried / no sex.
18.	Doctrines	Teachings of the church.
19.	Protestantism	A religion – separate from Catholic church.
20.	Martin Luther	Protestant Reformer.
21.	Reformation	Reform of the Catholic Church.
22.	Vestments	Ornate priest clothing.
23.	Richard Hunne	Baby son died. Refused to pay mortuary fees. Sued and arrested. Died in cell. Murder????
24.	Act of Succession 1534	Only children of Henry's second marriage would inherit throne.
25.	Act of Supremacy 1534	England no longer under Pope's control. Henry head of English Church.
26.	Break with Rome	Henry moving away from the Church in Rome.
27.	Oath of Succession	Supported Anne Boleyn as Henry's Queen.
28.	Treason Act 1534	Death to anyone denying royal supremacy.
29.	Elizabeth Barton	Claimed Virgin Mary had appeared in vision and cured her.
30.	John Fisher	Challenged Henry. Executed for treason in 1535.

Henry VIII & His Ministers Knowledge Organiser 6. Chapter 3 The Reformation and its impact, 1529-40.

3.3 The dissolution of the monasteries. 3.4 The Pilgrimage of Grace, 1536.

Key Words

1	Monasteries provided care for the sick and educational work. Between 1536-40 all of England's monasteries were closed down. Henry saw them as a source of wealth. Had an impact on many. Henry's religious changes were unpopular in the North. Led to Pilgrimage of Grace. Uprising failed because pilgrims trusted and negotiated with Henry. Henry didn't keep promises & in 1537 executed the rebel leaders.
---	--

Key Events

2	1535 – Valor Ecclesiasticus
3	1536 March – 1 st Act of dissolution of monasteries
4	1536 October-December – Pilgrimage of Grace
5	1538 – 40 voluntary dissolution of large monasteries
6	1539 – 2 nd Act for dissolution of monasteries passed

Key Questions

7. Explain why Henry dissolved the monasteries.	<ul style="list-style-type: none"> • Valor Ecclesiasticus – Survey into church wealth. • Money to finance wars. Protect England. Lower taxation. • Use land to gift to gentry to increase support for Henry. • Cromwell's commissions – 1535 –Moral state of monasteries.
8. Overall, do you think there were more winners than losers as a result of the dissolution of the monasteries?	<ul style="list-style-type: none"> • Winners = Henry VIII – became richer. Religious reformers / Protestants. Those able to buy monastic land / estates. • Losers = Those who relied on monasteries, e.g. poor & sick. Poverty rose. Nuns. Monks. Lost accommodation, food, companionship.
9. 'The Pilgrimage of Grace was badly led.' How far do you agree? Explain your answer.	<ul style="list-style-type: none"> • Robert Aske – inspirational leader. Well armed rebels. Pontefract Articles. BUT decided to trust Henry. Misplaced faith. Hanged. • The agreement at Doncaster – Negotiated. Accepted king's offer. Henry didn't keep to the agreement.

10.	Dissolution	Get rid of.
11.	Monasteries	Religious houses.
12.	Valor Ecclesiasticus	Survey into church wealth.
13.	Pilgrimage of Grace	Uprising against closure of monasteries.
14.	Religious contemplation	Spent time thinking about ways to serve God.
15.	Monk	Religious person
16.	Nun	Religious person.
17.	Abbeys	Larger rural institutions.
18.	Priories / nunneries	Medium sized houses.
19	Friaries	Smaller houses.
20.	Visitations	Official inspections.
21.	Compendium compertorum	Findings / report.
22.	Cultural vandalism	Destruction of monastic buildings.
23.	Robert Aske	Leader of Pilgrimage of Grace rebellion.
24.	1534 Subsidy tax	Tax. Led to Pilgrimage of Grace.
25.	1536 Statute of Uses	Tax on landed inheritances.
26.	Pontefract Articles	List of 24 demands.
27.	Nicholas Melton	Lincolnshire 'Captain Cobbler.' Rebel leader.
28.	Thomas Howard, Duke of Norfolk	In command of army. Negotiated with rebels.
29.	Rebel	Goes against something.
30.	Uprising	Rebellion / attempt to take control.

Year 11 Life Skills- Living in the Wider World

Lesson 1- Preparing for Interview	Lesson 2- Personal Statements and post 16 applications	Lesson 3- CV and job applications
<p>Mock interviews- Tuesday 14th December</p> <p><u>5 tips for a successful interview</u></p> <ol style="list-style-type: none"> 1) Be punctual at your interview. It is mandatory to be on time at a job interview. 2) Do your research on the company. 3) Don't forget about nonverbal communication 4) Be polite with everyone. 5) Be prepared for your interview. <p>Questions you might be asked at interview:</p> <p>What do you know about our company?</p> <p>Why do you think you're a good fit for our company?</p> <p>Why do you want to work for us?</p> <p>What are your main strengths?</p> <p>Why should we hire you?</p> <p>When have you faced a challenging situation?</p> <p>Can you tell us about a personal achievement at work?</p> <p>Have you ever taken the initiative?</p> <p>Have you ever failed at a task?</p> <p>More questions and interview tips: https://nationalcareers.service.gov.uk/careers-advice/top-10-interview-questions</p>	<p>Your personal statement should include a brief overview of who you are, your strengths and any work experience and/or education you've got. Be sure to include skills you've gained, such as time management, customer service, teamwork, computer skills etc.</p> <p>Why are you applying for your chosen course(s)? Explain why you want to do your chosen course(s)</p> <p>Why does this course interest you? You can write about anything you've read about the course(s) that you find interesting and would like to find out more about.</p> <p>Why do you think you are suitable for the course(s)? In this section, you can write about any experiences you have had that are related to the course(s), or any skills you've learnt that might help you.</p> <p>Do your current studies (e.g. GCSEs) relate to the course(s) you have chosen? If so, how?</p> <p>Skills and achievements (e.g music exams, sports achievements, Duke of Edinburgh Award, prefect positions)</p> <p>Work history Include details of placements, work experience, voluntary work, or jobs, especially if it is relevant to your chosen course(s)</p> <p>Career plans Use this section to tell the provider what you might like to do in the future as a career after completing the course. Explain how you would like to use the course(s) you have applied for to help you reach your goal</p> <p>https://www.ucas.com/further-education/post-16-qualifications/post-16-options/how-write-personal-statement-</p>	<p>Skills- The most effective CVs written by school leavers often give precedence to skills. Just as with your personal statement, try giving examples that are applicable to the role in question. For example, IT skills (naming specific programs), or soft skills such as problem solving, public speaking and interpersonal skills, not to mention a friendly and welcoming demeanour, are all desirable qualities to have.</p> <p>Education- Education should be included from GCSE level on. State the number and general grades you received (Maths and English at the very least). If you're awaiting any results, you may state mock/expected results where possible, although this is not essential. Write in reverse-chronological order, with the most recent events coming at the top.</p> <p>Hobbies & Interests- A Hobbies and Interests section is optional. However, if you lack any notable work experience, they can be a great way of getting your personality across.</p> <p>Employment history- If you do have some relevant work experience, even if it was only for a brief period, this can be a great help. If you have no employment history to speak of, you may wish to leave this section out.</p> <p>References- Always make sure that you do have credible references. Close family friends, teachers, or career counsellors are all good options, and are usually more than happy to help.</p>

Lesson 4- Career Pathways	Lesson 5- Employment Responsibilities	Lesson 6- Taking responsibility for your own finance
<p>A levels Study a subject you took at GCSE in greater depth or choose a new one like economics, law or psychology. You could take 3 broad subjects you are interested in to keep your career options open or choose ones you need for a specific career.</p> <p>Apprenticeships Intermediate, advanced higher and degree apprenticeships combine practical on-the-job skills training with off-the-job learning. You'll get training that is relevant to your job and be paid a salary. Start at a level to suit you, with support if you have special needs or a disability. Location: You'll spend 80% of your time in the workplace and 20% off-the-job with some study in a college, training centre or Institute of Technology (IoT)</p> <p>NVQs and SVQs – provide you with skills to do a specific job and can be taken if you have a full-time job, or are on a course with a work placement</p> <p>BTEC diplomas – give you a broader knowledge of a particular sector or industry. They are available in a range of sizes which are equivalent to one, two, or three A levels. They can be taken in combination with other qualifications https://www.unifrog.org/ https://www.apprenticeships.gov.uk/</p>	<p>Employers Responsibilities Employers have a responsibility to provide some basic conditions for their employees. These are: pay, career development, compassionate leave, holidays, health and safety, contracts, equality (gender, race, religion, disability, sexual orientation, age) A wage is an hourly rate of pay that is calculated and paid each week, or monthly. A salary is a yearly rate of pay which is divided equally over twelve months. Employers must ensure their employees pay income tax, make National Insurance payments and, in certain circumstances, are a member of a pension scheme. Employees have a range of responsibilities. These include: <u>Loyalty</u>- You must keep the interests of your employer in mind with everything you do, and do nothing to harm the company <u>Honesty</u>- You must be truthful with your employers, colleagues and customers <u>Timekeeping and deadlines</u>- You must ensure that you are on time for work and complete each of your tasks before their deadlines <u>Health and safety</u>- You must take care of your own safety, and that of others <u>Professionalism</u>- You should make a commitment to do high quality work.</p>	<p>Bank Accounts To open a bank account you usually have to fill in an application form. Often, you can do this in a branch or online, and sometimes you can also do this over the phone. You will also have to provide proof of your identity including your full name, date of birth and address. You usually have to show the bank two separate documents that prove who you are, for example, your passport, and where you live, for example, a recent bill.</p> <p>Credit- the ability of a customer to obtain goods or services before payment, based on the trust that payment will be made in the future</p> <p>Payday loans are short-term loans for small amounts of money. They are available from high street shops and internet sites. Payday loans can be easy to get but interest rates are very high.</p> <p>Interest is the cost of borrowing money, where the borrower pays a fee to the lender for the loan. The interest, typically expressed as a percentage, can be either simple or compounded.</p> <p>Credit Card- lets you borrow funds from a pre-approved limit to pay for your purchases. The limit is decided by the institution issuing the card based on your credit score and history.</p> <p>Credit Rating- an estimate of the ability of a person or organisation to fulfil their financial commitments, based on previous dealings.</p>

BIDMAS N3

...or BODMAS. Use the correct order of operations; take care when using a calculator.

- Brackets
- Indices (or pOwers)
- Division and Multiplication
- Addition and Subtraction

Types of number N4

Integer: a "whole" number
Factors; the divisors of an integer
➔ **Factors of 12 are 1, 2, 3, 4, 6, 12**
Multiples; a "times table" for an integer (will continue indefinitely)
➔ **Multiples of 12 are 12, 24, 36 ...**
Prime number: an integer which has exactly two factors (1 and the number itself). Note: 1 is not a prime number.

HCF, LCM N4

Highest Common Factor (HCF)

➔ **Factors of 6 are 1, 2, 3, 6**

Factors of 9 are 1, 3, 9

HCF of 6 and 9 is 3

Lowest Common Multiple (LCM)

➔ **Multiples of 6 are 6, 12, 18, 24, ...**

Multiples of 9 are 9, 18, 27, 36, ...

LCM of 6 and 9 is 18

Prime factors N4

Write a number as a product of its prime factors; use indices for repeated factors:

➔ **$720 = 5 \times 3^2 \times 2^4$**

Powers and roots N6, N7

Special indices: for any value a :

$$a^0 = 1$$

$$a^{-n} = \frac{1}{a^n}$$

➔ **$3^{-4} = \frac{1}{3^4} = \frac{1}{81}$**

Calculating with fractions N8

Adding or subtracting fractions; use a common denominator...

➔ **$\frac{4}{5} - \frac{1}{3} = \frac{12}{15} - \frac{5}{15} = \frac{7}{15}$**

Multiplying fractions; multiply numerators and denominators...

➔ **$\frac{4}{7} \times \frac{2}{3} = \frac{8}{21}$**

Dividing fractions; "flip" the second fraction, then multiply...

➔ **$\frac{2}{7} \div \frac{5}{6} = \frac{2}{7} \times \frac{6}{5} = \frac{12}{35}$**

Fractions, decimals N10

Fraction is numerator \div denominator

➔ **$\frac{5}{8} = 5 \div 8 = 0.625$**

Use place values to change decimals to fractions. Simplify where possible.

➔ **$0.45 = \frac{45}{100} = \frac{9}{20}$**

Learn the most frequently used ones:

$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{3}{4}$
0.5	0.25	0.1	0.2	0.75

Surds N8

Look for the biggest square number factor of the number:

➔ **$\sqrt{80} = \sqrt{16 \times 5} = 4\sqrt{5}$**

Standard form N9

Standard form numbers are of the form $a \times 10^n$, where $1 \leq a < 10$ and n is an integer.

Standard units N13

1 tonne = 1 000 kilograms
1 kilogram = 1 000 grams

1 kilometre = 1 000 metres

1 metre = 100 centimetres

= 1 000 millimetres

1 centimetre = 10 millimetres

1 day = 24 hours

1 hour = 60 minutes = 3 600 seconds

1 minute = 60 seconds

Rounding N15

Truncate the number, then use a "decider digit" to round up or down.

Decimal places: use the decimal point

➔ **162.3681 to 2dp;**

162.36 | 81 = 162.37 to 2dp

Significant figures: use the first non-zero digit.

➔ **162.3681 to 2sf;**

16 | 2.3681 = 160 to 2sf

➔ **0.007 039 to 3sf;**

0.007 03 | 9 = 0.007 04 to 3sf

Error intervals N15

Find the range of numbers that will round to a given value:

➔ **$x = 5.83$ (2 decimal places)**

$5.825 \leq x < 5.835$

➔ **$y = 46$ (2 significant figures)**

$45.5 \leq y < 46.5$

Note use of \leq and $<$, and that the last significant figure of each is 5.

Algebraic notation A1

$$ab = a \times b$$

$$3y = y + y + y$$

$$a^2 = a \times a$$

$$a^3 = a \times a \times a$$

$$a^2b = a \times a \times b$$

$$\frac{a}{b} = a \div b$$

Equations and identities A3

An equation is true for some particular value of x ...

➔ **$2x + 1 = 7$ is true if $x = 3$**

...but an identity is true for every value of x

➔ **$(x + a)^2 \equiv x^2 + 2ax + a^2$**

(note the use of the symbol \equiv)

Laws of indices A4

For any value a :

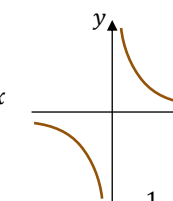
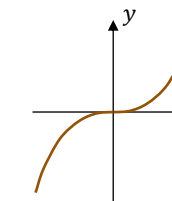
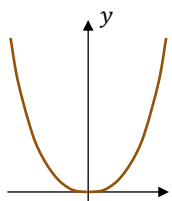
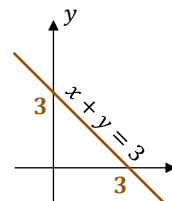
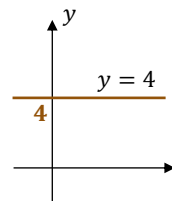
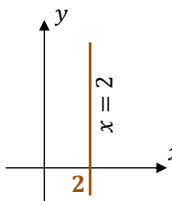
$$a^x \times a^y = a^{x+y}$$

$$\frac{a^x}{a^y} = a^{x-y}$$

$$(a^x)^y = a^{xy}$$

$$\rightarrow \left(\frac{2pq^4}{p^3q}\right)^3 = \frac{8p^3q^{12}}{p^9q^3} = \frac{8q^9}{p^6} \text{ or } 8q^9p^{-6}$$

Standard graphs A12



$y = mx + c$ A9

Equation of straight line $y = mx + c$
 m is the gradient; c is the y intercept:

➔ **Find the equation of the line that joins (0, 3) to (2, 11)**

Find its gradient...

$$\frac{11 - 3}{2 - 0} = \frac{8}{2} = 4$$

...and its y intercept...

Passes through (0, 3), so $c = 3$.

Equation is $y = 4x + 3$.

Parallel lines: gradients are equal;

➔ **$y = 2x + 3$ and $y = 2x - 5$ both have gradient 2, so are parallel.**

Expanding brackets A4

$$p(q + r) = pq + pr$$

$$\rightarrow 5(x - 2y) = 5x - 10y$$

$$(x + a)(x + b) = x^2 + ax + bx + ab$$

$$\rightarrow (2x - 3)(x + 5)$$

$$= 2x^2 - 3x + 10x - 15$$

$$= 2x^2 + 7x - 15$$

Reverse of expanding is factorising - putting an expression into brackets.

Quadratics A18

Solve a quadratic by factorising.

➔ **Solve $x^2 - 8x + 15 = 0$**

Put into brackets (taking care with any negative numbers)...

$$(x - 3)(x - 5) = 0$$

...then either $x - 3 = 0$ or $x - 5 = 0$,

so that **$x = 3$ or $x = 5$.**

Difference of two squares A4

$$a^2 - b^2 = (a + b)(a - b)$$

$$\rightarrow x^2 - 25 = (x + 5)(x - 5)$$

Simultaneous equations A19

$$\rightarrow \text{Solve } \begin{cases} 2x + 3y = 11 \\ 3x - 5y = 7 \end{cases}$$

$$\begin{cases} 10x + 15y = 55 \\ 9x - 15y = 21 \end{cases}$$

Multiply to match a term in x or y

$$\begin{cases} 10x + 15y = 55 \\ 9x - 15y = 21 \end{cases}$$

$$\begin{cases} 10x + 15y = 55 \\ 9x - 15y = 21 \end{cases}$$

Add or subtract to cancel...

$$19x = 76, \text{ so } x = 4$$

Finally, substitute and solve...

$$2 \times 4 + 3y = 11, \text{ so } y = 1$$

Rearrange a formula A5

The subject of a formula is the term on its own. Use rules that "balance" the formula to change its subject

➔ **Make x the subject of**

$$2x + 3y = z$$

Here, subtract $3y$ from both sides...

$$2x = z - 3y$$

...then divide both sides by 2...

$$x = \frac{z - 3y}{2}$$

Right angled triangles G20, G22

Pythagoras Theorem.

Links all three sides.

No angles.

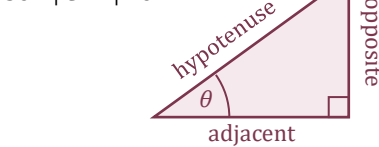
$$a^2 + b^2 = c^2$$



Trigonometry.

Links two sides and one angle.

SOH | CAH | TOA

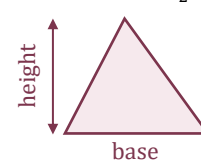


$$\sin \theta = \frac{\text{opp}}{\text{hyp}} \quad \cos \theta = \frac{\text{adj}}{\text{hyp}} \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$$

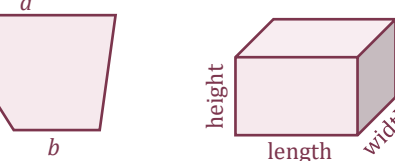
Use "2ndF" or "SHIFT" key to find a missing angle

Areas and volumes G16, G17, G18, G23

Area of triangle = $\frac{1}{2} \times \text{base} \times \text{height}$



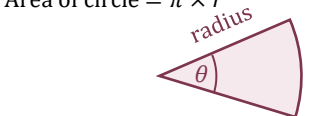
Volume of cuboid = length \times width \times height



Area of trapezium = $\frac{1}{2}(a + b) \times h$

Circumference of circle = $\pi \times D$

Area of circle = $\pi \times r^2$



Arc length = $\frac{\theta}{360^\circ} \times \pi \times D$

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

Transformations G7, G8

Reflection

• Line of reflection

Translation

• Vector

Rotation

• Centre of rotation

• Angle of rotation

• Clockwise or anticlockwise

Enlargement

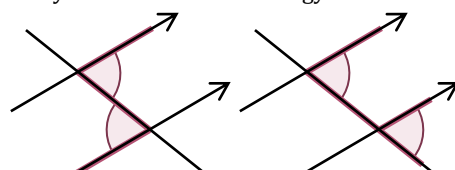
• Centre of enlargement

• Scale factor (if SF < 1 the shape will get smaller).

Angle facts

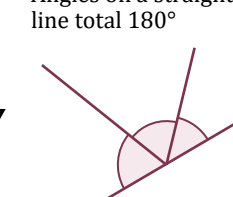
Equal angles in parallel lines:

always use correct terminology...

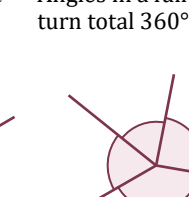


Alternate angles 36 Corresponding angles

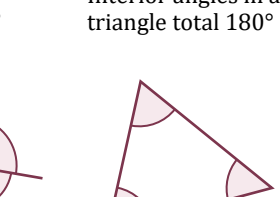
Angles on a straight line total 180°



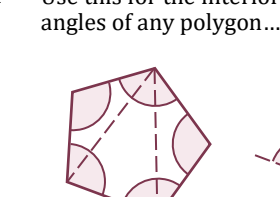
Angles in a full turn total 360°



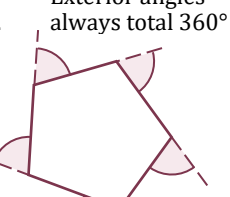
Interior angles in a triangle total 180°



Use this for the interior angles of any polygon...



Exterior angles always total 360°



...or $180^\circ \times (n - 2)$

Sequences A24, A25

Triangular numbers:

1st	2nd	3rd	4th	5th
1	3	6	10	15

Square numbers ($n^2 = n \times n$):

1^2	2^2	3^2	4^2	5^2
1	4	9	16	25

Cube numbers ($n^3 = n \times n \times n$):

1^3	2^3	3^3	4^3	5^3
1	8	27	64	125

n th term of an arithmetic (linear) sequence is $an + d$

➔ **n th term of 5, 8, 11, 14, ... is $3n + 2$**

(always increases by 3; first term is $3 \times 1 + 2 = 5$.)

Geometric sequence; multiply each term by a constant ratio

➔ **3, 6, 12, 24, ... (ratio is 2)**

Fibonacci sequence; make the next term by adding the previous two ...

➔ **2, 4, 6, 10, 16, 26, 42, ...**

Probability P8, P9

$p = \frac{n(\text{equally likely favourable outcomes})}{n(\text{equally likely possible outcomes})}$

$p = 0$ impossible

$0 < p < 0.5$ unlikely

$p = 0.5$ evens

$0.5 < p < 1$ likely

$p = 1$ certain

Probability rules P8, P9

Multiply for independent events

➔ **P(6 on dice and H on coin)**

$$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$$

Add for mutually exclusive events

➔ **P(5 or 6 on dice)**

$$\frac{$$

Listing strategies N5

Product rule for counting:
➔ $4 \times 3 \times 2 \times 1 = 24$ ways to arrange the letters P, I, X and L.

Powers and roots N6, N7

Special indices: for any value a :

$$a^0 = 1$$

$$a^{-n} = \frac{1}{a^n}$$

$$a^{\left(\frac{p}{q}\right)} = \sqrt[q]{a^p}$$

$$\rightarrow 3^{-4} = \frac{1}{3^4} = \frac{1}{81}$$

$$\rightarrow 8^{\left(\frac{2}{3}\right)} = \sqrt[3]{8^2} = 4$$

Surds N8

Look for the biggest square number factor of the number:

$$\rightarrow \sqrt{80} = \sqrt{16 \times 5} = 4\sqrt{5}$$

Rationalise the denominator N8

Multiply the numerator and denominator by an expression that makes the denominator an integer:

$$\rightarrow \frac{4}{\sqrt{7}} = \frac{4 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} = \frac{4\sqrt{7}}{7}$$

$$\rightarrow \frac{2}{4 + \sqrt{5}} = \frac{2}{4 + \sqrt{5}} \times \frac{4 - \sqrt{5}}{4 - \sqrt{5}} = \frac{2(4 - \sqrt{5})}{4^2 - (\sqrt{5})^2} = \frac{2(4 - \sqrt{5})}{11}$$

Standard form N9

Standard form numbers are of the form $a \times 10^n$, where $1 \leq a < 10$ and n is an integer.

Recurring decimals N10

Make a recurring decimal a fraction:

$$\rightarrow n = 0.23\bar{6}$$

(two digits are in the recurring pattern, so multiply by 100)

$$100n = 23.\bar{6}$$

(this is the same as $23.6\bar{3}$)

$$99n = 23.6\bar{3} - 0.23\bar{6} = 23.4$$

$$n = \frac{23.4}{99} = \frac{234}{990} = \frac{13}{55}$$

Error intervals N15

Find the range of numbers that will round to a given value:

$$\rightarrow x = 5.83 \text{ (2 decimal places)}$$

$$5.825 \leq x < 5.835$$

$$\rightarrow y = 46 \text{ (2 significant figures)}$$

$$45.5 \leq y < 46.5$$

Note use of \leq and $<$, and that the last significant figure of each is 5.

Equations and identities A3

An equation is true for some particular value of x ...

$$\rightarrow 2x + 1 = 7 \text{ is true if } x = 3$$

...but an identity is true for every value of x

$$\rightarrow (x + a)^2 \equiv x^2 + 2ax + a^2$$

(note the use of the symbol \equiv)

Laws of indices A4

For any value a :

$$a^x \times a^y = a^{x+y}$$

$$\frac{a^x}{a^y} = a^{x-y}$$

$$(a^x)^y = a^{xy}$$

$$\rightarrow \left(\frac{2pq^4}{p^3q}\right)^3 = \frac{8p^3q^{12}}{p^9q^3} = \frac{8q^9}{p^6} \text{ or } 8q^9p^{-6}$$

Difference of two squares A4

$$a^2 - b^2 = (a + b)(a - b)$$

$$\rightarrow x^2 - 25 = (x + 5)(x - 5)$$

Rearrange a formula A5

The subject of a formula is the term on its own. Rearrange to

$$\rightarrow \text{Make } x \text{ the subject of}$$

$$2x + ay = y - bx$$

$$2x + bx = y - ay$$

$$x(2 + b) = y - ay$$

$$x = \frac{y - ay}{2 + b}$$

Functions A7

Combining functions:

$$fg(x) = f(g(x))$$

$$\rightarrow \text{If } f(x) = x + 3 \text{ and } g(x) = x^2$$

$$fg(x) = x^2 + 3$$

$$gf(x) = (x + 3)^2$$

The inverse of f is f^{-1}

$$\rightarrow \text{If } f(x) = 2x + 5 \text{ then}$$

$$f^{-1}(x) = \frac{x - 5}{2}$$

$y = mx + c$ A9

Equation of straight line $y = mx + c$ m is the gradient; c is the y intercept:

➔ Find the equation of the line that joins (0, 3) to (2, 11)

Find its gradient...

$$\frac{11 - 3}{2 - 0} = \frac{8}{2} = 4$$

...and its y intercept...

Passes through (0, 3), so $c = 3$.
Equation is $y = 4x + 3$.

Parallel lines: gradients are equal; perpendicular lines: gradients are "negative reciprocals".

➔ $y = 2x + 3$ and $y = 2x - 5$ are parallel to each other; $y = 2x + 3$

and $y = -\frac{1}{2}x + 3$ are perpendicular

Transformations of curves A13

Starting with the curve $y = f(x)$:

Translate $\begin{pmatrix} 0 \\ a \end{pmatrix}$ for $y = f(x) + a$

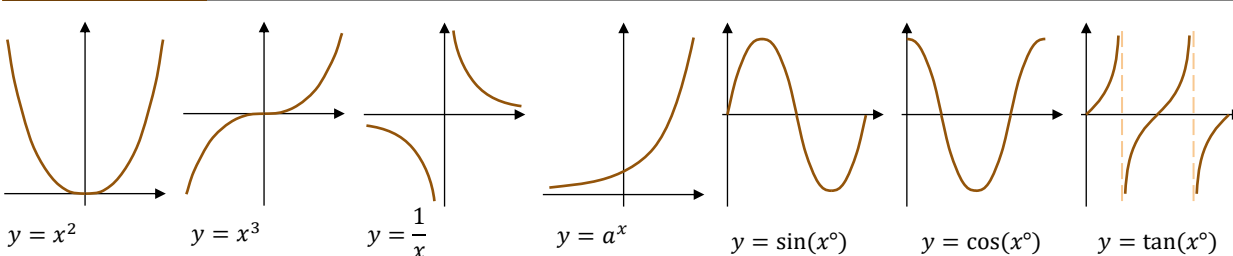
Translate $\begin{pmatrix} -a \\ 0 \end{pmatrix}$ for $y = f(x + a)$

Reflect in x axis for $y = -f(x)$
Reflect y axis for $y = f(-x)$

Velocity - time graph A15

Gradient = acceleration (you may need to draw a tangent to the curve at a point to find the gradient);
Area under curve = distance travelled.

Standard graphs A12



Quadratics A11, A18

If a quadratic equation cannot be factorised, use the formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\rightarrow \text{Solve } 2x^2 + 3x - 7 = 0$$

$$x = \frac{-3 \pm \sqrt{9 - (-56)}}{2 \times 2} = -2.73$$

$$\text{or } x = \frac{-3 + \sqrt{9 - (-56)}}{2 \times 2} = 1.23$$

Complete the square to find the turning point of a quadratic graph.

$$\rightarrow y = x^2 - 6x + 2$$

$$y = (x - 3)^2 - 9 + 2$$

$$y = (x - 3)^2 - 7$$

Turning point is at (3, -7)

Equation of a circle A16

$x^2 + y^2 = r^2$ is a circle with centre (0, 0) and radius r .

➔ $x^2 + y^2 = 25$ has centre (0, 0) and radius 5.

Simultaneous equations A19

One linear, one quadratic;

$$\rightarrow \text{Solve } \begin{cases} x + 3y = 10 \\ x^2 + y^2 = 20 \end{cases}$$

Rearrange the linear, and substitute into the quadratic

$$x = 10 - 3y$$

$$\text{so } (10 - 3y)^2 + y^2 = 20$$

$$\text{Expand and solve the quadratic}$$

$$100 - 60y + 9y^2 + y^2 = 20$$

$$10y^2 - 60y + 80 = 0$$

$$y = 2 \text{ or } y = 4$$

Finally, substitute into the linear and solve, pairing values...

$$x + 3 \times 2 = 10 \text{ so } (x, y) = (4, 2)$$

$$x + 3 \times 4 = 10 \text{ so } (x, y) = (-2, 4)$$

Sequences A24, A25

n th term of an arithmetic (linear) sequence is $bn + c$

➔ n th term of 5, 8, 11, 14, ... is $3n + 2$ (always increases by 3; first term is $3 \times 1 + 2 = 5$)

n th term of a quadratic sequence is $an^2 + bn + c$

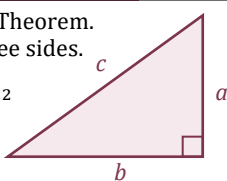
➔ First three terms of $n^2 + 3n - 1$ are 3, 9, 17, ...
Geometric sequence; multiply each term by a constant ratio

➔ 3, 6, 12, 24, ... (ratio is 2)
Fibonacci sequence; make the next term by adding the previous two ...
➔ 2, 4, 6, 10, 16, 26, 42, ...

Right angled triangles

Pythagoras Theorem.
Links all three sides.
No angles.

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



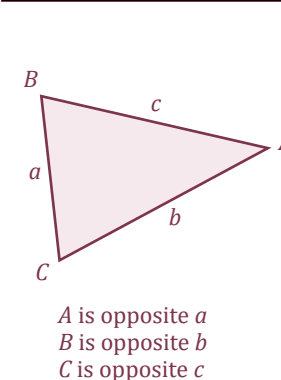
Trigonometry.
Links two sides and one angle.
SOH | CAH | TOA

$$\sin \theta = \frac{\text{opp}}{\text{hyp}} \quad \cos \theta = \frac{\text{adj}}{\text{hyp}} \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$$

Use "2ndF" or "SHIFT" key to find a missing angle

The longest side of any right angled triangle is the hypotenuse; check that your answer is consistent with this.

Advanced trigonometry G21, G22



Sine Rule

Use if you are given an angle-side pair

$$\text{Missing side: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{Missing angle: } \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Cosine Rule

Use if you can't use the sine rule

$$\text{Missing side: } a^2 = b^2 + c^2 - 2bccosA$$

$$\text{Missing angle: } cosA = \frac{b^2 + c^2 - a^2}{2bc}$$

Special values of sin, cos, tan

Learn (or be able to find without a calculator)...

$$\sin 0^\circ = 0, \quad \cos 0^\circ = 1, \quad \tan 0^\circ = 0$$

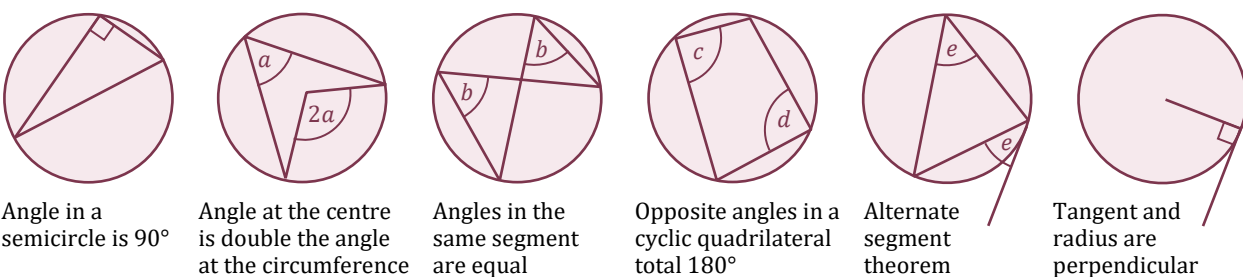
$$\sin 30^\circ = \frac{1}{2}, \quad \cos 30^\circ = \frac{\sqrt{3}}{2}, \quad \tan 30^\circ = \frac{1}{\sqrt{3}}$$

$$\sin 45^\circ = \frac{1}{\sqrt{2}}, \quad \cos 45^\circ = \frac{1}{\sqrt{2}}, \quad \tan 45^\circ = 1$$

$$\sin 60^\circ = \frac{\sqrt{3}}{2}, \quad \cos 60^\circ = \frac{1}{2}, \quad \tan 60^\circ = \sqrt{3}$$

$$\sin 90^\circ = 1, \quad \cos 90^\circ = 0$$

Circle theorems G10



Areas and volumes G16, G17, G18, G23

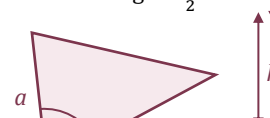
Circumference of circle = $\pi \times D$
Area of circle = $\pi \times r^2$



$$\text{Arc length} = \frac{\theta}{360^\circ} \times \pi \times D$$

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

Area of triangle = $\frac{1}{2}ab\sin C$



$$\text{Area of trapezium} = \frac{1}{2}(a + b) \times h$$

$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$

$$\text{Volume of frustum is difference between the volumes of two cones}$$

Transformations G7, G8

Reflection

- Line of reflection
- Translation
- Vector

Rotation

- Centre of rotation
- Angle of rotation
- Clockwise or anticlockwise

Enlargement

- Centre of enlargement
- Scale factor (if $-1 < SF < 1$ the shape will get smaller).

Similar shapes G19

Ratios in similar shapes and solids:

- Length/perimeter $1:n$ $a:b$
- Area $1:n^2$ $a^2:b^2$
- Volume $1:n^3$ $a^3:b^3$

Iteration A20

You will be given the formula to use:

➔ Solve $x^3 + 6x + 4 = 0$ by using the iteration $x_{n+1} = \sqrt[3]{6x_n - 4}$.

Start with $x_1 = -2.8$.

$$x_2 = \sqrt[3]{6 \times (-2.8) - 4} = -2.750 \dots$$

$$x_3 = \sqrt[3]{6 \times (-2.750 \dots) - 4} = \dots$$

Repeat until you know the solution, or you do as many as the question says.

Percentages: multipliers R9, R16

Percentage increase or decrease; use a multiplier (powers for repetition)

➔ Initially there were 20 000 fish in a lake. The number decreases by 15% each year. Estimate the number of fish after 6 years.

$$20\,000 \times 0.85^6 = 7\,500 \text{ (2sf)}$$

Formula for compound interest

$$\text{Total accrued} = P \left(1 + \frac{r}{100}\right)^n$$

➔ I invest £600 at 3% compound interest. What is my account worth after 5 years?

$$£600 \times \left(1 + \frac{3}{100}\right)^5 = £695.56$$

Direct & inverse proportion R10

y is directly proportional to x :

$y = kx$ for a constant k

➔ b is directly proportional to a^2 ;

$b = ka^2$; $a = 6$ and $b = 90$ for k ;

$$90 = k \times 6^2 \text{ so } k = 2.5, b = 2.5a^2$$

$$b = 2.5 \times 8^2 = 160$$

y is inversely proportional to x :

$$yx = k \text{ or } y = \frac{k}{x} \text{ for a constant } k$$

Probability rules P8, P9

Multiply for independent events

➔ P(6 on dice and H on coin)

$$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$$

Add for mutually exclusive events

$$\rightarrow \text{P(5 or 6 on dice)}$$

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

Apply these rules to tree diagrams.

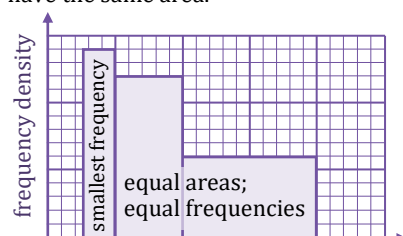
In general...

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A \text{ and } B) = P(A \text{ given } B) \times P(B)$$

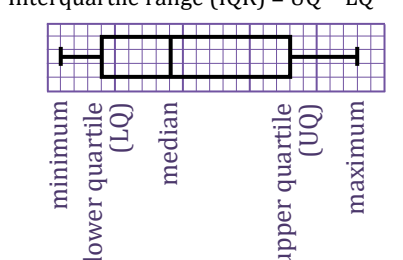
Histograms S3

Frequency = frequency density multiplied by class width. This means that bars with the same frequency have the same area.








Box plots S4

Interquartile range (IQR) = UQ - LQ



Beliefs and Values - Medical Ethics.

Key Words			
Abortion	The deliberate termination of a human pregnancy, most often performed during the first 24 weeks of pregnancy	Hospice	Hospice care is a style of care. Hospice teams include doctors, nurses, social workers, therapists, counsellors and trained volunteers. Hospices aim to feel more like a home than hospitals do
Cloning	Cloning is the process of producing genetically identical individuals of an organism either naturally or artificially	Euthanasia	The painless killing of a terminally ill patient
Genetic Engineering	The deliberate modification of the characteristics of an organism by manipulating its genetic material	Quality of Life	How easy or difficult someone's life is – e.g. some illnesses / injuries can cause a low quality of life
Evolution	Scientific theory of the development of humans from apes	Sanctity of Life	The belief that all life is sacred as man is made in God's image

Key Ideas			
<p>Cloning & Genetic Engineering</p> 	<p>Christian Views</p> <ul style="list-style-type: none"> <input type="checkbox"/> Each human has been uniquely created by God with a purpose: a human clone is a copy, unnaturally created. <input type="checkbox"/> We have a God given responsibility to look after and care for God's creation (Stewardship). <input type="checkbox"/> Catholics believe human life, which begins at conception, is made in the image of God so is sacred: embryo research and high death rates during testing is disrespectful to life. <input type="checkbox"/> Cloning separates the procreation of children from sex so therefore is unnatural. <input type="checkbox"/> Jesus helped those who suffered, and God loves all of His creations. The Bible teaches us to be loving and compassionate (agape): trying to cure terrible illnesses is a caring thing to do. <input type="checkbox"/> God is the creator and science should not attempt to take on this role. - 'There is a time to live and a time to die.' <input type="checkbox"/> God gave Adam dominion over all of creation – can use cloning for the benefit of humans. 		
<p>When does life begin</p> 	<ul style="list-style-type: none"> • Most people, whether they hold a religious belief or not, would accept that human life is special and worthy of being preserved. For religious believers, life is special because it comes ultimately from God. Life is a gift and is unique and priceless. • Many Christians believe that all babies have a soul from the moment of conception and so are fully human. This is based on the teaching in Genesis 1:27 that people are made in the image of God; that God has a plan for every individual (Jeremiah 1:5) and that God is the creative spark from the moment of conception (Psalm 139:13). This means that they believe the foetus is fully human. 		
<p>Abortion</p> 	<ul style="list-style-type: none"> - Abortion is the removal of a foetus from the womb in order to end a pregnancy. - In the UK (except Northern Ireland) it is legal during the first 24 weeks of pregnancy unless the mother's life is in danger or the foetus is severely deformed. <input checked="" type="checkbox"/> The Catholic Church is strongly against abortion. They believe in sanctity of life, the idea that life is a sacred gift from God which only God can take away. They see the foetus as a living thing. <input checked="" type="checkbox"/> The Church of England think abortion is sometimes acceptable as a pregnancy as a result of rape or where the child would be very ill would lead to a very poor quality of life. 		
<p>Euthanasia</p> 	<ul style="list-style-type: none"> - Euthanasia is the painless killing of a patient with a terminal illness. - Voluntary euthanasia is where the patient asks for their life to be ended. - Non-voluntary euthanasia is where the patient is not capable of asking to die, perhaps in a coma. - All forms of euthanasia are currently illegal in the UK. <input checked="" type="checkbox"/> The Catholic Church is strongly against euthanasia. They believe that only God can give and take life and that life is sacred (sanctity of life) . <input checked="" type="checkbox"/> Some liberal Christians think euthanasia can be an act of mercy which Jesus tells them is a good thing to do, this is especially the case when someone's quality of life is very poor. 		
<p>The Afterlife</p> 	<ul style="list-style-type: none"> - Christians believe that when you die you will be judged and that those who are found to be good will go to heaven but those who have sinned and gone against God's wishes will go to hell. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> Roman Catholics believe that there is a middle stage called purgatory where souls go to be purified of sin before they go to heaven </td><td style="width: 50%; vertical-align: top;"> Some Christians believe that Jesus will return on a future Day of Judgement when all souls will be judged </td></tr> </table>	Roman Catholics believe that there is a middle stage called purgatory where souls go to be purified of sin before they go to heaven	Some Christians believe that Jesus will return on a future Day of Judgement when all souls will be judged
Roman Catholics believe that there is a middle stage called purgatory where souls go to be purified of sin before they go to heaven	Some Christians believe that Jesus will return on a future Day of Judgement when all souls will be judged		

Lessons 1 Sexual and asexual reproduction	Lessons 2 Meiosis	Lessons 3 DNA and the genome																																							
<p>Sexual reproduction involves the fusions of male and female gametes</p> <p>Gametes: sex cells, sperm and eggs in animals, pollen and egg cells in plants</p> <p>In sexual reproduction genetic information is carried and passed on in genes.</p> <p>We inherit 1 set of genes from each parent. The mixing of genetic information leads to variation in the offspring.</p> <table border="1" data-bbox="129 772 752 1177"> <thead> <tr> <th></th><th>Sexual reproduction</th><th>Asexual reproduction</th></tr> </thead> <tbody> <tr> <td>Number of parents?</td><td>2 parents (male & female)</td><td>1 parent (male or female)</td></tr> <tr> <td>Are offspring called clones?</td><td>No offspring are not clones of the parents</td><td>Yes offspring is a clone of parent</td></tr> <tr> <td>What happens to make the offspring</td><td>Fusion of sperm and eggs</td><td>The parent splits (mitosis) or a bud is formed</td></tr> <tr> <td>Is there genetic variation in offspring</td><td>Yes offspring is a mix of both father and mother</td><td>No offspring are genetically identical to parent</td></tr> <tr> <td>Examples of organisms which reproduce in this way</td><td>Dogs, Humans, Hamsters, fish, snakes, birds,</td><td>Bacteria, Yeast, daffodils, strawberries</td></tr> </tbody> </table>		Sexual reproduction	Asexual reproduction	Number of parents?	2 parents (male & female)	1 parent (male or female)	Are offspring called clones?	No offspring are not clones of the parents	Yes offspring is a clone of parent	What happens to make the offspring	Fusion of sperm and eggs	The parent splits (mitosis) or a bud is formed	Is there genetic variation in offspring	Yes offspring is a mix of both father and mother	No offspring are genetically identical to parent	Examples of organisms which reproduce in this way	Dogs, Humans, Hamsters, fish, snakes, birds,	Bacteria, Yeast, daffodils, strawberries	<p>Gametes are sex cells produced by a special type of cell division called meiosis.</p> <p>Meiosis is special as the chromosome number reduces by half.</p> <p>Gametes must have half set of genetic information, 23 chromosomes. This is vital because it ensures fertilisation results in a cell with a full set of genetic information.</p> <p>Gametes are described as haploid, this means half set of genetic information.</p> <p>Meiosis occurs in the testes and ovaries.</p> <table border="1" data-bbox="792 884 1395 1219"> <thead> <tr> <th></th><th>Mitosis</th><th>Meiosis</th></tr> </thead> <tbody> <tr> <td>Where does it occur</td><td>All over the body</td><td>Sex organs</td></tr> <tr> <td>Number of divisions</td><td>1</td><td>2</td></tr> <tr> <td>Creates</td><td>All cells apart from gametes</td><td>Gametes</td></tr> <tr> <td>Number of chromosomes</td><td>46 (diploid)</td><td>23 (haploid)</td></tr> <tr> <td>Produces</td><td>Two cells</td><td>Four cells</td></tr> <tr> <td>Function</td><td>Cellular reproduction, growth</td><td>Sexual reproduction</td></tr> </tbody> </table>		Mitosis	Meiosis	Where does it occur	All over the body	Sex organs	Number of divisions	1	2	Creates	All cells apart from gametes	Gametes	Number of chromosomes	46 (diploid)	23 (haploid)	Produces	Two cells	Four cells	Function	Cellular reproduction, growth	Sexual reproduction	<p>DNA is a chemical that all genetic material is made from.</p> <p>Contains coded information on how to make an organism and how to make it work.</p> <p>DNA is a polymer, it is made up of two strands, it is twisted to form a double helix.</p> <p>Chromosomes are made of DNA Short sections of DNA are called genes Genes are instructions to make proteins. Proteins are made from amino acids bonded together. If you change the order of amino acids, you will change the protein that you make.</p> <p>Genome: includes all the genetic material in an organism.</p> <p>Scientists have worked out the whole of the human genome, this is called the human genome project.</p> <p>The knowledge of the genome from the Human genome project will help with the identification of genes, understanding the link between genes and disease, aid the development of effective treatments and also helps with developing our understanding of evolution.</p>
	Sexual reproduction	Asexual reproduction																																							
Number of parents?	2 parents (male & female)	1 parent (male or female)																																							
Are offspring called clones?	No offspring are not clones of the parents	Yes offspring is a clone of parent																																							
What happens to make the offspring	Fusion of sperm and eggs	The parent splits (mitosis) or a bud is formed																																							
Is there genetic variation in offspring	Yes offspring is a mix of both father and mother	No offspring are genetically identical to parent																																							
Examples of organisms which reproduce in this way	Dogs, Humans, Hamsters, fish, snakes, birds,	Bacteria, Yeast, daffodils, strawberries																																							
	Mitosis	Meiosis																																							
Where does it occur	All over the body	Sex organs																																							
Number of divisions	1	2																																							
Creates	All cells apart from gametes	Gametes																																							
Number of chromosomes	46 (diploid)	23 (haploid)																																							
Produces	Two cells	Four cells																																							
Function	Cellular reproduction, growth	Sexual reproduction																																							

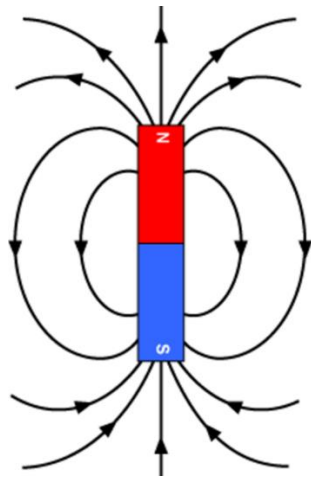
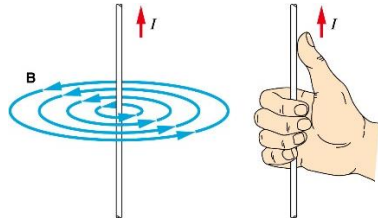
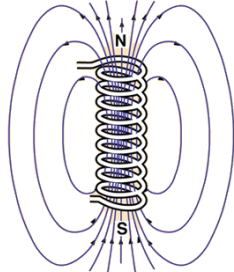
Lessons 4 Sex determination	Lessons 5 Genetic inheritance	Lessons 6 Inherited genetic disorders
<p>There are 46 chromosomes in every cell in the human body except gametes.</p> <p>There are 23 pairs of chromosomes. 22 pairs of chromosomes contain genes that control characteristics. 1 pair of chromosomes determine sex.</p> <p>Males have XY sex chromosomes Females have XX sex chromosomes.</p> <div data-bbox="129 818 560 1203" data-label="Diagram"> </div> <p>Using a punnet square as shown above, it is evident that there is a 50% chance will be female and 50% chance of having a male child.</p>	<p>You have 2 copies of every gene, one inherited from your father and one inherited from your mother.</p> <p>Allele: different versions of a gene e.g. hair colour alleles would include blonde, red, black and, brown.</p> <p>Heterozygous: When an individuals carries 2 different alleles for a particular gene. Homozygous: When an individual carries 2 identical alleles for a particular gene. Phenotype: What the organism actually looks like e.g. blue eyes, red flowers Genotype: The genetic make up of an organism- refers to the genes the organisms has. Dominant: An allele that will show up in the phenotype of an organism. Recessive: A characteristic that is masked by a dominant gene.</p>	<p>Polydactyl is an inherited genetic disorder caused by a dominant allele and results in extra fingers or toes.</p> <p>Polydactyl is unusual because it is caused by a dominant allele. Most genetic disorders are caused by inheriting 2 recessive alleles.</p> <p>Cystic fibrosis is an inherited genetic disorder of cell membranes. It results in the body producing lots of thick stick mucus which clogs up the air passages and the passages in the pancreas.</p> <p>Genetic screening: A test to analysis a person's DNA. Antenatal screening: Used to test the DNA of the foetus while it is still in the uterus. Pre-implantation genetic diagnosis: Used to test for genetic disease in an embryo before it is implanted in to the uterus of the female. This forms part of the process of IVF.</p>

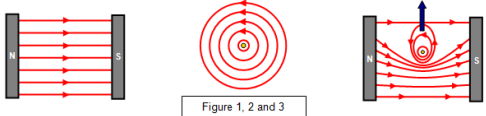
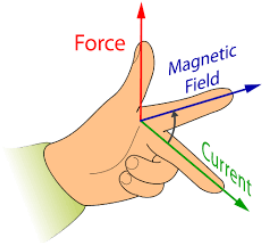
Lesson 1 Genetic Engineering	Lesson 2 Variation	Lessons 3 Selective Breeding
<p>Genetic engineering: Modifying the genome of an organism by introducing a gene from another organism to give a desired characteristic.</p> <p>Benefits of genetic engineering:</p> <ul style="list-style-type: none"> Plant crops have been genetically engineered to be resistant to diseases or to produce bigger better fruits. Bacterial cells have been genetically engineered to produce useful substances such as human insulin to treat diabetes. <p>Key points of genetic engineering:</p> <ol style="list-style-type: none"> <u>Enzyme</u> is used to cut out the <u>gene</u> (instructions) from the DNA The gene is inserted in to a <u>vector</u>, usually a <u>bacterial plasmid</u> The vector is like a vehicle to get the gene in to cells Once the genes are inside the animal, plants or microorganism they will develop the <u>desired characteristic</u> 	<p>Variation: differences between individuals of the same species.</p> <p>Variation can be caused by environmental factors, genetic or a combination of both.</p> <p><u>Types of variation</u></p> <p>Continuous: This type of data shows a complete range of measurements from one extreme to the other e.g. height. Caused by the combined effect of many genes and is often influenced by the environment.</p> <p>Discontinuous: This is where data falls in to a number or distinct class or category e.g. blood group. Genetically controlled.</p> <p><u>Presenting data</u></p> <p>Continuous data: line graph</p> <p>Discontinuous data: bar graph</p>	<p>Selective breeding: also called artificial selection. Process by which human breed plants and animals for particular genetic characteristics.</p> <p>Process of selective breeding:</p> <ol style="list-style-type: none"> Decide which characteristics are important Choose parents that show these characteristics and breed them together From the offspring those with the desired characteristic are bred together Repeat for many generations until all offspring show the desired characteristic. <p>Selective breeding is the <u>traditional method</u> for improving crops and livestock.</p> <p>Selective breeding plants for food:</p> <ul style="list-style-type: none"> -Disease resistance -Weather resistance -More attractive -Better flavour -Easier to harvest -Higher yields. <p>Selective breeding animals for food:</p> <ul style="list-style-type: none"> -Cows for increased milk yield -Animals for learner meat -Better flavoured meat -Faster growth rate <p>Selectively breed populations can be very similar and have <u>very little genetic diversity</u>. Entire populations can be vulnerable to the same environmental influence which can negatively affect health.</p>

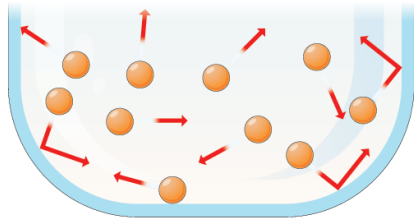
Lesson 4 Evolution	Lesson 5 Evidence for evolution fossils	Lessons 6 & 7 Evidence for evolution antibiotic resistance and extinction
<p>All of today's species have evolved from simple life forms that first started to develop over 3 billion years ago.</p> <p>Darwin's Theory of Evolution by natural selection</p> <ol style="list-style-type: none"> 1. Variation: there are differences between members of a species 2. Competition: members of a species are competing for resources 3. Survival of the fittest: the best and most adapted individuals survive. 4. Passing on genes: the survivors reproduce and pass on their adaptations to their offspring. <p><u>Evolution</u> through natural selection is a process of <u>change</u> in inherited characteristics of a population over time, which may result in the formation of a new species.</p> <p>Mutation: Changes to the DNA sequence, can result in new phenotypes. Bring about variation in a population.</p> <p>Species: organisms of the same species can interbreed and produce fertile offspring.</p> <p>Speciation: Over a long period, the phenotype of organisms can change so much due to natural selection that a completely new species is formed.</p>	<p>Initially there was no evidence to support Darwin's theory of evolution by natural selection.</p> <p>Religion presented a barrier to acceptance.</p> <p>Fossils provide evidence to support Darwin's theory. Fossils are formed in 3 ways.</p> <ol style="list-style-type: none"> 1. Fossils can form from parts of organisms that haven't decayed because one or more of the conditions needed for decay were absent. 2. When parts of organisms are replaced by other materials such as mineral as they decay. 3. Preserved traces, footprints, burrows, faeces or rootlet traces. <p>The fossil record is incomplete. There are 4 reasons for this:</p> <ol style="list-style-type: none"> 1. Early life forms were soft bodied and left no fossil trace. 2. Most organisms decay completely when they die so form no fossil trace. 3. Fossils can be destroyed by geological activity. 4. We haven't found all the fossils yet. 	<p>Antibiotic resistance: When a bacterial that used to be killed by a drug isn't affected by it anymore. E.g. MRSA</p> <p><u>Developing antibiotic resistance:</u></p> <ol style="list-style-type: none"> 1. Within a bacterial population there will be variation. Some individuals are susceptible to antibiotics and some might be resistant. 2. When an individual takes antibiotics to get rid of the bacterial infection, the susceptible bacteria will be killed off. 3. Eventually only the resistant bacteria are left. 4. The resistant bacteria will reproduce 5. Now the population will be made up of resistant bacteria 6. These bacteria will not be killed by the original antibiotic. <p>Variation in the bacterial population is caused by mutations.</p> <p>Mutations leading to antibiotic resistance gives those individuals an advantage, they are more likely to survive and pass their genes on to the next generation.</p> <p>Extinct: When no individuals of a species remain.</p> <p><u>Causes of extinction:</u></p> <p>New predator, new disease, changes to the climate, new more successful competitors and catastrophic events.</p>

Lesson 1 Finite & Renewable Resources	Lessons 2 & 3 Pure & Potable Water & Required Practical	Lesson 4 Treating Waste Water															
<p>Finite</p> <ul style="list-style-type: none"> Resources that are being used up faster than they can be replaced. There is a <u>limited amount</u>. <p>Renewable</p> <ul style="list-style-type: none"> Resources that can be replaced at the same rate at which they are used up. Humans use the Earth's resources to provide warmth, shelter, food and transport Natural resources provide food, timber (wood), clothing and fuels, this is supplemented by <u>agriculture</u> Finite resources from the Earth, oceans and atmosphere are processed to provide energy and materials Chemists provide new <u>synthetic</u> products which <u>supplement</u> or <u>replace</u> natural products. <p>Sustainable Development</p> <ul style="list-style-type: none"> Meeting the needs of current generations <u>without</u> compromising the ability of future generations to meet their own needs. <table border="1" data-bbox="190 1185 721 1345"> <thead> <tr> <th>Natural product</th><th>Use</th><th>Synthetic product that <u>supplements</u> or <u>replaces</u> it</th></tr> </thead> <tbody> <tr> <td>cotton</td><td>clothing</td><td>polyester</td></tr> <tr> <td>wood</td><td>construction material</td><td>PVC</td></tr> </tbody> </table>	Natural product	Use	Synthetic product that <u>supplements</u> or <u>replaces</u> it	cotton	clothing	polyester	wood	construction material	PVC	<p>Potable Water</p> <ul style="list-style-type: none"> Water that is fit (safe) to drink. <p>Pure Water</p> <ul style="list-style-type: none"> We get pure water through distillation Boil water into steam Cool to condense steam and collect water Distillation on a large scale would require a lot of energy which would make the process expensive we will look at this in more detail next lesson. Pure water only contains H₂O molecules. <p>Water Treatment</p> <ul style="list-style-type: none"> <u>Screen</u> – stops large objects <u>Coarse filter</u> – large particles removed <u>Sedimentation</u> – particles fall to bottom, top water drained off <u>Fine filter</u> – very small particles removed <u>Chlorination</u> – Chlorine added to sterilise (kill germs) <p>Chemistry Required Practical: Water Analysis To analyse the pH and dissolved solid content of 3 water samples</p> <p>Chemistry Required Practical: Water purification To obtain pure water from a solution containing water and dissolved solids.</p>	<ul style="list-style-type: none"> Waste water requires <u>treatment</u> before being released into the environment <u>Sewage</u> and <u>agricultural</u> waste water require the removal of: <ul style="list-style-type: none"> Organic matter Harmful microbes <p>Sewage Treatment</p> <ol style="list-style-type: none"> Screening removes <u>large solid particles</u> i.e. grit by passing the sewage through a screen. Sedimentation allows the small solid particles (sediment) to sink to the bottom of the tank forming <u>sewage sludge</u> while the liquid (effluent) remains above. The sewage sludge is <u>dried</u> and <u>anaerobically digested</u> (broken down by microorganisms in the absence of oxygen). The effluent is <u>aerobically digested</u> (broken down by microorganisms in the presence of oxygen). This removes <u>organic matter</u> and <u>harmful microbes</u>. <table border="1" data-bbox="1422 1125 2072 1345"> <thead> <tr> <th>Fresh water / ground water</th><th>Desalination</th><th>Treatment of waste water</th></tr> </thead> <tbody> <tr> <td>Filtration and sterilisation Requires sterilising agents and filtration equipment</td><td>Distillation or using membranes e.g. reverse osmosis Both require lots of energy</td><td>Screening, sedimentation, digestion (aerobic and anaerobic) Several steps, requires large treatment plant</td></tr> </tbody> </table>	Fresh water / ground water	Desalination	Treatment of waste water	Filtration and sterilisation Requires sterilising agents and filtration equipment	Distillation or using membranes e.g. reverse osmosis Both require lots of energy	Screening, sedimentation, digestion (aerobic and anaerobic) Several steps, requires large treatment plant
Natural product	Use	Synthetic product that <u>supplements</u> or <u>replaces</u> it															
cotton	clothing	polyester															
wood	construction material	PVC															
Fresh water / ground water	Desalination	Treatment of waste water															
Filtration and sterilisation Requires sterilising agents and filtration equipment	Distillation or using membranes e.g. reverse osmosis Both require lots of energy	Screening, sedimentation, digestion (aerobic and anaerobic) Several steps, requires large treatment plant															

Lesson 5 Extracting Metals (Higher Tier)	Lesson 6 Life Cycle Assessments	Lesson 7 Reduce, Reuse & Recycle
<p>Problems with traditional mining:</p> <ul style="list-style-type: none"> • Large amounts of waste rock • Creates large holes in the Earth's crust • Requires lots of energy • Only worthwhile extracting high-grade ores <p>Two alternatives to mining are:</p> <p>Phytomining:</p> <p>Advantages</p> <ul style="list-style-type: none"> • Uses low grade copper ore • Requires less energy than smelting • Produces less air pollution • Reduces amount of waste rock <p>Disadvantages</p> <ul style="list-style-type: none"> • Can produce toxic chemicals • Much slower process • Electrolysis requires large amounts of electricity. <p>Bioleaching:</p> <p>Advantages</p> <ul style="list-style-type: none"> • Uses low grade copper ore • Very simple and cheap • Produces less air pollution • Reduces amount of waste rock <p>Disadvantages</p> <ul style="list-style-type: none"> • Can produce toxic chemicals • Much slower process • Efficiency is very low (lots of waste) • Electrolysis requires large amounts of electricity. 	<ul style="list-style-type: none"> • Lifecycle analysis (LCA) is used to work out the environmental impact of a product throughout its whole life from extraction of materials through to final disposal. • 4 Key Stages: <ul style="list-style-type: none"> • Raw materials • Manufacture • Use • Disposal • 4 Impacts assessed <ul style="list-style-type: none"> • Water Consumption • Energy used • Carbon Footprint • Natural Resources • Life Cycle Assessments are useful for: <ul style="list-style-type: none"> • Comparing different materials for the same job. • Comparing the same material for different jobs: 	<p>Because both the materials and the energy sources we use are limited/finite, we need to reduce use of these resources.</p> <ul style="list-style-type: none"> • So they don't run out! • Also, because obtaining raw materials from the Earth by <u>quarrying</u> and <u>mining</u> causes environmental impacts. • The three Rs help to <u>reduce the demand for our limited resources of materials and energy.</u> • The three Rs also <u>reduce the amount of waste</u> produced. Landfill takes up space and pollutes the surroundings. <p>Glass, Metal and Plastic can be recycled in three steps:</p> <ul style="list-style-type: none"> • Crush • Melt • Reform

Lesson 1 Magnetic Field Patterns	Lesson 2 Induced Magnetism	Lesson 3 The magnetic effect of a current
<ul style="list-style-type: none"> The region around a magnet is called a magnetic field. A permanent magnet is an object with a magnetic field. The poles of a magnet are the areas where the magnetic fields are strongest – usually called North and South. Strictly, we should call these north-seeking and south-seeking. Two like poles repel each other. Two unlike poles attract each other. Attraction and repulsion between two magnetic poles are examples of a non-contact force. The shape of a magnetic field can be found by placing iron filings on paper over a magnet or using a plotting compass. The magnetic field around a bar magnet is symmetrical: 	<ul style="list-style-type: none"> An induced magnet is a material that becomes a magnet when it is placed in a magnetic field. Induced magnetism always causes a force of attraction. When removed from the magnetic field, an induced magnet loses most/all of its magnetism quickly The strength of an induced magnet will depend on the strength of magnetic field it is placed and the time it is within the field. The strength of a magnet can be simply investigated by seeing how many paperclips it picks up. Smaller paperclips will allow the detection of smaller differences in strength. 	<ul style="list-style-type: none"> The magnetic field around a current-carrying wire is circular. The strength of the field decreases as you get further from the wire and increases if the current increases.  <ul style="list-style-type: none"> A solenoid is a coil of wire with a current flowing through it. Outside the solenoid, the field looks like the field from a bar magnet. Inside the solenoid, the field is strong and uniform.  <ul style="list-style-type: none"> The strength of a solenoid can be increased by: <ul style="list-style-type: none"> Increasing the current Increasing the number of loops Adding an iron core (to make an electromagnet.)

<p>Lesson 4 HT ONLY: The motor effect</p>	<p>Lesson 5 HT ONLY: Magnetic Flux Density</p>
<ul style="list-style-type: none"> The motor effect states that there is a force on a current-carrying conductor in a magnetic field. This occurs due to interaction between the magnetic fields. Where the fields point in the same direction, the field becomes stronger. Where the fields point in the opposite direction, the field becomes weaker. There is a force on the wire from where the field is stronger to where it is weaker.  <p>Figure 1, 2 and 3</p> <ul style="list-style-type: none"> The size of the force depends on the strength of the magnetic field, the size of the current and the angle between conductor and field (the largest force is when they are at right angles). 	<ul style="list-style-type: none"> The size of the force in the motor effect is given by the equation: $\text{Force} = \text{magnetic flux density} \times \text{current} \times \text{length}.$ Force in Newtons (N) Current in Amperes (A) Length in metres (m) Magnetic Flux Density, the “strength of the magnetic field” in Tesla (T) (You do not need to memorise this equation) An object can be made to “float” in a magnetic field if its weight downwards is equal to the magnetic force on it upwards.
<ul style="list-style-type: none"> The direction is found using Fleming’s left-hand rule where: Thumb, first and second fingers all at right angles. First finger is the magnetic field from N→S Second finger is the current from + → - Thumb is direction of force  <ul style="list-style-type: none"> A loop of wire will experience a force in the opposite direction on opposite sides – it is an electric motor. A motor can be made to rotate faster by: increasing current, increasing the number of coils, increasing the magnetic field strength, or making sure coil is parallel to field. The motor’s direction is reversed by: reversing the current or reversing the magnetic field 	

<p>Lesson 7 Specific Latent Heat</p>	<p>Lesson 8 Brownian Motion</p>	<p>Lesson 9 Pressure in gases</p>
<ul style="list-style-type: none"> The specific latent heat of a substance is the amount of energy required to change the state of one kilogram of the substance with no change in temperature: Specific latent heat of fusion – change of state from solid to liquid. Specific latent heat of vaporisation – change of state from liquid to vapour <p><i>Thermal energy for a change of state = mass x specific latent heat</i> energy in joules , J mass in kilograms, kg specific latent heat in joules per kilogram, J/kg</p> <ul style="list-style-type: none"> The larger the value of specific latent heat, the more energy is needed for the change of state. The specific latent heat of vaporisation of water is nearly 100 times larger than the specific latent heat of fusion of water. 	<ul style="list-style-type: none"> The motion of particles within a gas is random. They have a range of speeds and directions. As the temperature of a gas increases, the internal energy of the gas increases. As a gas is heated, the average kinetic energy of the particles within it increases. This means that the average speed of the particles increases. Larger particles within a fluid (e.g., dust in air) move randomly and seem to “jiggle” about. This is because they are constantly being hit by the particles of the fluid, which move randomly. This is called Brownian motion. 	 <ul style="list-style-type: none"> Pressure in gases is caused because some of the particles collide with the sides of the container. They change direction, which means (as their velocity changes) they are accelerating. This means there is a force from the container on the particles. Newton’s 3rd law states that there is a force from the particles on the container. This force gives rise to pressure. Gas cylinders can explode in fires, even if they don’t contain flammable gases, because the pressure inside the cylinder can rise dramatically.