Name: …….. Class: ……

Year 8 Unit 1:

How does water change the landscape?

Professionalism. Inclusion. Pedagogy. Curriculum.

Be professional. Be inclusive. Be a learner. Be knowledgeable.

Unit Overview: Rivers and coasts
ENQUIRY: How does water change the landscape?

Unit intention:		
Success criteria	✓	X
1. I can draw and label a diagram of the water cycle 2. I can describe a rivers journey from source to mouth. 3. I can explain the different processes of erosion and transportation 4. I can explain how waterfalls and ox-bow lakes are formed. 5. I can compare constructive and destructive waves. 6. I can explain the process of longshore drift.		

Unit summative and formative assessment details:

Several EQs
End of unit assessment

Home Learning (What and how often):

Variety of consolidation sheets

Topic Sequence

1. Mapping world rivers
2. Water cycle
3. River Long profile
4. Fluvial processes
5. River landforms
6. Waves
7. Erosional landforms on the coast
8. Longshore Drift
9. Coastal management

Recommended reading/ watching

Places to visit:
River Thames
Local coastal towns – e.g., Southend

End of unit evaluation

Success criteria – Have you met them? Show your evidence in preparation for your assessment.
1.
2.
3.
4.
5.
6.
How will you improve your work?

Year 8 Unit 1					
Learning goal	**Extending**	**Mastering**	**Learning**	**How assessed**	**HW** **Check**
To understand why rivers are important	I can map the World's longest rivers	I can describe the location of the UK's major rivers	I can describe ways we (humans) use our rivers		Rivers quiz
To understand how water moves across the planet	I can link the key terms to describe the water cycle as a system.	I can draw and label a diagram of the water cycle	I can define the key terms associated with the water cycle.	Write like a geographer	Literacy sheet
To understand how rivers change along their course	I can describe a rivers journey from source to mouth.	I can define the keywords associated with the drainage basin of a river.	I can identify the different parts of a river.		Diagram sheet
To understand how fluvial processes changes the landscape	I can apply the fluvial processes to a contextual geographical example	I can explain the different processes of erosion and transportation	I can define erosion, deposition, and transportation	EQ	Seneca review
To understand how landforms are created by water	I can explain how waterfalls and ox-bow lakes are formed.	I can describe the features of these different landforms	I can identify the different landforms found along a river.	EQ	Research homework
To understand how waves work	I can compare constructive and destructive waves.	I can explain how destructive and constructive waves are formed.	I can describe the three factors that affect waves.	EQ	Seneca review
To explain the impacts of erosion on the coast	I can explain the erosion of a headland with the use of erosional processes	I can explain the erosion of a headland.	I can describe the formation of headlands and bays.	EQ	Guided reading
To understand how material is moved along the coast	I can explain the process of longshore drift.	I can explain how beaches are formed	I can describe the processes that transport material along the coastline.	EQ	Revision for end of unit exam
To investigate different types of coastal management.	I can evaluate the effectiveness of different coastal defences	I can describe how different coastal management techniques work	I can give reasons why coastal defences may be needed	EQs	

Glossary

Key word	Definition
Location	
River	
Evaporation	
Condensation	
Precipitation	
Transpiration	
Infiltration	
Surface run-off	
Interception	
Percolation	
Throughflow	
Groundwater flow	
Upper course	
Middle course	
Lower course	
Source	
Mouth	
Estuary	
Tributary	
Confluence	
Drainage basin	
Watershed	
Erosion	
Transportation	
Deposition	
Hydraulic action	
Abrasion	

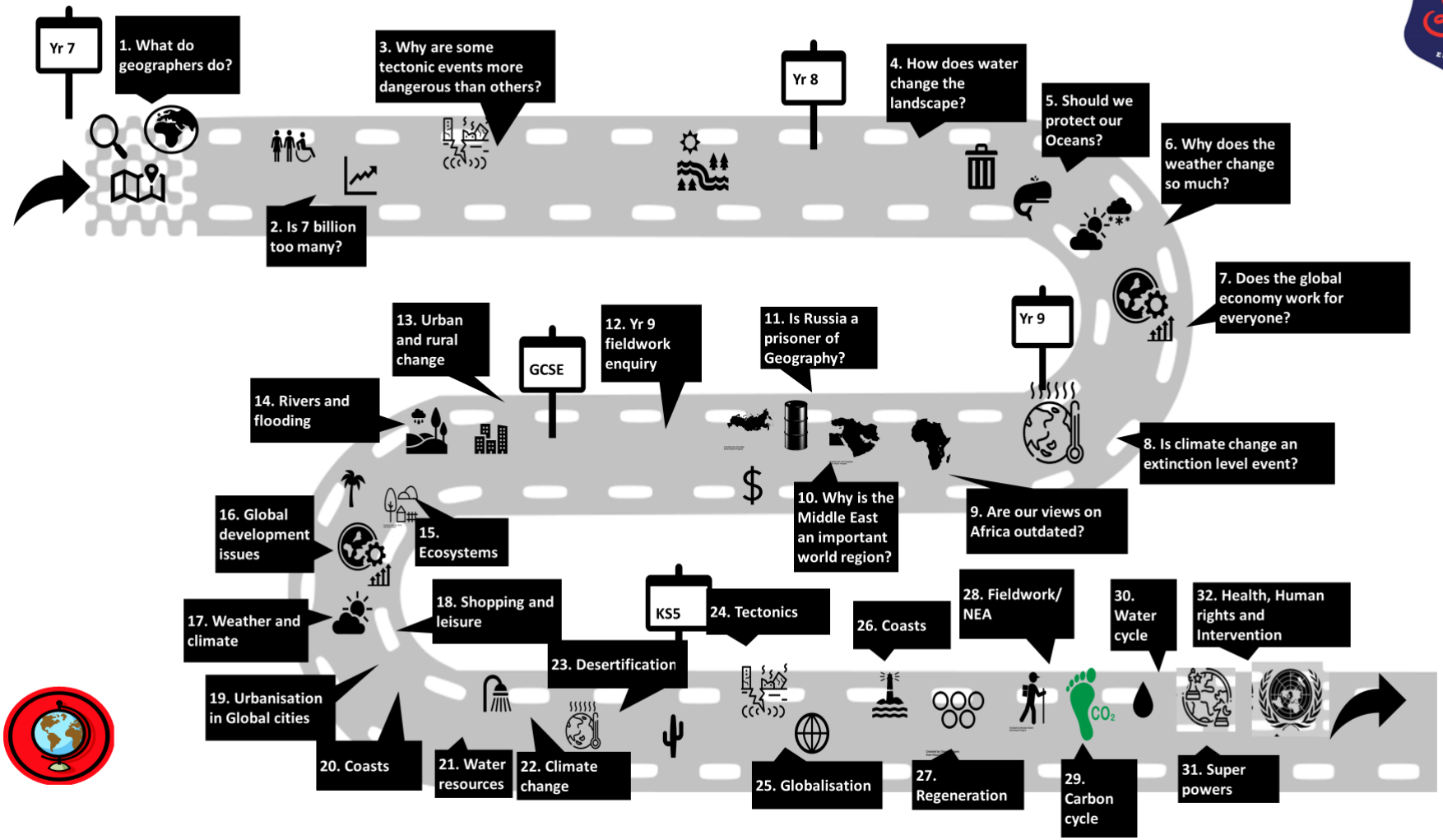
Glossary

Key word	Definition
Attrition	
Corrosion	
Traction	
Saltation	
Solution	
Suspension	
Fluvial	
Process	
Waterfall	
Meander	
Plunge Pool	
Overhang	
Undercutting	
Slip-off slope	
River Cliff	
Thalweg	
Ox-bow Lake	
Swash	
Backwash	
Constructive wave	
Destructive wave	
Fetch	
Crest	
Trough	
Velocity	
Wavelength	
Frequency	

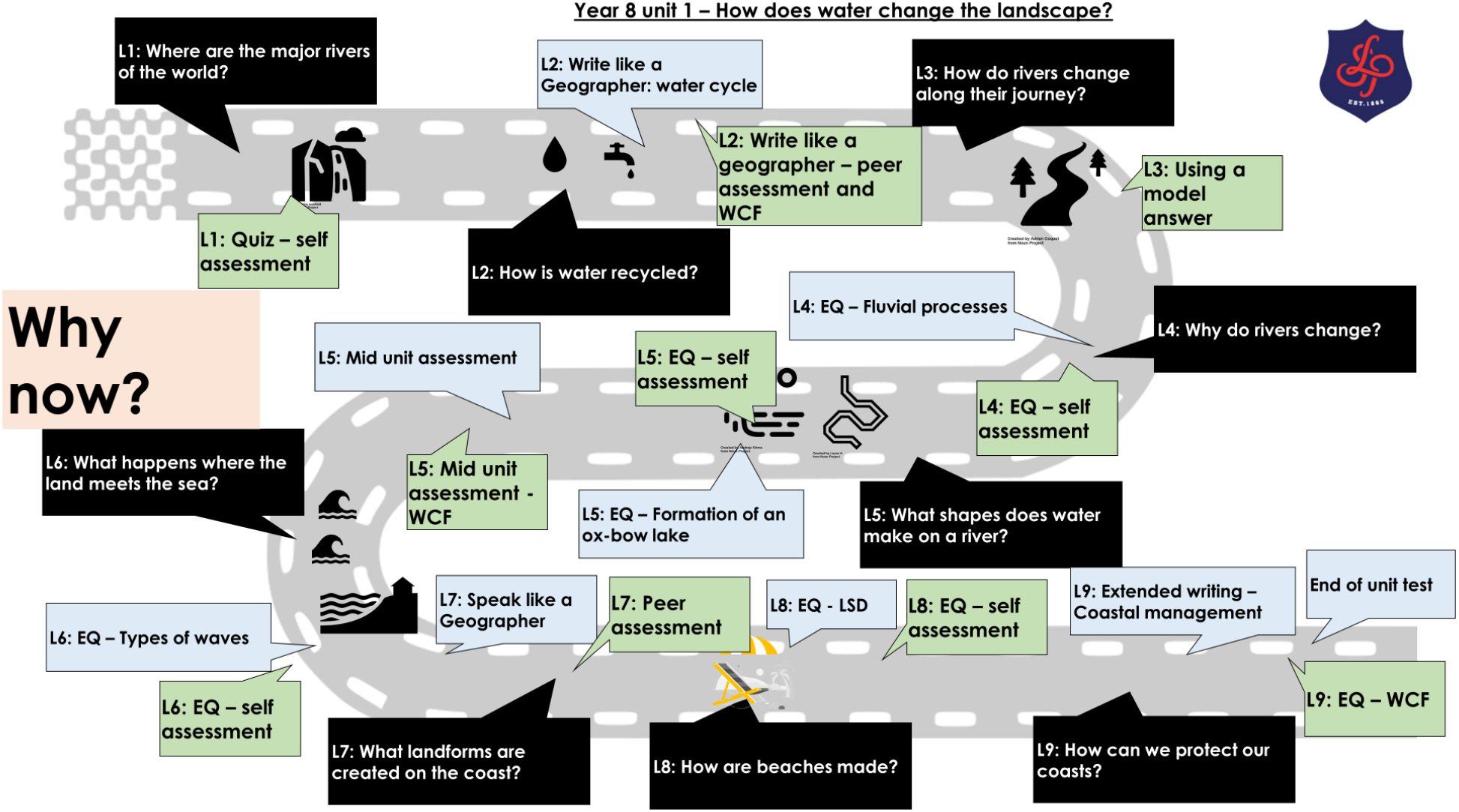
Glossary

Key word	Definition
Arch	
Cave	
Stack	
Stump	
Wave-cut platform	
Notch	
Headland	
Bay	
Beach	
Shingle	
Longshore drift	
Prevailing wind	
Spit	
Tombolo	
Bar	
Sea Wall	
Groynes	
Gabion Cage	
Rock Armour	
Replenishment	
Drainage	
Sustainability	
Hard Engineering	
Soft Engineering	
Managed Retreat	

Geography at Langdon Park School – From 2022



Year 8 unit 1 – How does water change the landscape?



Lesson 1: Where are the major rivers of the world?

L/M/E		I think I can …	My teacher thinks I can …
Learning	I can describe ways we (humans) use our rivers		
Mastering	I can describe the location of the UK's major rivers		
Extending	I can map the World's longest rivers		

Do it now: What is a river?

"A river is fresh [ ] flowing across the surface of the [ ] usually to the sea. It flows in a channel, The bottom of the river is called the [ ] and the sides of the channel are called the [ ]"

Starter: Use the photographs to describe how we (humans) use rivers.

1	For religious reasons, for example, Pilgrims bathe in the Ganges river in India.
2	
3	
4	
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6	
7	

Which of these Rivers is the longest?

……..

Can you name the country these rivers are found in?

……..

Can you name the continent these rivers are found on?

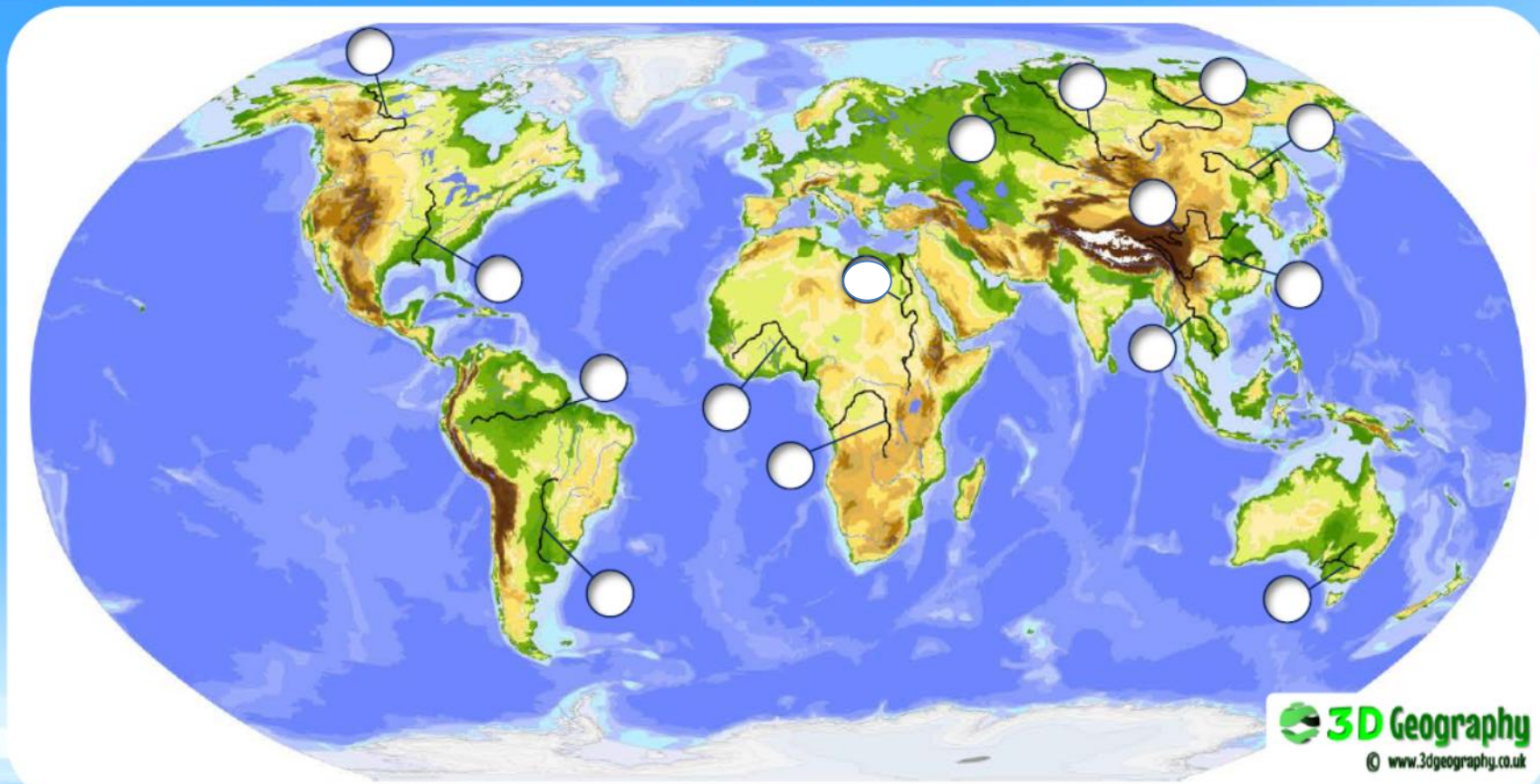
……

1 River Shannon
2 River Severn
3 River Thames
4 River Trent
5 River Great Ouse
6 River Wye
7 River Ure/Ouse
8 River Barrow
9 River Tay
10 River Suir
11 River Spey
12 River Clyde
13 River Nene

Describe the location of these English rivers

River	Location
Tweed	
Tyne	
Ouse	
Trent	
Great Ouse	
Thames	
Exe	
Tamar	
Wye	
Severn	

THE LONGEST RIVERS IN THE WORLD



Your task:

Using an atlas to help you, identify each of these rivers marked on the map above. The first one is done for you.

1 - Nile	6,650 km	6 - Huang He	5,464 km	11 - Lena	4,400 km
2 - Amazon	6,400 km	7 - Ob	5,410 km	12 - Mekong	4,350 km
3 - Yangtze	6,300 km	8 - Parana	4,880 km	13 - Mackenzie	4,241 km
4 - Mississippi	6,275 km	9 - Congo	4,700 km	14 - Niger	4,200 km
5 - Yenisei	5,539 km	10 - Amur	4,444 km	15 - Murray-Darling	3,672 km

Time to reflect: Which country?

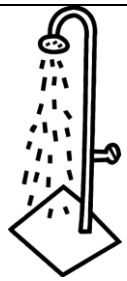
Thames		**Congo**	
Mississippi		**Rhine**	
Nile		**Yellow**	
Ganges		**Amazon**	
Murray-Darling		**Seine**	
Yangtze			

Lesson 2: How is water recycled?

L/M/E		I think I can …	My teacher thinks I can …
Learning	I can define the key terms associated with the water cycle.		
Mastering	I can draw and label a diagram of the water cycle		
Extending	I can link the key terms to describe the water cycle as a system.		

Do it now: Stick in homework after checking

Starter: What forms can water take?

Water facts

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Why does water fall as rain?

	The clouds get carried along by the wind. The droplets inside them grow into larger drops leading to...		The river carries the water back into the oceans and seas. The cycle is complete. Then it starts all over again…
	The sun warms oceans, lakes and seas turning water into water vapour (a gas). This is called **evaporation**.		… **precipitation**. The water drops fall as rain (or hail, sleet, or snow).
	Some of the water runs along the ground, and some soaks through it, heading for streams and rivers		The air rises. High up, where it's colder, the water vapour **condenses** into tiny water droplets, these droplets form clouds.

Watch the video and listen to the lyrics. Try to answer the following questions as you watch and listen.

What is the water cycle?

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Why does evaporation occur?

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What does condensation do?

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When does precipitation occur?

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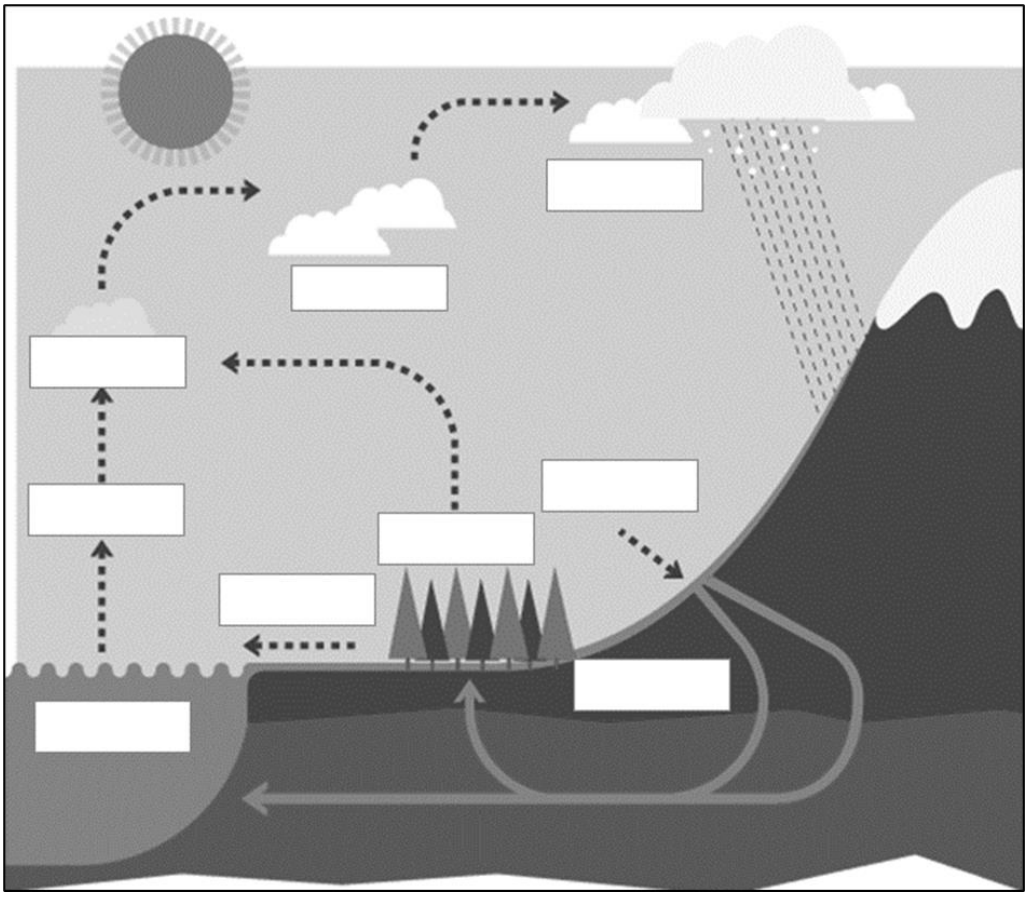
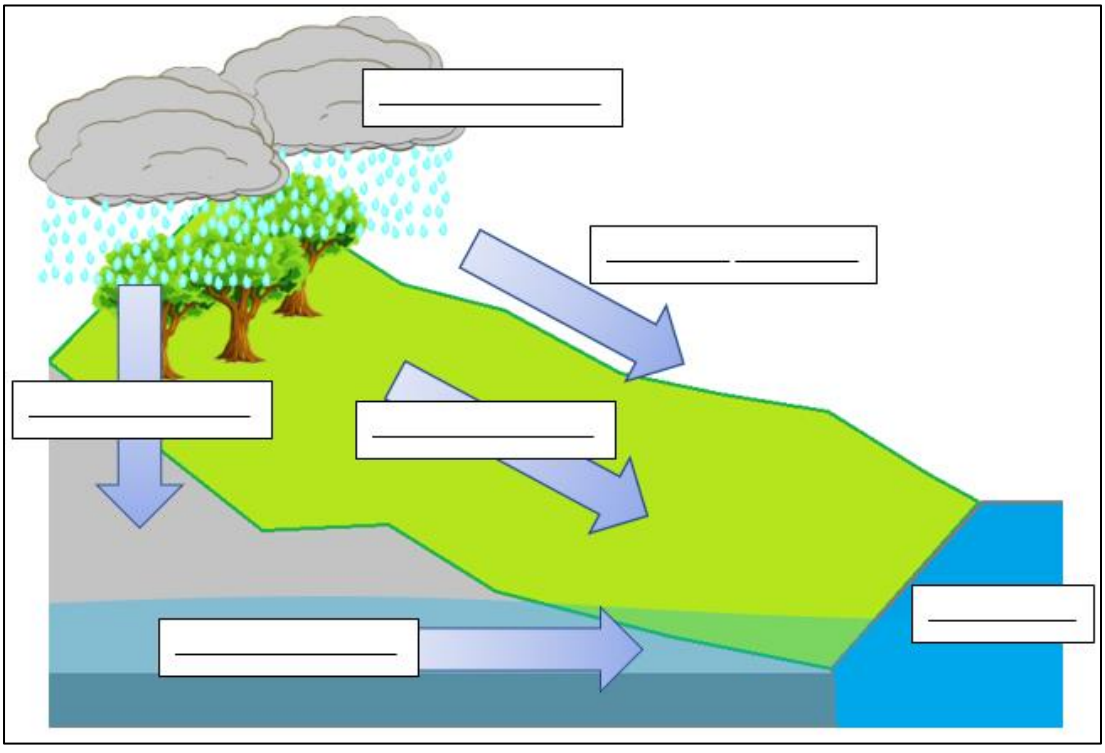
Complete the diagram



Word list:			
Transpiration	Infiltration	Air rises	Clouds move along
Condensation	Precipitation	Evaporation	
Throughflow	Surface run-off		

Evaporation	The cooling of a gas so that it changes into a liquid.
Precipitation	The water loss from vegetation (tree and plants) into the atmosphere
Condensation	The downward movement of water that seeps into the soil or a porous rock.
Transpiration	Water falling to Earth in any form: e.g., rain, sleet, hail, snow, and dew
Percolation	Water that is warmed, usually by the sun, so that it changes into a gas (water vapour).
Surface Runoff	The movement of water with in the soil sideways, towards the river.
Infiltration	When water flows over the surface of the ground.
Throughflow	Water that is collected in soil and rock. This water collects as groundwater

Label the diagram



Word Bank:

Infiltration

River

Groundwater

Throughflow

Surface Runoff

Precipitation

Use your storyboard to tell the story of a water droplet in six stages

Scene:	Scene:	Scene:
Evaporation	Transpiration	Condensation

Scene:	Scene:	Scene:
Precipitation	Surface Run-off	Ground Water

Create your own at Storyboard That

Using your new knowledge and your diagram, explain how rainwater reaches rivers.

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You can write like a Geographer…

Pen to paper: Explain the water cycle.

Write your answer using as many of the key terms below as possible

You will then read your work to your partner who will peer mark you

1 point	2 point	3 point	- Point
Rain	Evaporation	Infiltration	Like
River	Condensation	Ground water	Erm
Sea	Precipitation	Surface runoff	I think
Rock	Permeable	Throughflow	But

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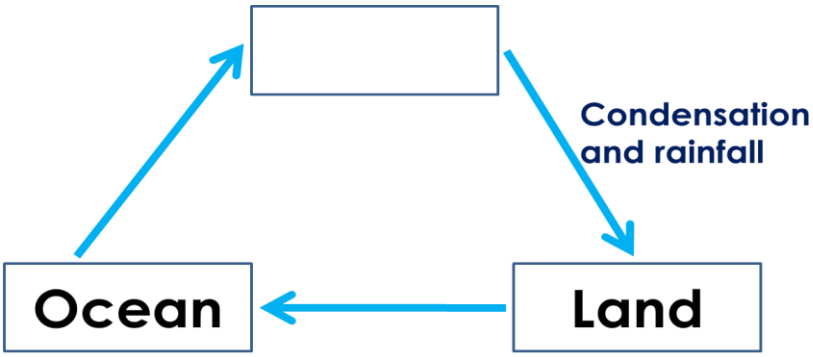
Time to reflect summary



Complete the diagram using the following terms…

Atmosphere Rainwater feeds rivers
Evaporation

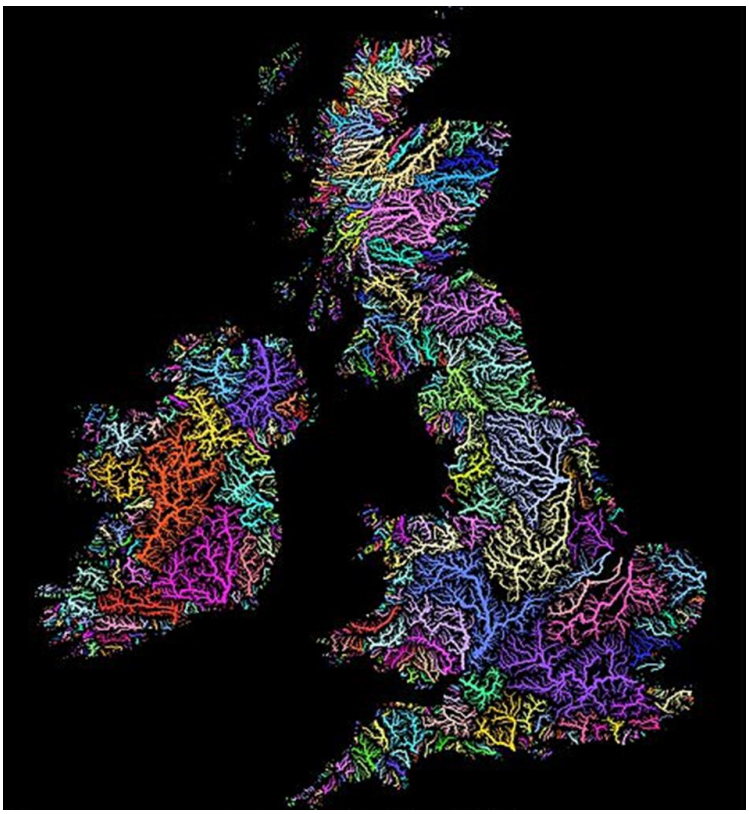
Lesson 3: How do rivers change?

L/M/E		I think I can …	My teacher thinks I can …
Learning	I can identify the different parts of a river.		
Mastering	I can define the keywords associated with the drainage basin of a river.		
Extending	I can describe a rivers journey from source to mouth.		

Do it now: Keyword review

1	
2	
3	
4	

Starter: What do you think the image shows?



Why are there so many different colours?

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What do you think they represent?

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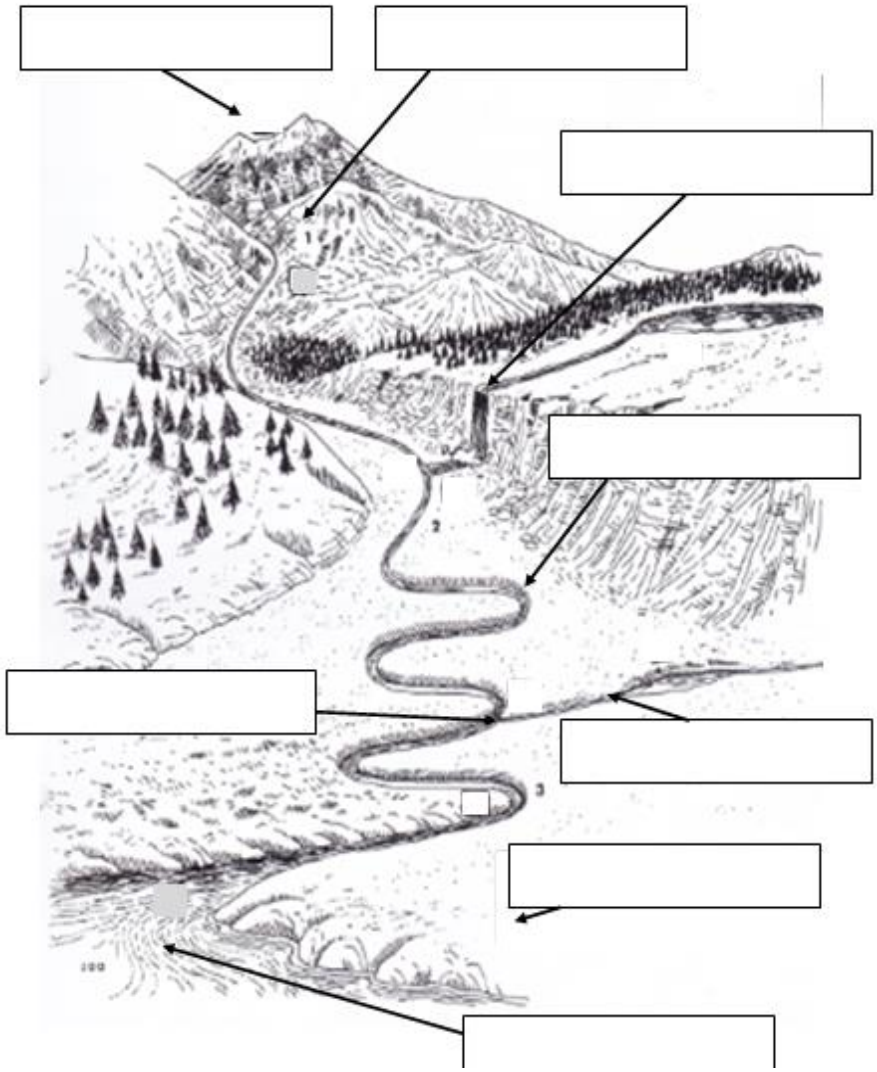
The features of a river



Learning: **Key words**	
Source	Tributary
Confluence	Steep valley
Meander	Flat land/ flood plain
Waterfall	Wide river channel

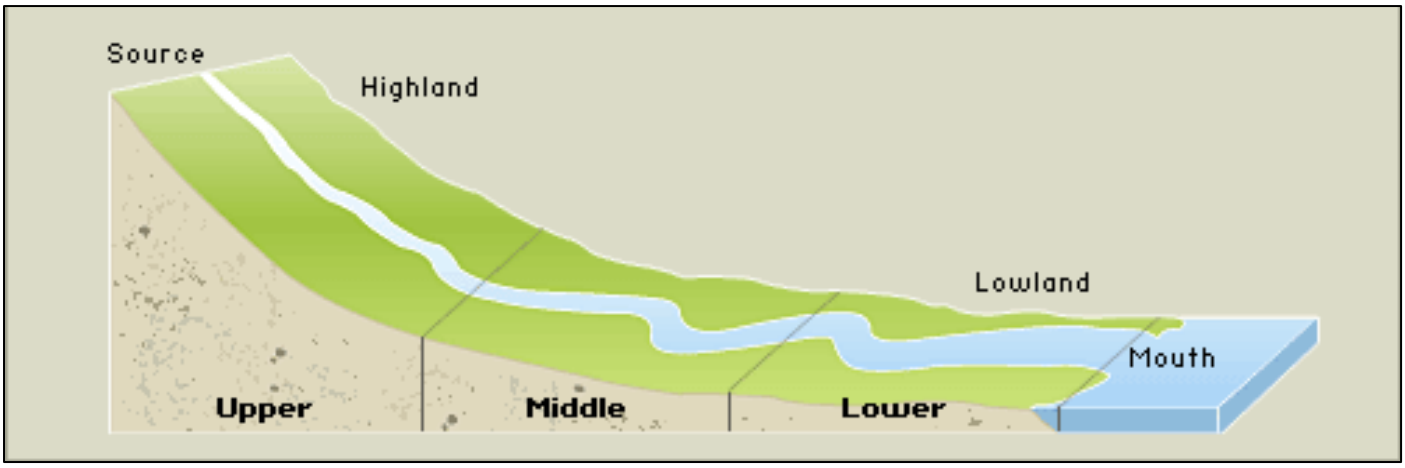
Label your river diagram using the key words. Fill in the boxes.

Draw two lines on the diagram to identify the:

Upper course, Middle course, Lower course...

Key words

Mouth		The land next to the river that gets flooded
Channel		The edge of the river channel
Source		A cross-section of a river channel
Flood plain		A smaller stream that joins the river
Tributary		What the river flows in
Confluence		A wide river mouth into the sea
River bank		The bottom of the river channel
River bed		The area drained by the river
River basin		Where the river starts
Watershed		The dividing line between drainage basins
Cross profile		Where the river meets the sea or a lake
Estuary		Where two rivers join

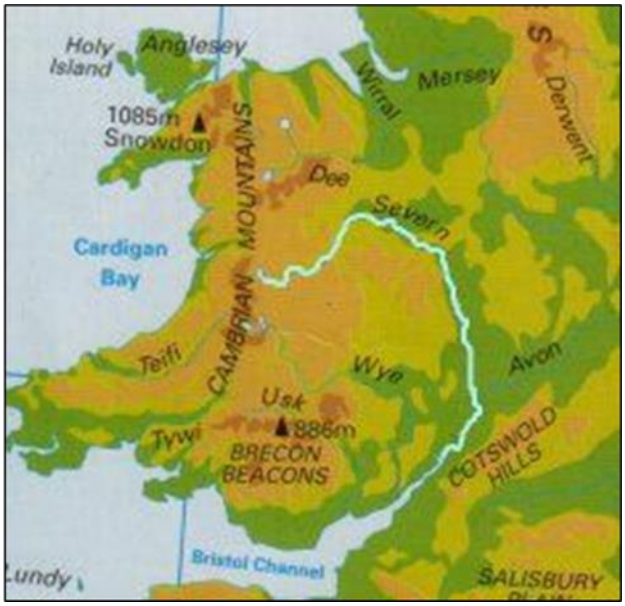


A river changes dramatically as it travels from its S_____ to its M____. The biggest change is its SHAPE

The river is at its widest	The river is at its narrowest	The river is wider, but not at its widest
The river travels through its floodplains	The river reaches the sea	The river is beginning in hills / mountains
The river is at its highest altitude	The river is at sea level	The river is getting closer to sea level
Erosion on the outside of meanders and deposition on the inside of them	The river mostly erodes and transports	The river deposits it remaining sediment

Upper course		Middle course		Lower course
	→		→	
	→		→	
	→		→	
	→		→	

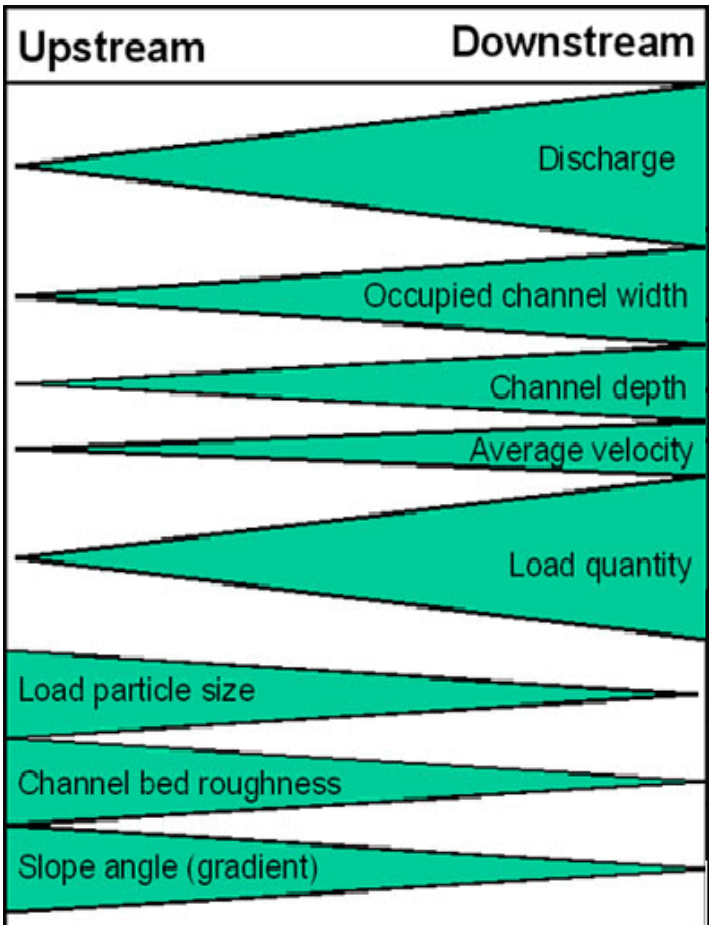
The River Severn



Watch the video and fill in the table with detail about how the river changes

Upper	Middle	Lower

The Bradshaw Model



Hypothesis One: The Bradshaw model helps to show me that the river's velocity will

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I know this as my data shows

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Hypothesis Two/Three: The Bradshaw model helps to show me that the river's width and depth will

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My data shows that

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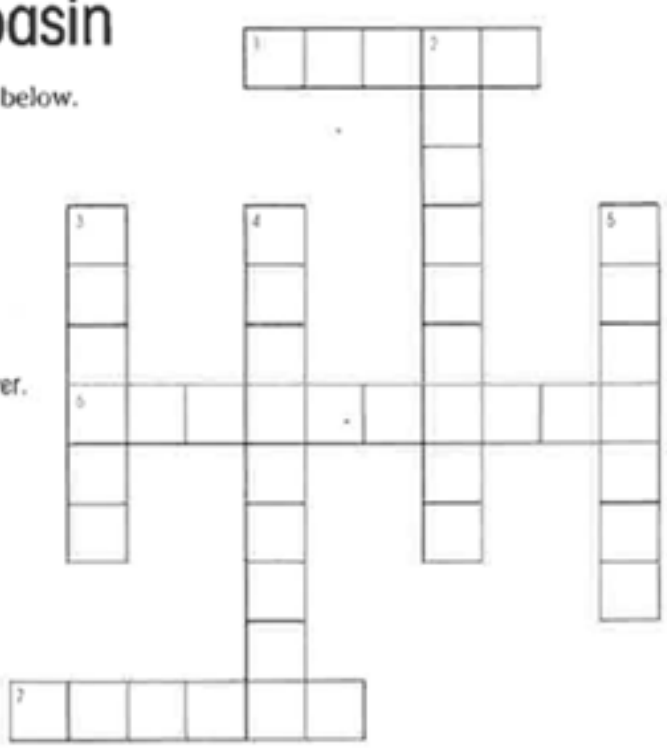
Time to reflect: Crossword

Features of a river basin

1 Complete the crossword using the clues below.

Across
1 Where a river ends.
6 The area of land drained by a river.
7 What happens when a river overflows its banks.

Down
2 A stream or river that flows into another river.
3 Where a river starts.
4 The edge of a river basin.
5 What a river flows in.



2 Look at the sketch below. It shows a river and some streams flowing into it. The area covered by the sketch is called a river basin.

Lesson 4: Why do rivers change?			
L/M/E		I think I can …	My teacher thinks I can …
Learning	I can define erosion, deposition, and transportation		
Mastering	I can explain the different processes of erosion and transportation		
Extending	I can apply the fluvial processes to a contextual geographical example		

Do it now: Can you answer the questions required to get from A to B?

A

What is condensation?			**Which course of a river is an interlocking spur in?**				
						Which course of a river is likely to flood the most?	
What is precipitation?			**How many courses are there in a river?**				
What is a meander?						**How does the long profile of a river change?**	

B

Starter: Make a sentence

bed	wearing	is	the	by	of	banks
the	Erosion	river	and	away	the	river

……

……

Superstar Challenge: What does the river need to be able to erode the bed and banks?

……

……

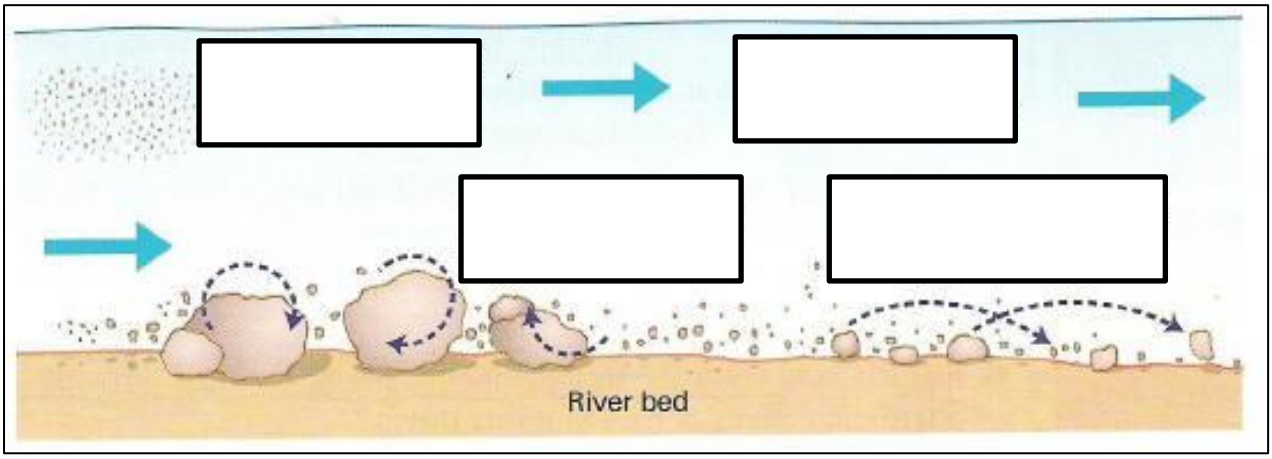
……

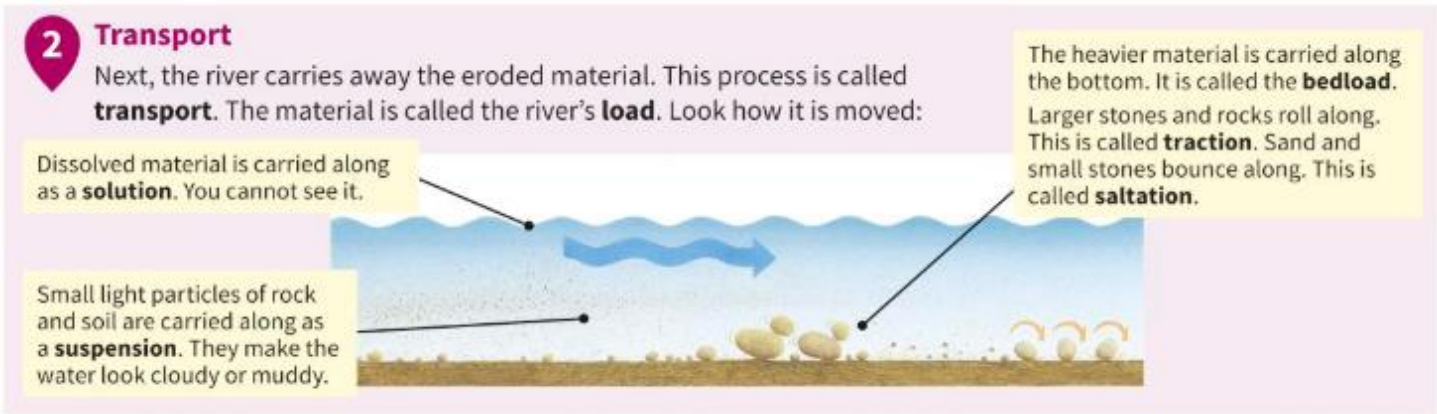
Types of erosion

Abrasion	Material carried by the river bump into each other and so are smoothed and broken down into smaller pieces.
Attrition	The acids in the water slowly dissolve the bed and the banks.
Corrosion	This is the force of water pushing air into the cracks in the bed and banks.
Hydraulic action	The bed and banks are worn down by the river's load (what it is carrying e.g., rocks).

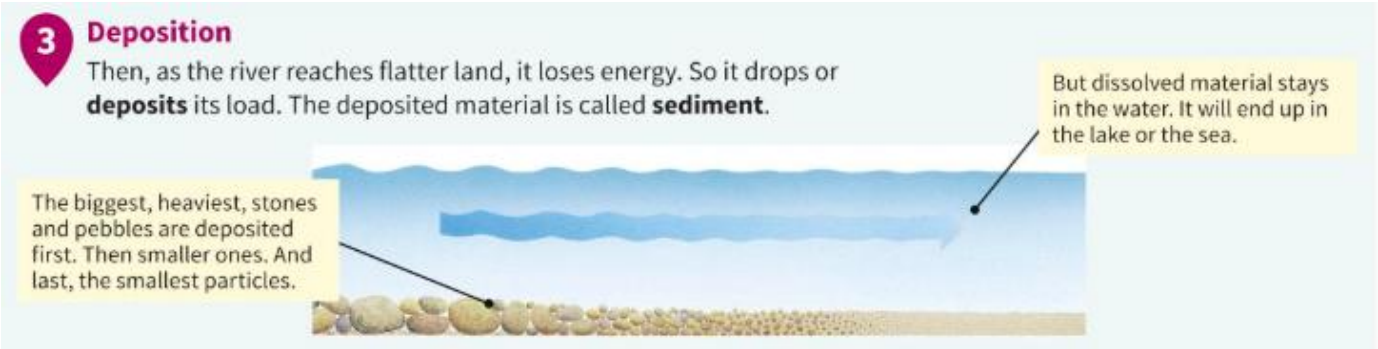
Types of transportation?

Traction	smaller stones are bounced along the bed of the river.
Saltation	dissolved material transported by the river.
Suspension	fine material which is carried by the water and which gives the river its 'muddy' colour.
Solution	large rocks and boulders are rolled along the bed of the river.





Deposition



What is deposition?

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……

1. If they were being carried by a river....
Which of the three rocks below would be deposited first? Why?

……
……
……

2. Which of the three rocks below would be deposited last? Why?

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Quick quiz

Large boulders are rolled along the river bed.	
The river dissolves rock such as chalk and limestone as it travels over them.	
This process compresses air into cracks.	
Responsible for the vertical deepening of the channel in the upper course.	
Occurs when velocity in a river falls. Bonus points for being able to give the size of sediment closest the river banks.	
When stones collide with each other and the banks and the bed of the river.	
This process occurs at the base of waterfalls and on the inside bends of meanders.	

Exam question

Explain the ways in which a river can transport material in its channel.

(4 Marks)

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Time to reflect: What can we remember?

What are fluvial processes?	
What does erosion mean and what are the four types?	
How does erosion change the land?	
What is the difference between hydraulic action and abrasion?	
What does transportation mean and what are the four types?	

What is a river's load?	
What is the difference between traction and saltation?	
What does deposition happen?	
Why does deposition happen?	

Lesson 5: What shapes does water make on a river?

L/M/E		I think I can …	My teacher thinks I can …
Learning	I can identify the different landforms found along a river.		
Mastering	I can describe the features of these different landforms		
Extending	I can explain how waterfalls and ox-bow lakes are formed.		

Do it now: Review

How many marks can you score in 5 minutes?

What is erosion?	What is abrasion?	What is hydraulic action?
Why do rivers flood?	What is deposition?	How does a river change from source to mouth?
What is saltation?	What is a river's long profile?	What is transportation?
1 point	**2 points**	**3 points**

Starter: Use the image

How steep are the slopes? ……..

How wide is the channel? ……..

What is the bed load like? ……

What are these? ……

Where has most of the erosion happened here? ……..

How fast is the water moving? ……

You would find V-Shaped valleys, interlocking spurs, waterfalls, and gorges in the _____ course of a river.

Video notes

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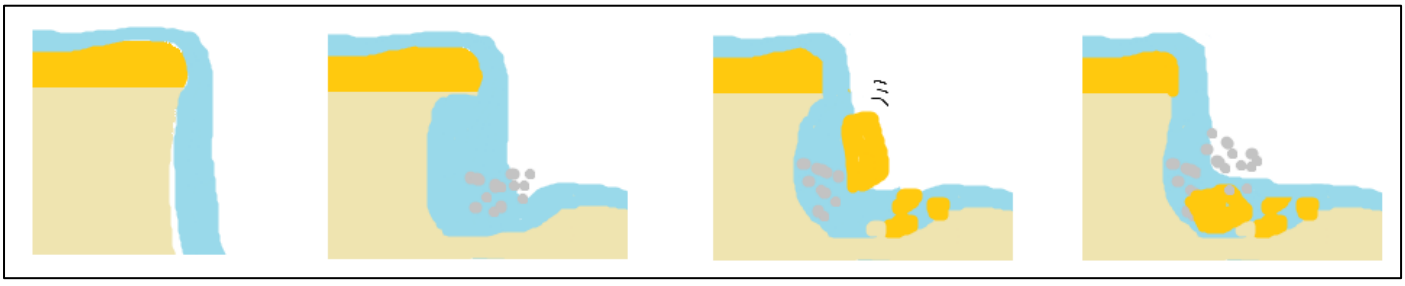
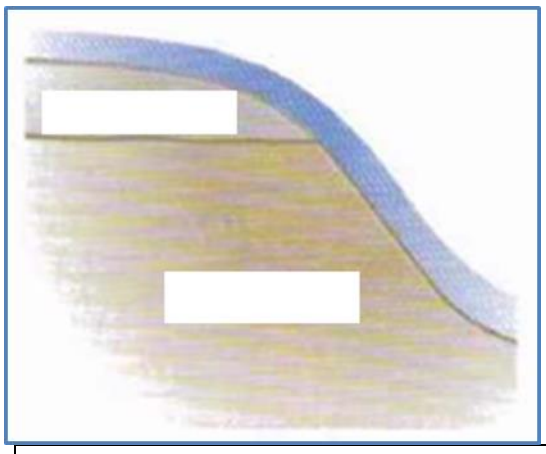
Put these statements in order

A steep sided river valley is created called a gorge	
A river meets a band of softer, less resistant rock	
The rock causes abrasion of the river bed	
Hydraulic action also helps to create a deep plunge pool	
The more resistant rock is left unsupported and overhangs	
The process is repeated, and the waterfall retreats upstream	
Processes of erosion such as abrasion cause undercutting	
Eventually the more resistant rock collapses onto the river bed	
The underlying, softer rock is eroded away more quickly	



Put the statements in order

Erosion continues and the waterfall slowly eats its way upstream leaving a gorge behind.	
The hard rock above is undercut as erosion of the soft rock continues. This leaves an overhang.	
The river drops over a band of resistant rock. Hydraulic action and abrasion erode the underlying band of softer rock.	



The overhanging hard rock collapses into the plunge pool to be broken up and washed away by the river.	

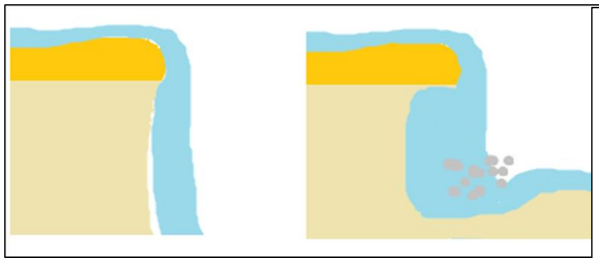
Annotate the diagrams

STEP 1: hard rock, soft rock, hydraulic action, abrasion

STEP 2: ledge, plunge pool, undercutting

STEP 3: overhang collapsing, debris

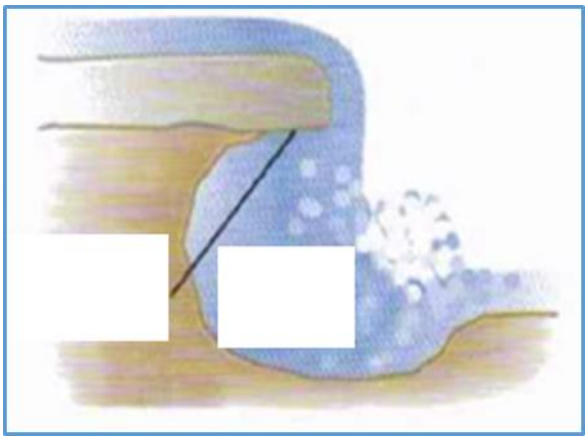
STEP 4: waterfall retreating, gorge



Label the diagram and fill in the missing words below:

Here a layer of …… rock lays over a layer of …….. rock. The water is beginning to …… the …….. rock which is less …… Creating a very ……..gradient.

Missing words: Hard, erode, soft, steep, resistant, soft

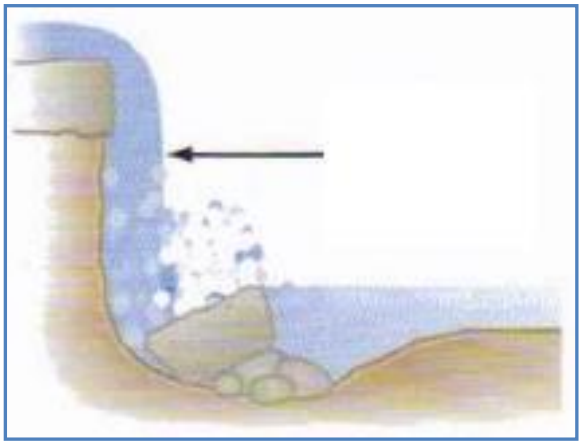


The erosion of the _____-_____ rock underneath, _____ the hard rock above. _____-_____ and _____ work together to create a _____-_____ at the foot of the waterfall.

Missing words: Plunge-Pool, Less-resistant, hydraulic-action, attrition, undercuts

The _____ which overhangs the _____-_____, eventually _____ under its own weight. The debris is then _____ by _____ -_____ and _____. The material is then _____ downstream.

Missing words: Ledge, collapses, hydraulic-action, attrition, eroded, plunge-pool, transported



The _____ now takes a position further _____. Over time this creates a _____. This is a long _____ of river surrounded by a _____ sided valley.

Missing words: back, waterfall, stretch, gorge, steep

Review time:

What is a waterfall?

……

What is a gorge?

……

Where do waterfalls and gorges occur in a river's long profile?

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How does a waterfall form?

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What is a plunge pool?

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How does a waterfall change over time?

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How does abrasion help the formation of waterfalls?

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Meanders and Ox-bow lakes

Video notes

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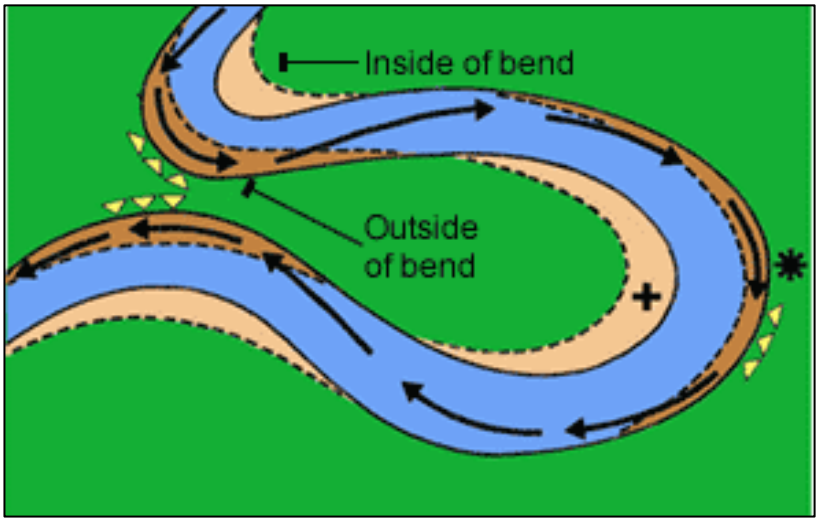
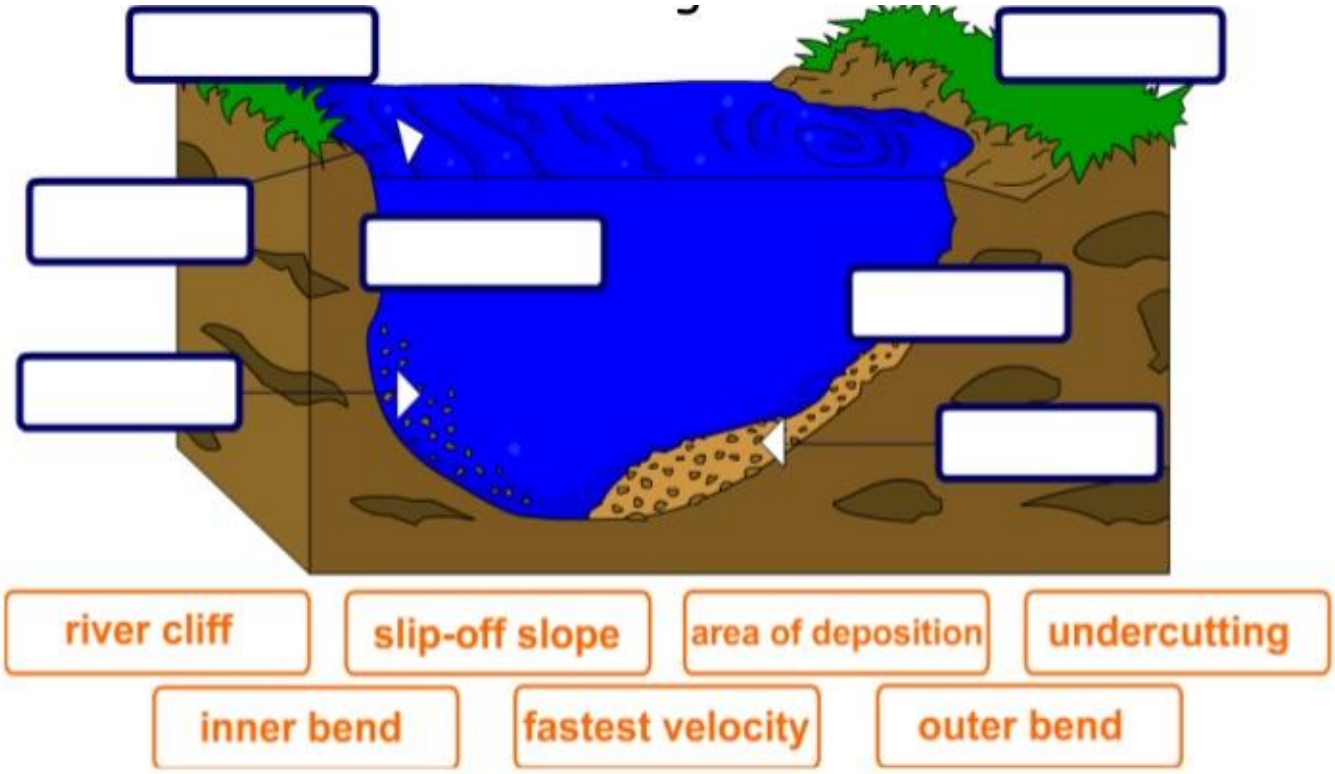
Annotate your diagram to show how this was formed



Put the sentences in order:

This means that water flows faster on the outside bend where there is less friction with the river bed. This leads to more lateral erosion.	
A meander is a bend in a river and is the result of both erosional and depositional processes.	
Whilst the outside bend is being eroded, sediment is being deposited on the inside bend making the meander migrate across the flood plain and become loopier.	
A rivers depth is not the same all the way down its course, in the middle and lower courses a river has pools; areas of deep water on the outside of small bends and riffles; areas of shallow water on the inside of small bends.	
Alternatively, on the inside bend, water flows slower as there is more friction. This leads to more deposition.	

Cross section of a meander – label the diagram



Video notes

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Copy the diagrams

As water travels from the upper river section to the _____ river section. There is less pull from _____, therefore there is less _____ erosion and more_____ erosion. The sideways movement of water causes it to flow_____ on the outside bend, as such the water has more _____ and erosion Takes place forming a _____, the water slows down on the _____ which means the water has _____ energy, and so _____ occurs forming a _____.

Missing words: Gravity, Middle, lateral, vertical, energy, faster, inside bend, River Cliff, deposition, less, slip-off slope.

Put the sentences in order:

Deposition occurs along the banks of the river	
The fastest current is now in the centre of the channel	
Greater velocity means that the river has more energy to erode	
Processes such as abrasion will cause lateral erosion	
In a meander the water is pushed to the outside bend	
The lake will slowly dry up unless rainfall is very high	
Continual erosion on the outside bend narrows the meander neck	
The river floods and takes the shortest route, cutting through the neck	
The meander becomes cut off to leave an ox-bow lake	

EQ

Explain the formation of an oxbow lake (4 marks)

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Time to reflect knowledge check

What is a meander? ……

Where does erosion occur on a meander? ……

How do meanders form?

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What happens to a meander over time?

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What happens to the neck of a meander? ……

What is an ox-bow lake?

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What happens to the ox-bow lake?

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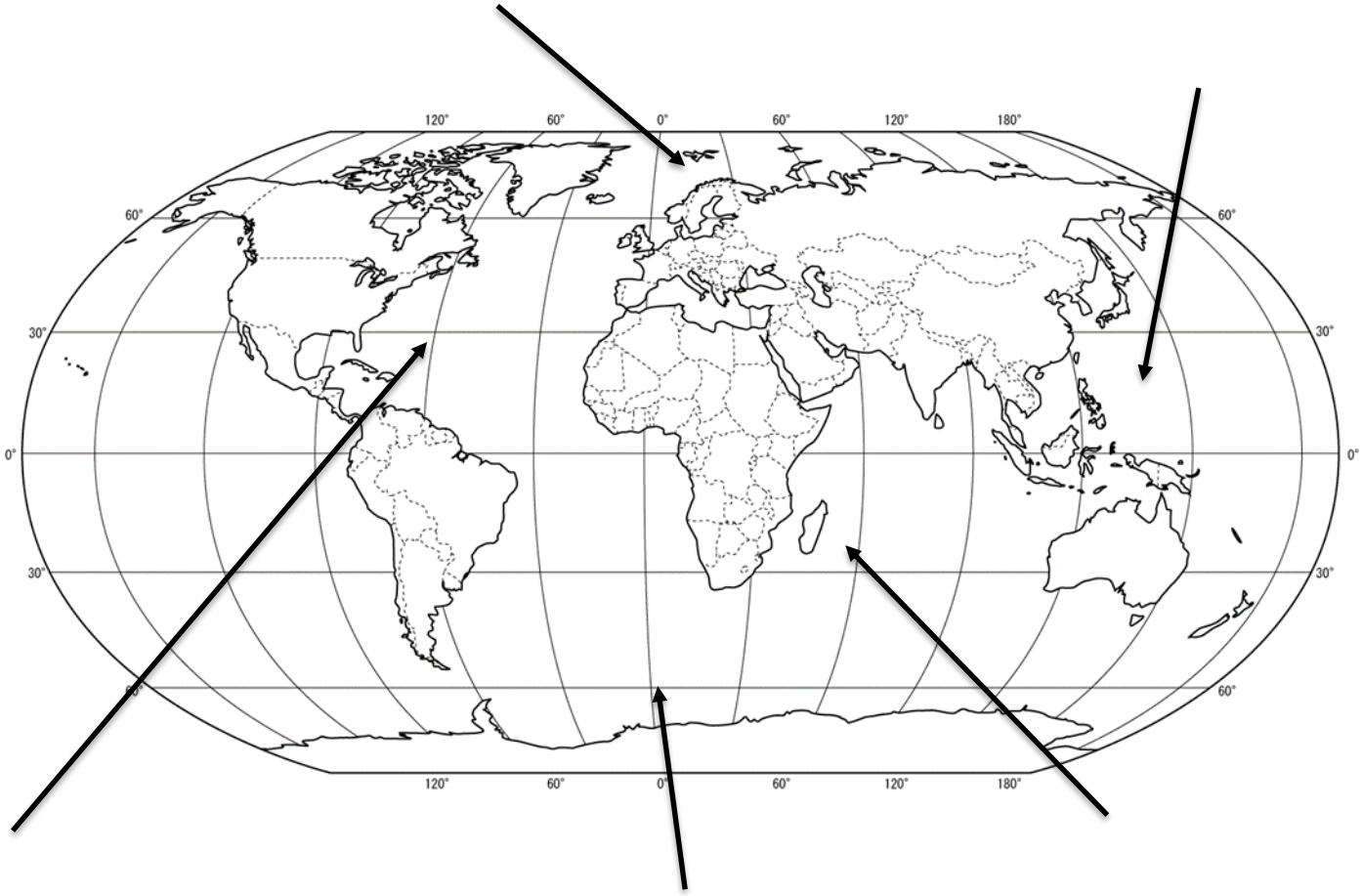
Lesson 6: What happens where the land meets the sea?

L/M/E		I think I can …	My teacher thinks I can …
Learning	I can describe the three factors that affect waves.		
Mastering	I can explain how destructive and constructive waves are formed.		
Extending	I can compare constructive and destructive waves.		

Do now: Name the oceans



Starter: Complete the quiz

Statement number	True or False?
1.Our oceans cover 70% of the Earth's surface	
1. The majority of all life on Earth is aquatic	
2. Oceans have the fewest number of endangered species on Earth	
3. Less than 5% of the planet's oceans have been explored	
4. We know around 75% of all marine species in our oceans	
5. Over 70% of our planet's oxygen is produced by the ocean.	
6. The Atlantic is the largest ocean on Earth	
7. It is possible to find rivers and lakes beneath the ocean	
8. Around 10% of the USA lies beneath the ocean	
9. The ocean regulates the global temperate of the land	

How are waves created? Draw the diagram and label it

Video

What causes waves?

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What factors affect the size of waves?

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What happens when waves reach the coast?

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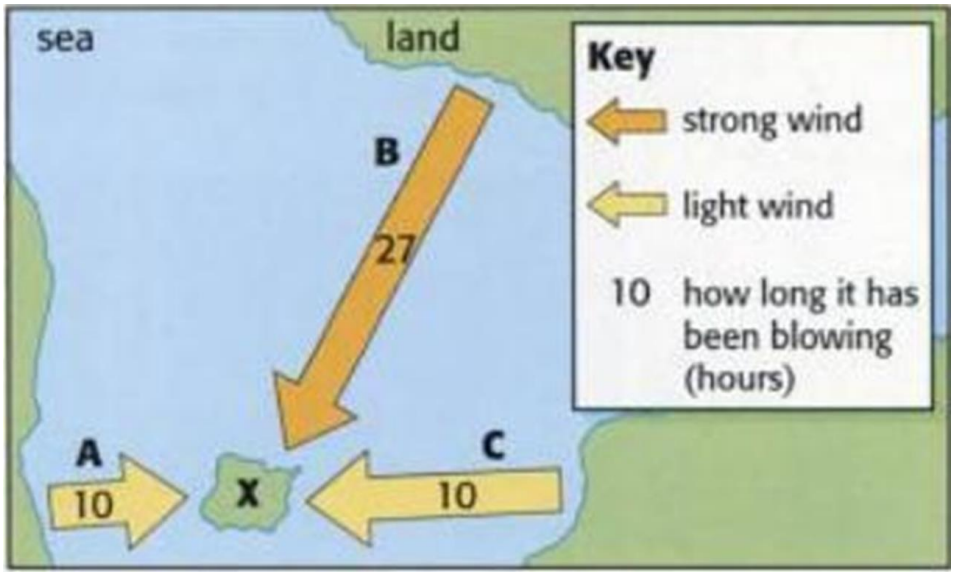

Which will give you the strongest waves & WHY?

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Which will give you the weakest waves & WHY?

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There are three factors which affect how much energy a wave has:

Wind Duration	The distance the wave travels across the water
Wind Speed	How consistently the wind has blown
Fetch	How fast the wind is travelling

Swash -

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Backwash -

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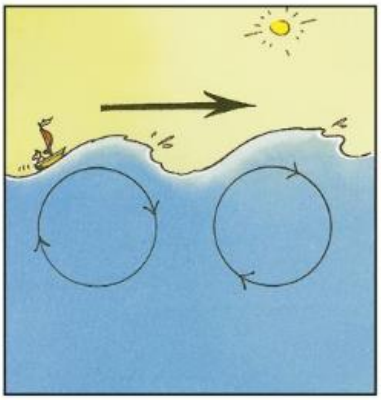
When waves reach the coast



Out at sea, the waves roll like this. In a gale they can be over 30 m high! But at the shore they break …

… giving turbulent water called **swash**. The water rushing up the sand is called the **uprush**.

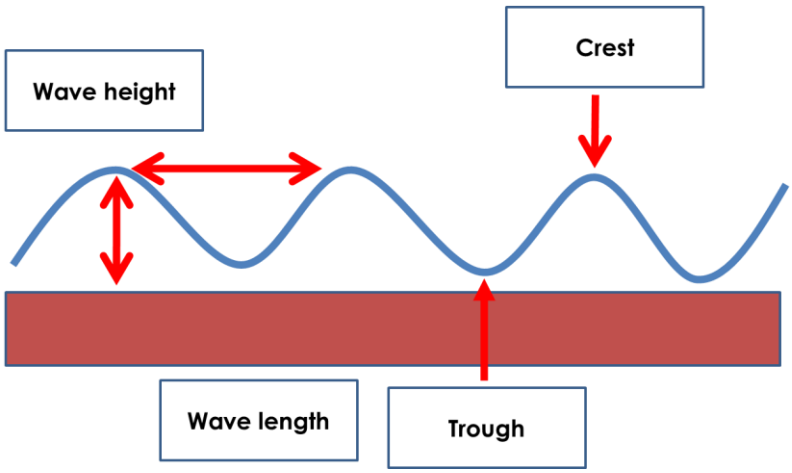
The water rolling back into the sea is called the **backwash**. Shortly, another wave will arrive.

If the backwash has more energy than the uprush, the waves eat at the land, dragging pebbles and sand away. (This happens with high steep waves.)

But if the uprush has more energy than the backwash, material is carried onto the land and left there. (This happens with low flat waves.) The material builds up to make a beach.

Water moves up the beach as swash	
When the wave reaches shallow water, it slows down due to friction. The shape of the wave becomes elliptical	
Wind creates friction on the water's surface	
The top of the wave continues to move forward as it is unaffected by the friction with the sea bed. It becomes steeper and steeper and eventually breaks	
Water then returns back down the beach as the backwash	
Friction causes water particles to rotate and energy is transferred forward	

Wave anatomy



Crest	The distance between two crests or troughs
Backwash	The distance between the crest and the trough
Velocity	The top of the wave
Wavelength	The number of waves per minute
Trough	The speed the wave is travelling
Wave Height	The low area in between two waves
Swash	The movement of water and load up the beach
Wave frequency	The movement of water and load back down the beach

Constructive waves -

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Destructive waves -

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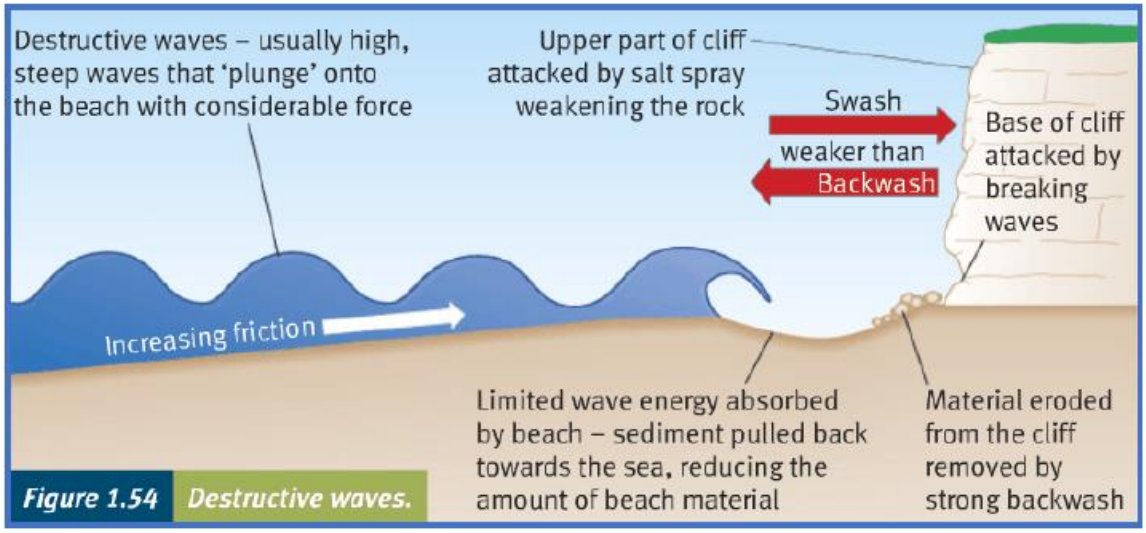

Figure 1.54 *Destructive waves.*

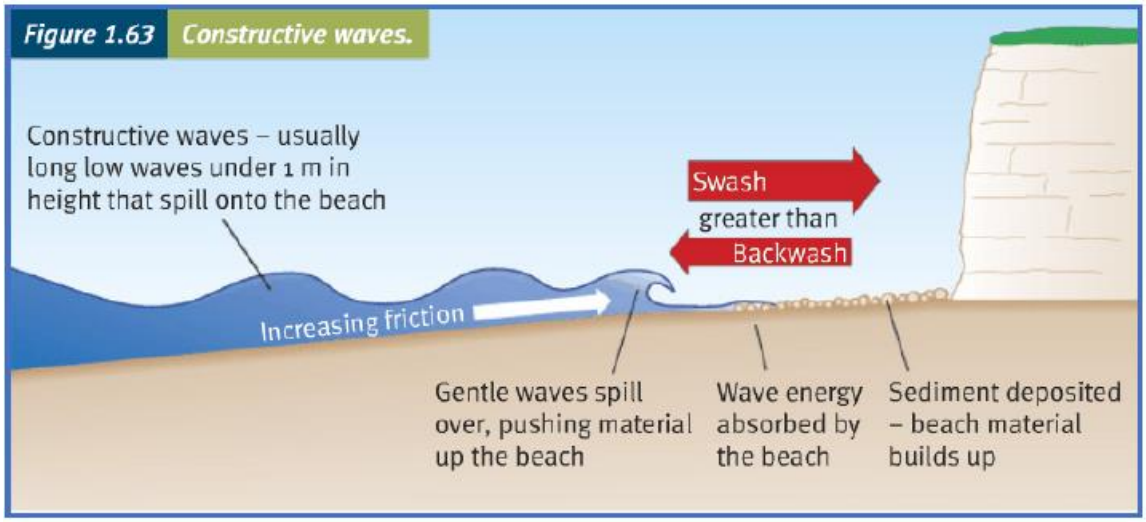

Figure 1.63 *Constructive waves.*

Explain which beach (A or B) was created by the constructive wave. Answer your chosen question

Sort the statements

	Destructive or Constructive?		Destructive or Constructive?
They have a swash that is stronger than the backwash		They are found on beaches with gentle slopes	
They break on the shore and deposit material, building up beaches		They are found on steep parts of the coastline	
Are created when the wind is powerful and has been blowing for a long time		They have a stronger backwash than swash, therefore removing material	
They have a long wavelength and are low in height		They are created in storm conditions	
These waves tend to erode the coastline		They are created in calm weather and are less powerful	

EQ - Compare constructive and destructive waves (4 marks)

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Time to reflect: Bigger or smaller?

1. The wind is light	
2. The wind is strong	
3. The wind is calm	
4. The wind blows for a long period of time	
5. The wind blows over a large fetch	
6. The sea gets shallower	
7. The wind always comes from the same direction	
8.There is a storm.	

Lesson 7: What landforms are created on the coast?

L/M/E		I think I can …	My teacher thinks I can …
Learning	I can describe the formation of headlands and bays.		
Mastering	I can explain the erosion of a headland.		
Extending	I can explain the erosion of a headland with the use of erosional processes		

Do now: Destructive waves true or false

Operate in calm conditions	
Big, strong waves when the wind is strong and has been blowing for a long time usually 11-15 waves per minute	
Occur when wave energy is high	
Tend to deposit material from the coast (it deposits)	
Backwash is stronger than the swash	

Starter: levelled EQ

Answer one of the levelled questions. Try not to look back at last lesson.

I chose to do ……

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Headland - ……..

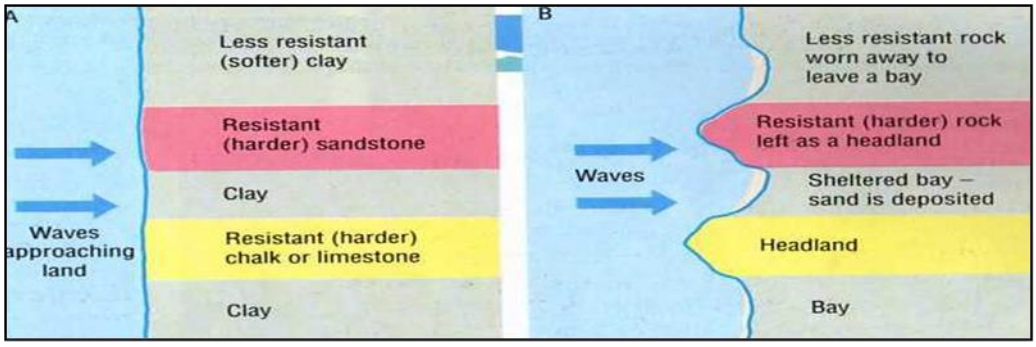
Bay - ……..

Draw and annotate a diagram of headland and bay formation.

Put the statements in order

This leaves a headland; a piece of rock jutting out to sea.	
This causes a bay to be formed.	
The resistant (hard) rock is less easily eroded by the erosional processes.	
Cliffs are made up of alternating layers of hard and soft rock.	
The less resistant (soft) rock is eroded more quickly through erosional processes.	

EQ



Headlands and bays form along coastlines where there are alternating outcrops of resistant (harder) and less resistant (softer) rock.

Explain how headlands and bays are formed:

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How a wave-cut platform forms

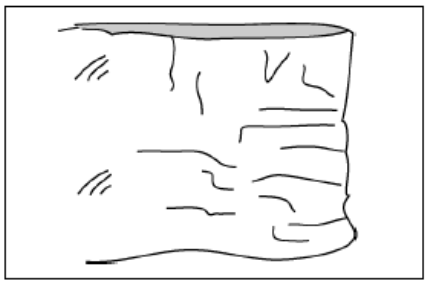
1 The waves carve **wave-cut notches** into cliffs at a headland. These get deeper and deeper …

2 … until, one day, the rock above them collapses. The sea carries the debris away.

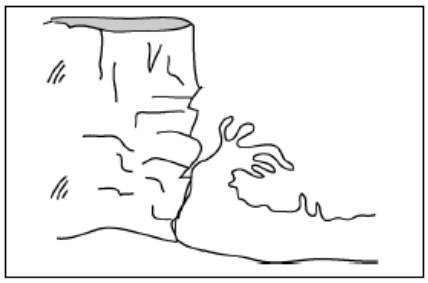
3 The process continues non-stop. Slowly the cliffs retreat, leaving a **wave-cut platform** behind.

Use the info above to put these diagrams in the correct order

There is a straight cliff made of a hard rock. ☐

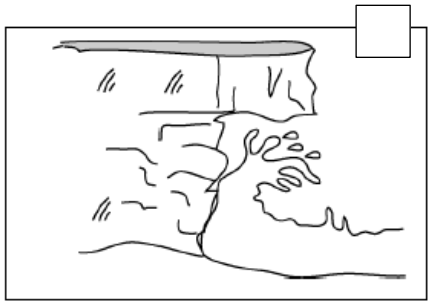


The sea wears away the fallen rock and starts to attack the cliff again. ☐

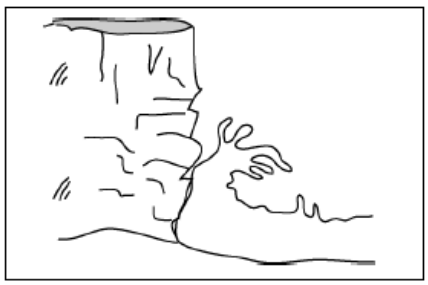


The top of the cliff has nothing under it. It will fall off and land in the sea. ☐

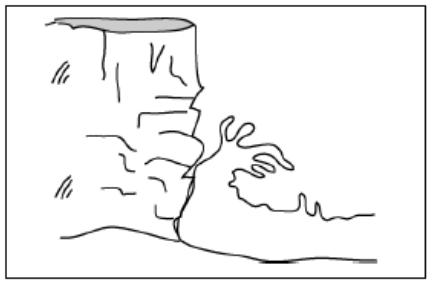
After a long time the waves erode away a really big bit of the cliff. This is called a notch. ☐



The waves hit the bottom of the cliff. ☐

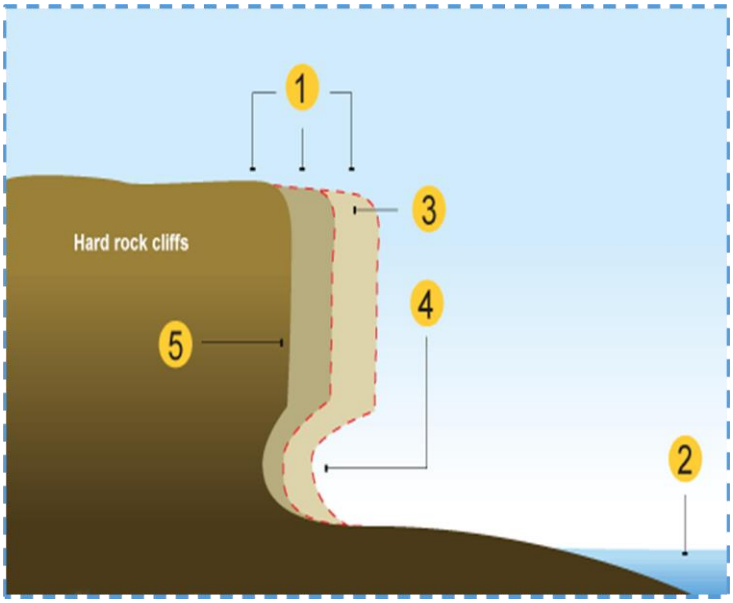


The waves wear away the bottom of the cliff. ☐



Match the processes

The sea attacks the base of the cliff forming a wave-cut notch	
The backwash carries the rubble towards the sea forming a wave-cut platform	
Weather weakens the top of the cliff	
The notch increases in size causing the cliff to collapse	
The process repeats and the cliff continues to retreat	



Video notes:

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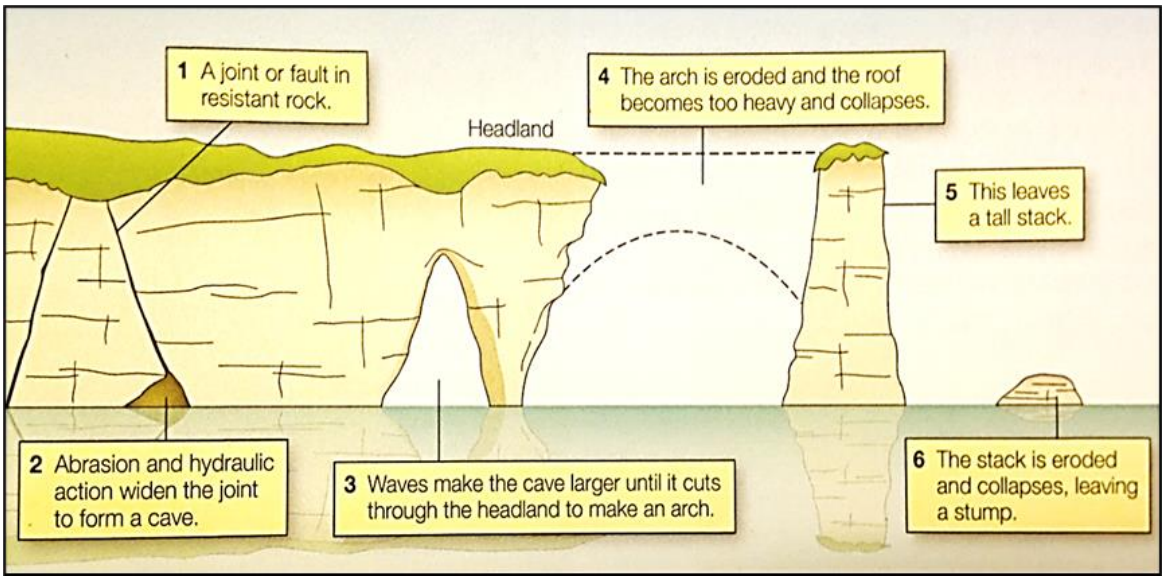
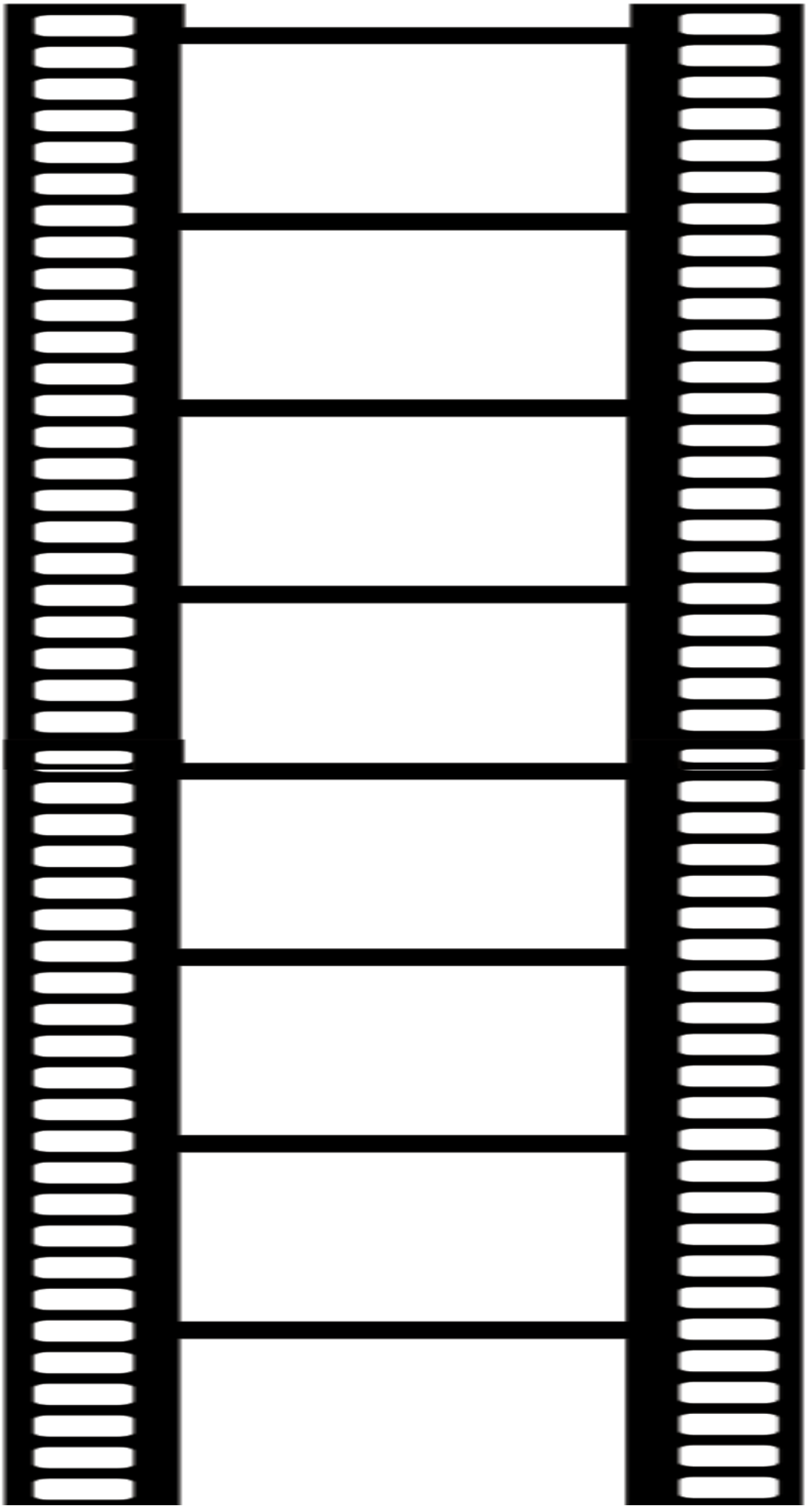


The mystery of Old Harry

What happened to Old Harry – put the story in order

One day they had a particularly nasty argument, the first time any cracks had appeared in their relationship.	
Old Harry and his wife patched things up, but a few months later the cracks widened.	
A few years later, Old Harry's wife started to suffer balance problems.	
Although they still lived close together, there was nothing holding them together.	
One day, while stood watching the sun set over the sea, Old Harry's wife toppled over.	
Old Harry stood helpless as he watched his wife fall into the sea, never to be seen again	
Old Harry had lived with his wife in Dorset for many years.	
Over time, Old Harry & his wife grew further apart.	
Eventually, the roof fell in on their relationship & they were separated.	
As time went on, a huge hole was eroded in their relationship. They weren't as close as they had been.	



WRITE You can write like a Geographer...

Pen to paper: Explain the formation of a stack

Write your answer using as many of the key terms below as possible! In 5 minutes, you will read your response to the person nearest you. They will add your point up and deduct any points if you use banned words – the aim is to get the highest score!

1 point	2 point	3 point	- Point
Waves	**Arch**	**Resistant**	**Like**
Sea	**Cave**	**Hydraulic action**	**Erm**
Wind	**Stack**	**Abrasion**	**I think**
Rock	**Stump**	**Destructive wave**	**But**

Time to reflect: What is the key word?

1  +  = ☐

2 S +  = ☐

3 Pre +  ing +  = ☐

4  + S  +  = ☐

5  +  +  = ☐

Lesson 8: How are beaches made?			
L/M/E		I think I can …	My teacher thinks I can …
Learning	I can describe the processes that transport material along the coastline.		
Mastering	I can explain how beaches are formed		
Extending	I can explain the process of longshore drift.		

Do now: Name the type of transportation

The material is carried in the wave because it is small enough to be.	
The material is too heavy to be carried but too light to be dragged along the sea bed.	
The material is dragged along the bottom of the sea bed because it is large.	
Soluble material has a chemical reaction with the salt in the wave.	
Material bounces along the bottom of the sea bed because it is medium sized.	
The material is carried along invisibly in the sea water.	

Starter: Levelled EQ

Answer one of the levelled questions. Try not to look back at last lesson.

I chose to answer ……

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What is a beach? Put the sentence fragments in order

Beach material can be	
which lie between	
to keep the beach in place.	
Beaches are areas of land	**1**
and low tide.	
Storm beaches will have a steeper profile	
sand or pebbles, or a mixture of both	
high-tide	
beaches are usually gently sloping, but	
tourist beaches will often have groynes on them	

Video notes

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What is Longshore Drift?

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Draw a diagram

The backwash then takes the material straight back down the beach.	
The process repeats and transports the material in a zig-zag pattern.	
This means that material is eroded from one end of the beach, transported, and deposited at the other end.	
The swash of the wave approaches the beach at angle, following the direction of the prevailing wind.	
This takes the material up the beach.	

EQ - Outline the process of longshore drift (3).

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Video notes

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Beaches

A. These are found in sheltered bays.
B. Some beaches are made up sand and shingles.
C. The larger the material is the steeper the beaches.
D. The sandier the beach, the more popular they are with tourists.

Spits

A. Spits are narrow ridges of sand or shingle running out from the coast.
B. They form where the direction of the coast changes and other conditions including a shallow sea.
C. They move direction depending the weather conditions. Storms make them move due to the wind.
D. Spurn Point is a famous spit in Yorkshire.

Bars

A. Bars are ridges of sand and other material that run parallel to the coast.
B. They block water off and the water kept behind is called a lagoon.
C. The lagoon will eventually fill by sediment (particles).

Tombolos

Tombolos are ridges of sand and other material that link the mainland to an island a little way out to sea.

Questions:

What is the famous spit in Yorkshire called? ……..

What is the cut off water behind a bar called? ……..

What eventually happens to it?.....

What is the feature called that links a little island to the mainland? ……

How is it linked?.....

What is the other material found in a beach other than sand? ……

How do we know if a beach is steep? ……

Sketch a spit below and label it is showing how it was formed:

Lesson 9: How can we protect our coast?			
L/M/E		I think I can …	My teacher thinks I can …
Learning	I can give reasons why coastal defences may be needed		
Mastering	I can describe how different coastal management techniques work		
Extending	I can evaluate the effectiveness of different coastal defences		

Do now: Review

Continent	A small part of a continent
Country	Study of the movement, collision, and division of continents
Continental Drift	One of 7 Large land masses on earth
Sedimentary Rock	Rocks that are made from magma that has cooled and solidified
Igneous Rock	Rocks formed from existing rocks under extreme pressure
Metamorphic Rock	Rocks made from layers of sediment and dead creatures

Starter: Why do we need to protect the coast?

Add ideas to your mind-map as to why we protect the coast.

Your aim is to write a short paragraph, explaining why we might want to protect some parts of the coast

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Hard engineering -

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Soft engineering -

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What is the purpose of hard engineering?

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What is the right location for hard engineering methods?

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What is the purpose of soft engineering?

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What is the right location for soft engineering methods?

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What is sustainability?

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HARD ENGINEERING	Description	Advantages	Disadvantages	Effectiveness .10
Sea walls				
Gabions				
Rock armour				
Groynes				

Can you name the hard engineering being described?

Large rocks that absorb wave energy	
Wire cages filled with sediment which can be stacked into shape.	
A curved piece of concrete which reflects the energy of the wave.	
These can be wooden or made from stacked rocks, they build up the beach by preventing longshore drift.	

EQ: To what extent is a sea wall a sustainable way to prevent coastal erosion?

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'The sea wall is the best way to protect the coast from erosion'

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SOFT ENGINEERING	Description	Advantages	Disadvantages	Effectiveness /10
Beach nourishment				
Sand dunes				
Managed retreat				
Beach drainage				

Can you name the soft engineering being described?

This method involves adding extra material to the beach by dredging it from the bottom of the sea.	
This method involves allowing the coastline to flood and letting natural habitats colonise the area.	
This method involves drying out the sand so that it can withstand and absorb the impact of the waves.	
Reinforcing and building up the natural sand piles on the beach	

Annotate the sustainability meter with how sustainable you feel each type of soft engineering is.

EQ: To what extent is managed retreat a sustainable way to prevent coastal erosion?

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'Managed retreat is the best way to protect the coast from erosion'

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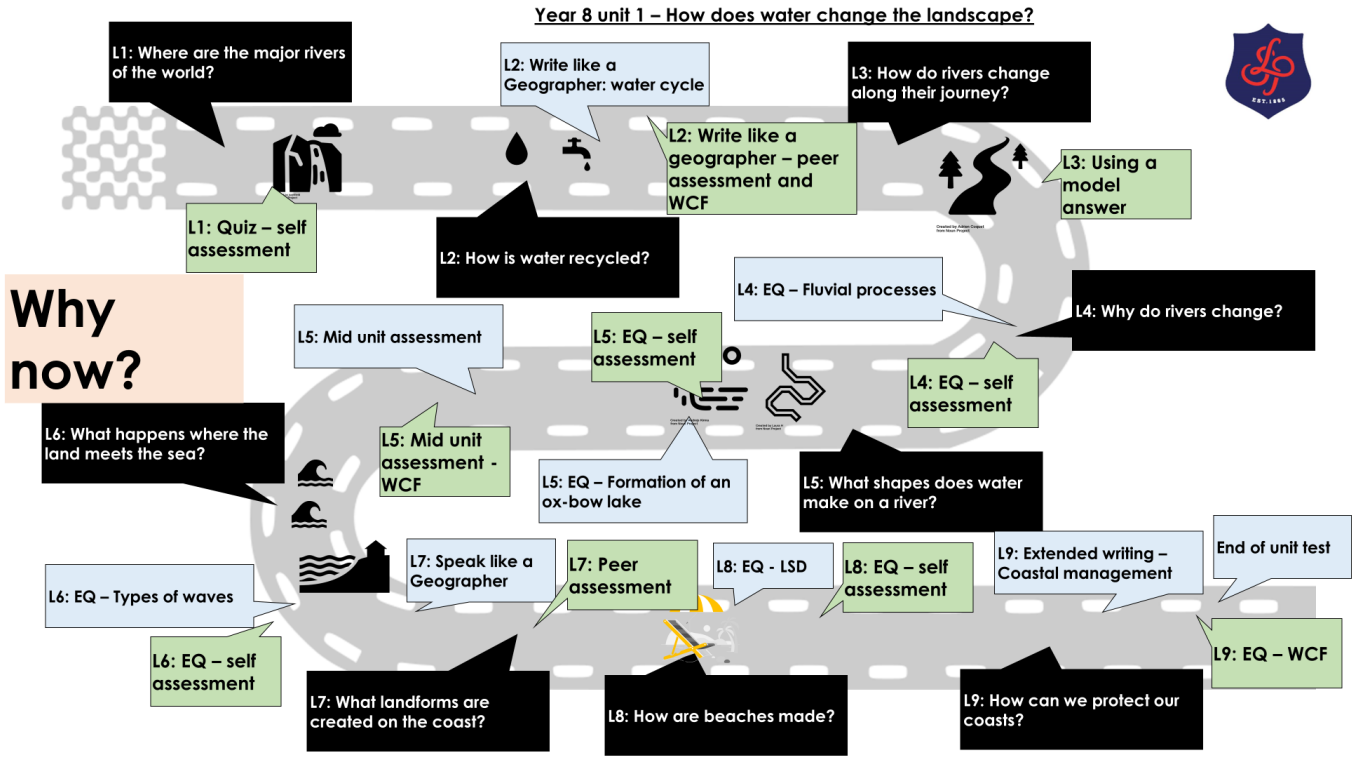
Time to reflect: Hard or Soft?

Building a concrete barrier at the foot of cliffs	
Allowing a low lying coastal area to flood	
Adding sediment to the beach to make it broader	
Piles of large boulders dumped at the foot of the cliff.	
Planting stabilising vegetation	
Stones in cages on the cliffs	



What have you learned about rivers and coasts? Top 3 pieces of information	
Why were you studying this topic? Why is it important?	
Out of the 9 lessons in the journey above, which lesson did you learn the most from?	
What is the 1 key message/ fact that you will remember from this topic?	
When we teach this unit again next year, what else do you think we should teach about? What was missing from this unit?	