

Topic 1: Rivers

What is the hydrological cycle?

A river is water flowing downhill in a channel. The water cycle describes the continuous movement of water on, above and below the surface of the Earth.

What is a drainage basin?

A drainage basin is the area of land around the river that is drained by the river and its tributaries. River features in a drainage basin include: the channel, the mouth, the source, the watershed, confluences and tributaries.

How does a river change from source to mouth?

There are three courses of a river: the upper, middle and lower. A river is narrow and shallow in the upper course but by the time it gets to the lower course it is wide and deep. Valley sides are steep in the upper course but flat in the lower course.

How do river processes differ?

Erosion is the wearing away of sediment. There are four types of erosion: hydraulic action, abrasion, attrition and solution. Transportation is the movement of sediment. Deposition is the dropping of sediment.

How are waterfalls formed?

Soft rock is eroded, undercutting the layer of hard rock above it. This creates an overhang which will eventually collapse. The river flows over this to create a waterfall.

How is a meander created?

The river flow is fasted on the outside bend, causing erosion. Over time the bend gets wider, creating a meander.

Why do rivers flood?

Rivers flood due to physical factors e.g. prolonged precipitation and human factors e.g. urbanisation.

What are the impacts of flooding?

Shrewsbury flooded in 2010 causing primary and secondary impacts. A primary impact of the floods was damage to infrastructure and a secondary impact was damaging the economy.

How can rivers be managed?

Rivers can be managed through hard and soft engineering. Hard engineering strategies include dams and reservoirs and embankments. Soft engineering strategies include afforestation and floodplain zoning.

How should Tewkesbury be protected?

River management is specific to location.



Guided reading opportunity – what are the causes of flooding?



Extended writing opportunity – pupils write a letter to the Environmental Agency advising on how Tewkesbury should be protected.



'Turn and talk' opportunity – how should Tewkesbury be protected? Decision making exercise



Homework

Homework tasks will be given every second lesson. Homework will support knowledge acquisition and retention. Challenge homework tasks will be provided. All homework will be recorded on EduLink.

Subject specialist keywords:

Hydrological cycle

Evaporation

Transportation

Mouth

Transpiration

Precipitation

Surface run-off

Source

Condensation

Drainage basin

Tributaries

Watershed

Channel

Confluence

Upper course

Middle course

Lower course

Erosion

Hydraulic action

Abrasion

Attrition

Solution

Sediment

Waterfall

Gorge

Plunge pool

Meander

Slip off slope

River cliff

Floodplain

Soft engineering

Hard engineering

Short term impacts

Long term impacts



British Values:

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Careers Link:

Hydrologists Land surveyor Agricultural engineer Geotechician

Topic	2:	Ecosy	ystems
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Where are the global ecosystems?

Global ecosystems are evenly distributed along lines of latitude because of global climate. Tropical rainforests are found along the Equator, hot deserts are found along 30 degrees and deciduous forests are found along 60 degrees

What are ecosystems, food webs and food chains?

An ecosystem is a community of living and non-living components that all rely on each other. A food chain shows links between living things in an ecosystem whereas a food web is made up of multiple food chains.

What is the climate like in tropical rainforests?

Tropical rainforests are humid (hot and wet). They have one climate all year round (no seasons) because they are found on the Equator.

How have plants adapted to tropical rainforests?

There are four layers of the rainforest: shrub, under canopy, canopy and emergent. Adaptations of plants include: buttress roots, drip tips, lianas and epiphytes.

How have animals adapted to tropical rainforests?

Sloth, flying frog, toucan and spider monkeys have all adapted to live in tropical rainforests. For example, spider monkeys have a long tail to help them swing from tree to tree in the canopy.

Why is deforestation happening?

Deforestation is the removal of forest to clear land. Deforestation is happening due to cattle ranching, subsistence farming, timber logging, mineral extraction, energy and urbanisation.

Is there a benefit to deforestation?

Advantages of deforestation include: job opportunities and improved GDP for the country. Disadvantages of deforestation include: loss of biodiversity and soil erosion.



Guided reading opportunity – why is deforestation happening?



Extended writing opportnity - Explain the difference between a food chain and a food web

Extended writing opportunity – Explain how deforestation occurs



'Turn and talk' opportunity – how have animals adapted to the rainforest?



Homework

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Subject specialist keywords:

Global

Ecosystem

Climate

Biotic

Abiotic

Food chain

Food web

Adaptation

Deforestation

GDP (Gross Domestic Product)

Biodiversity

Sustainability



Can people survive in the rainforest? Indigenous groups are local people/tribes of the	
rainforest. Indigenous people use the rainforest sustainably e.g. using rubber from rubber trees.	

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Democracy: Students explore and discuss injustices and inequalities (perceived or real) and challenge and debate these through the exploration of geographical topics.

Careers Link:

Environmental Conservationist Zoologist Forestry worker Farmer Environmental consultant Ecologist

Topic 3: Africa

<u>How is Africa a diverse continent?</u> Africa is a continent made up of 54 countries.

<u>How and why does Africa's climate vary?</u> There are different climate zones in the continent of

Africa. This is due to the Hadley cell.

How does Africa's past impact the present?

The Scramble for Africa was the invasion, division and colonisation of the continent by European powers which resulted in the challenges of the present.

How important are borders in Africa?

Borders in Africa were largely created by European powers. They did not take into account social or environmental factors.

Who played a key role in the history of the continent? Colonising individuals e.g. King Leopold and national leaders e.g. Robert Mugabe played a part in the history of the continent.

Are resources a blessing or a curse for the DRC? Cobalt is a natural resource used in electronics. 70% of world cobalt supply is found in the DRC.

How is Africa represented?

Many representations of Africa reinforce negative stereotypes e.g. everyone is poor or it is full of war and conflict.



Africa Is Not A Country by Dipo Faloyin

- Guided reading opportunity how important are borders in Africa?
- Guided reading opportunity who played a key role in the history of the continent?
- Guided reading opportunity Black Panther's representation of the continent



- Written opportunity description of the distribution of climate zones in Africa
- Written opportunity use of the map resource to describe the distribution of diamonds in Africa and explain why European countries wanted to colonise Africa.
- Written opportunity answering a text-based question e.g. Using Figure 1, explain why borders in the continent of Africa are a source of conflict.
- Written opportunity to what extent did Robert Mugabe play the most significant role in the history of the continent?
- Written opportunity an extended piece of writing answering the question: "Resources are a blessing for the DRC" Do you agree?



How does the expectation of the continent differ from		
<u>reality?</u>		
Development indicators have significantly improved over		
time.		
		 'Turn and talk' opportunity - discuss definitions of: colonise, exploit and independence. Think-pair-share opportunity about the following questions: What are the purposes of borders? Why might countries want to expand their borders? How do you think borders are maintained? Think-pair-share - how two images (an iPhone and a map showing the DRC) are linked.
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		Subject specialist keywords:
		Climate
		Hadley Cell
		Colonisation
		Genocide
		European
		Natural resource
		Development indicator
		Social
		Economic
		Environmental
		Diverse
		Landlocked
		Ecosystem
		Civil War
		Cobalt
		Life expectancy
		Choropleth map
		GDP (Gross Domestic Product)
		Poverty
British Values:		

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Rule of Law: Students have opportunities to explore and understand how governments have influenced and shaped nations through law.

Tolerance of different religions and cultures: Students understand the importance of identifying and combating discrimination including tackling stereotypes (e.g. in our studies of Africa)
Students learn to understand and respect the traditions of other cultures.



Students study countries with many different faiths and respect the faiths of those around us.

Democracy: Students explore and discuss injustices and inequalities (perceived or real) and challenge and debate these through the exploration of geographical topics.

Tolerance of different cultures and religions: Students understand the importance of identifying and combating discrimination including tackling stereotypes.

Careers Link:

Land surveyor Environmental consultant Environmental health practitioner

Topic 4: Middle East

What and where is the Middle East?

The Middle East is in the northern hemisphere and is a group of countries that are in Asia and Africa.

What is the climate of the Middle East?

The Middle East is a hot desert biome so has a hot and dry (arid) climate.

How does Egypt manage waste?

Population increase has resulted in an increase in waste. The Zabbaleen collect waste in Egypt meaning jobs are provided and waste can be sold. However many children employed do not attend school, are exposed to diseases and face exploitation.

How does oil help Saudi Arabia's development?

Oil is one of the main sources of income for Saudi Arabia as they have one of the largest oil reserves in the world. Oil provides employment and is exported to the rest of the world, however it creates environmental challenges.

Why is tourism important to Dubai?

Dubai has invested in its infrastructure to attract investment and new business. This resulted in increased tourism, increasing the number of jobs in the tourism job sector. Tourist landmarks in Dubai include: the Burj Khalifa, Palm Island and the Dubai Miracle Garden

Why are marshlands in Iraq disappearing?

Marshlands are disappearing due to drought and reduced river flow. This creates water insecurity, loss of biodiversity, water pollution and impacts on local economies.

How is Jordan trying to prevent water scarcity?

Water scarcity is a lack of freshwater to meet demand. Grey water (recycling water) is used to try and meet demand for water.



Guided reading opportunity – how does oil help Saudi Arabia's development?

Guided reading opportunity – why is tourism important to Dubai?

Guided reading – how is Jordan trying to prevent water scarcity?



Extended writing opportunity – explain the advantages and disadvantages of using grey water



'Turn and talk' opportunity – pupils discuss the problems of waste in Egypt



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Subject specialist keywords:

Middle East

Northern Hemisphere

Hot Desert

Biome

Arid

Disease

Exploitation

Natural resources

Oil

Infrastructure

Tourism

Water insecurity

Water scarcity

Grey water

Biodiversity

Water pollution

Demand / Supply



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Tolerance of different religions and cultures: Students understand the importance of identifying and combating discrimination including tackling stereotypes (e.g. in our studies of Middle East)

Students learn to understand and respect the traditions of other cultures.

Students study countries with many different faiths and respect the faiths of those around us.

Democracy: Students explore and discuss injustices and inequalities (perceived or real) and challenge and debate these through the exploration of geographical topics.

Tolerance of different cultures and religions: Students understand the importance of identifying and combating discrimination including tackling stereotypes.

Careers Link:

Waste management Environmental health practitioner Agronomist Water treatment worker Water network operative

Topic 5: Frozen	Planet
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What are cold environments?

A cold environment experiences temperatures that are at or below zero degrees for long periods of time. Tundra is a flat, treeless region where the ground is frozen. Polar are the regions surrounding the North and South Poles dominated by polar ice caps.

What are the characteristics of Siberia?

Siberia is located in Russia. It is largely a tundra ecosystem. The climate is cold with minimal rainfall.

What are the physical features of Russia's cold environments?

Physical features of Russia's cold environments include: Kungar Ice Caves, Lake Baikal, taiga forest and the Russian Arctic Nature Reserve.

How do animals live in cold environments?

Polar bear, Arctic cod and Elephant seals have all adapted to live in cold environments. For example, the polar bear has white fur for camouflage.

What are glaciers?

Glaciers are areas of ice that flow very slowly down a mountain. As they move, they can change the shape of mountains by eroding them. There are different types of glaciers e.g. an ice cap or ice shelf. They are found in high latitudes.



Guided reading opportunity – how do animals live in cold environments?



Extended writing opportunity – how do glacial processes create landforms?



'Turn and talk' opportunity – recall of climate graph knowledge



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Subject specialist keywords:

Cold environment Tundra Polar regions Physical features

Adaptation Erosion

Latitude Transportation Deposition Glacial processes



What are glacial processes?

Erosion, transportation and deposition are all glacial processes. Erosional processes include plucking and abrasion. Glaciers can move material such as sand, clay and rock over large distances. This can happen because of material being eroded from the ground, material falling into cracks in the ice or material landing on top of the glacier. Eventually glaciers will drop the material, known as deposition (usually when it retreats).

How does erosion create glacial landforms?

Glaciers create corries (a depression in a mountain) through erosion. If two corries form on each site of the mountain, aretes are created. If multiple corries form around a mountain top, a pyramidal peak is formed.

How does deposition create glacial landforms?

Glaciers create moraines through deposition. Moraine is material left behind from a moving glacier. There are four types of moraine.

Corries Aretes Moraines

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Careers Link:

Climate scientist Ecologist