GCSE

WJEC GCSE Geography

Approved by Qualifications Wales

Guidance for Teaching: Unit 1

Teaching from 2025
For award from 2027

Version 2 - September 2025

This Qualifications Wales regulated qualification is not available to centres in England.

Made for Wales.
Ready for the world.

WJEC would like to thank the students and teachers of Fitzalan High School, Cardiff and Llanwern High School, Newport for their participation in the creation of these covers.

SUMMARY OF AMENDMENTS

Version	Description	Page number
2	1.1.4 Correction and clarification of text in teacher guidance section	12 and 13
	1.4.4 Text ‘in two contrasting global cities’ moved to final line for clarity	47
	1.4.2 ‘Fringe’ changed to ‘Rural-urban fringe’	42 and 44

Contents

Introduction

The WJEC GCSE Geography has been approved by Qualifications Wales and is available to all centres in Wales. It will be awarded for the first time in Summer 2027, using grades A* to G.

Aims of the Guidance for Teaching

The principal aim of the Guidance for Teaching is to support teachers in the delivery of WJEC GCSE Geography and to offer guidance on the requirements of the qualification and the assessment process. The Guidance for Teaching is **not intended as a comprehensive reference**, but as support for teachers to develop stimulating and exciting courses tailored to the needs and skills of their learners. The guide offers possible classroom activities and links to useful resources (including our own, freely available digital materials and some from external sources) to provide ideas for immersive and engaging lessons.

Additional ways that WJEC can offer support:

- sample assessment materials and mark schemes
- professional learning events
- examiners' reports on each unit
- direct access to the subject officer
- free online resources
- Exam Results Analysis
- Online Examination Review

Qualification Structure

WJEC GCSE Geography consists of 4 units. The qualification is unitised and does not contain tiering. Aside from Unit 1, which is an introductory unit, there is no hierarchy to the order the units should be taught.

	Unit title	Type of Assessment	Weighting
Unit 1	**Our Physical and Human World**	Written examination	30%
Unit 2	**Developing Fieldwork Skills**	Non-examination assessment	25%
Unit 3	**Our Dynamic and Diverse World**	Written examination	30%
Unit 4	**Sustainable Solutions**	Non-examination assessment	15%

Assessment

Summary of Assessment

Unit 1: Our Physical and Human World Written examination: 1 hour 30 minutes **30% of qualification** **90 marks**
Questions requiring objective responses, short and extended answers, with some based around applied situations.

Overview of Unit 1

Our Physical and Human World
Written examination
30% of qualification
90 marks

The purpose of this unit is to:

- introduce learners to the key concepts to be explored throughout the course
- explore an equal balance of physical and human geography
- include core topics that will set the context for the course and give the background needed to complete the other three units.

Learners should also develop their mathematical and statistical skills whilst preparing for this Unit. The depth of coverage required of these skills is given in Appendix B on pages 44-45 of the specification.

In this unit, learners will develop knowledge, skills and understanding in:	
1.1.1	The global hydrological cycle
1.1.2	The drainage basin system
1.1.3	Drainage basin characteristics
1.1.4	Factors influencing drainage basin processes and landforms
1.1.5	How drainage basin landforms are created
1.1.6	Inter-relationships between rivers and people
1.2.1	The processes that operate along a coastline
1.2.2	Constructive and destructive waves
1.2.3	Development of erosional landforms
1.2.4	Development of depositional landforms
1.2.5	Human and physical factors that affect the rates of coastline change
1.3.1	Causes of migration
1.3.2	Impacts of migration
1.3.3	Managing migration
1.4.1	Urbanisation
1.4.2	Urban land use patterns
1.4.3	Global cities
1.4.4	Urbanisation in contrasting global cities

Unit 1 Assessment objectives and weightings

AO1	Demonstrate knowledge and understanding of places, people, environments and processes at a variety of scales	15%
AO2	Apply knowledge and understanding of geographical terms, skills and concepts to different contexts	10%
AO3	Analyse, evaluate, or make judgements from a variety of sources, synthesising where appropriate	5%

Unit 1 Teacher Guidance

1.1 Drainage basin and rivers		
	Content Amplification	**Teacher Guidance**
1.1.1 The global hydrological cycle	Learners should know the characteristics of a closed system. Learners should understand: • the flows and stores that operate within the global hydrological cycle • how water moves through the global hydrological cycle.	In a closed system, such as the hydrological cycle, the amount of 'water' within it does not change – just how and where it is distributed. Stores are locations where water is contained within the hydrological cycle temporarily. Some stores (such as ice or the deep oceans) have a longer residence time than others. • Stores: Ocean, Atmosphere, Clouds, Vegetation, Surface, Soil, Rocks, Ice and Channel. Flows are the processes transferring water between the different stores in the hydrological cycle. • Flows: Evaporation, Condensation, Precipitation, Interception, Transpiration, Overland Flow, Infiltration, Percolation, Throughflow, Groundwater Flow and Channel Flow. Suggested learning activities: • sketch and label hydrological cycle diagram • heads and tails activity of the definitions • quiz, quiz trade to familiarise the definitions.

1.1.2 The drainage basin system	Learners should know: • the characteristics of an open system • what is meant by the term drainage basin. Learners should understand: • the inputs, transfers, stores and outputs that operate within a drainage basin • how water moves through the drainage basin • how the amount of water in a drainage basin varies seasonally.	An open system, such as a drainage basin, has inputs and outputs, meaning the amount of 'water' within the system can change over time and between places. • Inputs: Precipitation. • Outputs: Evaporation, Transpiration and Channel Flow. • Flows: Overland flow, Infiltration, Percolation, Throughflow and Groundwater Flow. • Stores: Vegetation, Surface, Soil and Rocks. An open system, such as a drainage basin, will have variation in mass balance. For example: • if the inputs are greater than the outputs, there will be a surplus of 'water' in the system • if the inputs are less than the outputs, there will be a deficit of 'water' in the system. Discharge is the amount of water flowing in a river channel at a given time. It is measured in cumecs (m^3/s). There is seasonal variation in an open system: • Winter: greater precipitation levels; colder temperatures, allowing for reduced evaporation and reduced interception/transpiration due to deciduous vegetation losing their leaves. This can result in an increase in river discharge and a possible flood. • Summer: reduced precipitation levels; warmer temperatures allowing for increased evaporation and increased interception and transpiration. This can result in a reduced river discharge and a possible drought. Seasonal variation can be illustrated on a hydrograph/river regime: rvyTOhwOC3pFzHT3hn5Ssg.jpg (500×276) (quizlet.com) Drainage Basin System Video: The drainage basin system (timeforgeography.co.uk)

		Suggested learning activities: • sketch and label drainage basin system diagram • calculating mass balance using input and output data • plot a river regime/hydrograph for a local/Welsh river • analyse and interpret a river regime/hydrograph to demonstrate knowledge and understanding on how and why the discharge varies over the course of the year.

1.1.3 Drainage basin characteristics	Learners should know:
	• the features of a drainage basin, including:
	  • channel
	  • confluence
	  • floodplain
	  • mouth
	  • source
	  • tributary
	  • watershed.
	• the processes operating within a drainage basin, including:
	  • weathering
	  • erosion
	  • transportation
	  • deposition.
		A drainage basin is an area of land drained by a river and its tributaries:
		• a tributary is a smaller channel that feeds into the main channel
		• a confluence is the junction where two channels meet
		• the watershed is the boundary of the drainage basin and is usually marked by a ridge of high land
		• the source of the river is where the river starts
		• the mouth of the river is where the river flows into the sea
		• the floodplain is the flat land either side of the river in the lower course.
		
		Features of a drainage basin video: Anatomy of a drainage basin (timeforgeography.co.uk)
		
		Learners need to understand the different processes that operate within the boundary of the drainage basin.
		
		Weathering occurs in the wider drainage basin and can be categorised as mechanical, chemical and biological:
		• Mechanical weathering includes freeze thaw weathering and exfoliation.
		• Chemical weathering includes carbonation.
		• Biological weathering includes animal burrowing and root penetration.

		Erosion occurs within the river channel and there are four types: • Hydraulic Action is when air is forced into cracks in the banks/bed of the river, forcing them to expand. • Abrasion / corrasion is when rocks carried in the flow of the river smash into the banks/bed of the river. • Solution / corrosion is where chemicals in the river dissolve minerals in the bank/bed of the river. • Attrition is when rocks crash together as they move along in the river. Vertical erosion results in the deepening of the channel. Lateral erosion results in the widening of the channel. River Erosion Processes Video: River erosion processes (timeforgeography.co.uk) Transportation occurs to move sediment along the river. There are four types: • Solution is when dissolved minerals are carried in the flow of the water. • Suspension is when fine particles are float in the river flow. • Saltation is when rocks bounce along the riverbed. • Traction is when boulders roll over smaller rocks on the riverbed. River Transportation Processes Video: River transport processes (timeforgeography.co.uk) Deposition: When the flow of the water slows it has less energy to carry sediment, so it is deposited. This can be on the inside bend of a meander or the banks and floodplain of a river when it floods. Suggested learning activities: • sketch and label a diagram to show the features of a drainage basin

		• OS map work of a local/Welsh drainage basin to identify features • satellite image analysis of a local/Welsh drainage basin to identify features • annotated sketches to describe and explain the processes that operate within a drainage basin.

1.1.4 Factors influencing drainage basin processes and landforms	Learners should understand:
	• the changing channel characteristics of the long profile of the river, including changes to cross profile
	• natural factors influencing rates of erosion and deposition:
	  • discharge
	  • geology
	  • gradient
	  • river velocity.
		Diagram to show the long/cross profile of a river: The-long-and-cross-profile-of-the-River-Tees.png (4270×2995) (internetgeography.net)
		
		The river can be split into three sections as it flows from source to mouth. This is known as the long profile.
		
		• The upper course of the river, near the source: Here the land is steep, and rivers often have more obstacles (larger rocks, boulders) in the channel, creating greater friction between the water and bed & banks. This reduces the velocity of the river. Vertical erosion levels are high, and the cross profile will be narrow and shallow with low discharge levels. Velocity may sometimes be higher in the upper course however e.g. when the gradient of the valley is steepest, after heavy rain or when few obstacles are present in the channel.
		
		• The middle course of the river: Here the land isn't quite so steep, and the river has fewer obstacles in the channel, increasing velocity and giving higher levels of lateral erosion. Sediment will continue to be transported by the channel. The cross profile will be wider and deeper with increased discharge levels because of tributaries adding to the main channel flow, also increasing the velocity.
		
		• The lower course of the river, near the mouth: Here the gradient has shallowed out and the river velocity will be highest, as friction between the water and bed & banks has decreased. Deposition will be the dominant process operating. The cross profile will be wider and deeper again, because of tributaries adding to the main channel flow.

		• It must be noted however that a variety of factors can affect the velocity of the river from source to mouth and the idea of velocity increasing from source to mouth is not always true. Factors such as sudden changes in gradient, flooding, obstructions in the channel (e.g. reservoirs and weirs slowing the velocity, waterfalls and rapids speeding it up) and changes in material in the channel (e.g. build-up of vegetation or debris in the channel, changes in the size and nature of material carried by the river) all may cause local variations to velocity and therefore the characteristics of a certain river at certain points along its course. In the lower course, the fastest flow of water will be in the centre of the channel as there will be reduced friction here. Friction with the riverbed and banks will slow the velocity of the river down. This can be illustrated using isovels: CrossSection_Velocity_Uniform.JPG (366×247) (coolgeography.co.uk). Rates of erosion within a drainage basin will vary depending on a range of natural factors: • Geology: Impermeable rock such as granite is more resistant and will have reduced rates of erosion whereas permeable rock such as sandstone is less resistant and will have increased rates of erosion. • Gradient: Steeper gradients result in faster flow and increased energy contributing to increased erosion whereas gentler gradients result in slower flow and decreased erosion. Suggested learning activities: • sketch and label a diagram to show the long profile of a river • OS map work of a local/Welsh drainage basin to apply the characteristics of the upper, middle and lower course of the river, e.g. variations in contour lines or size of river as represented on the map

		• satellite image analysis of a local/Welsh drainage basin to apply understanding of the different characteristics associated with the different course of the river • plot isovels to show the change in velocity across a river channel • fieldwork: investigate different river velocities in different locations along the long profile • use geological maps to describe how the geology changes along the course of a river.

1.1.5 How drainage basin landforms are created	Learners should understand:
	• the development of erosional landforms in upper and middle courses of rivers, including:
	  • gorges
	  • plunge pools
	  • waterfalls.
	• the development of depositional landforms, in middle and lower courses of rivers, including:
	  • floodplains
	  • meanders
	  • oxbow lakes.
	• an example of a local or Welsh river valley to identify its major landforms of erosion and deposition.
		Waterfall formation diagram: 5f45bad6622e86d6cac7723aff208d58.jpg (1504×1972) (pinimg.com)
		
		Waterfalls form where hard, impermeable rocks such as granite, sit on top of soft, permeable rocks such as sandstone. The sandstone is more rapidly eroded by processes such as hydraulic action and abrasion, undercutting the hard, impermeable rock to create an overhang.
		
		Over time the overhang increases in size, but due to its increased weight being unsupported, it topples into the plunge pool below, because of gravitational collapse.
		Here, the broken pieces of overhang are used to widen and deepen the plunge pool due to abrasion. The material also becomes smaller and more rounded due to attrition, and the undercutting/erosion continues.
		
		Over time the waterfall retreats upstream, leaving behind a steep sided gorge.
		
		An example of a Welsh waterfall would be Pistyll Rhaeadr, in the upper Tanat Valley, Mid-Wales.
		
		Formation of a waterfall video: Formation of a waterfall and gorge (timeforgeography.co.uk)
		
		Meanders are a bend in the river that begin to occur in the middle course of the river but are often fully established in the lower course of the river, on the flat floodplain.
		
		Cross section through a meander diagram: meander-cross-section.png (1100×622) (savemyexams.com).
		
		On the outside bend of a meander, the river is always flowing fastest and so there is increased energy.

		This results in erosion, particularly hydraulic action, as the river crashes into the riverbanks and bed, making the channel deeper and the sides steeper. This creates a river cliff. On the inside bend of a meander, the river is always flowing slowly as there is increased friction with the riverbed and banks, reducing the river's energy. This results in increased deposition creating a slip-off slope. Due to the processes operating on the inside and outside of the bends, the position of the meander will change over time. This is referred to as meander migration. Fast flowing water on the outside of the bend causes the neck of the meander to become increasingly narrower. In times of flood, the river's energy levels will be highest. At this point the river will completely cut through the meander neck. Deposition occurs on the inside of the bend, due to slower flow and increased friction with the riverbed. This deposition clogs the channel, cutting off and isolating the meander loop, creating an oxbow lake. Over time the water in the oxbow lake will drain away, leaving behind a meander scar. Oxbow lake formation diagram: meander.png (1104×474) (geographyalltheway.com). Floodplains Video: Floodplains (timeforgeography.co.uk) Examples of Welsh river valleys could include the Taff, Conwy, Ystwyth or Severn/Hafren. Suggested learning activities: • annotated sketch to show waterfall formation • use data to plot and label a cross section through a meander

		• annotated cross section through a meander to explain meander migration • annotated sketch to show oxbow lake formation • OS map landform identification • satellite image landform identification • fieldwork: visit a local waterfall and complete an annotated field sketch • fieldwork: visit a local meander and take width and depth readings at regular intervals to investigate changes across the channel • use a GIS package, such as Digimap for schools, ESRI Survey 123 or Arc GIS, to investigate a local Welsh river valley and identify features/landforms along its course.

1.1.6 Inter-relationships between rivers and people	Learners should understand:
	• how people use rivers and their landforms in sustainable and non-sustainable ways:
	  • floodplains for farming
	  • housebuilding on a floodplain
	  • rivers for Hydro-electric power (HEP)
	  • waterfalls for tourism.
	• the impact of rivers and their landforms on people, including:
	  • flooding and its associated impacts
	  • erosion, transportation and deposition in river environments
	  • hard and soft river engineering/management.
	
	Learners should know how these factors have influenced change along a stretch of a local or Welsh river.
		Floodplains are formed in the lower course of a river, when a river bursts its banks, depositing sediment in layers on the flat land either side of the channel.
		
		The material deposited is known as silt/alluvium and it is highly fertile and so floodplains are often favoured by farmers to increase the quality of the yields.
		
		Sustainable ways people use rivers and their landforms:
		• Arable farming: growing crops on the floodplain and in the surrounding drainage basin. This can increase interception, root absorption and transpiration thus reducing the flood risk.
		• HEP: using Welsh rivers as a source of infinite, clean renewable energy such as the Rheidol Hydropower Station, near Aberystwyth.
		• Reforestation is the replanting of trees in areas which have been previously deforested.
		• Afforestation is the planting of trees in areas where trees were not previously found.
		
		Reforestation and afforestation increase interception, transpiration and root absorption, thus decreasing the flood risk.

		They also provide habitat for animals, are a natural carbon sink and are aesthetically pleasing. Unsustainable ways people use rivers and their landforms: • Pastoral farming: rearing animals on the floodplain and in the surrounding drainage basin. Animals can compact the soil, reducing infiltration and increasing overland flow, contributing to an increased flood risk. • Mechanised farming: Machines will compact the soil, reducing infiltration and increasing overland flow. Emissions from machines will enhance the greenhouse effect and cause localised pollution issues. • Agrichemicals: Pesticides used on the farms can run off into local rivers and cause eutrophication, whilst pesticides and herbicides can poison local ecosystems. • Housebuilding on a floodplain: Urbanisation uses impermeable materials such as concrete, tarmac and slate, resulting in reduced infiltration, percolation and increased overland flow. Urbanisation also results in increased presence of drains designed to flush water straight back into the river channel, increasing the river discharge. Flooding: Calls to stop building homes on flood plains - BBC News For example, building 33 flats in the flooding zone at Afon Rheidol, as part of the redevelopment of Aberystwyth Town Football Club's Park Avenue ground. • Tourism: Although there are socio-economic positives attached with tourism, there are many environmental problems linked with congestion, litter, pollution (noise, air and visual) at natural attractions such as waterfalls. For example: Waterfall Country in the Bannau Brycheiniog National Park | Waterfall Country | Bannau Brycheiniog National Park Authority

		• Deforestation: the cutting down and removal of trees. Urbanisation, agriculture and tourism will all contribute to deforestation. Deforestation reduces soil absorption, interception and transpiration and increases overland flow, hence increasing the flood risk. Animal habitats are also destroyed. Flooding occurs when a river's discharge increases and exceeds the bankfull capacity, and the river bursts its banks. Flood risk can be demonstrated using a flood hydrograph: factors-that-affect-a-storm-hydrograph.png (1200×869) (saymedia-content.com) Lag time is the time difference between peak precipitation and peak discharge. • A shorter lag time results in a flashier hydrograph and has a greater flood risk, as the river responds quickly to the precipitation event. • A longer lag time results in a flatter hydrograph and has a reduced flood risk as the river responds slowly to the precipitation event. There are physical and human causes of flooding: Physical causes: • Geology: Impermeable rocks such as granite will reduce percolation and result in increased overland flow, reducing the lag time and increasing the flood risk. • Gradient: Steeper slopes will result in greater amounts of overland flow, reducing the lag time and increasing the flood risk. • Vegetation amount: Vegetation increases interception, root absorption and transpiration, reducing the amount of water in the drainage basin and so reducing the flood risk. • Frozen ground: will reduce infiltration and percolation, increasing overland flow, reducing the lag time and increasing the flood risk.

		• Saturated ground: water will be unable to infiltrate into the soil and so there will be greater overland flow, reduced lag time and increased flood risk. • Baked ground: infiltration and percolation will reduce causing increased overland flow. This reduces the lag time and increases the flood risk. Human causes: • deforestation • changing land use • infrequent dredging. Impacts of flooding can be seen as positive (such as increased alluvium being deposited which can benefit farmers) and negative. Impacts must be classified as: • social (affecting people) such as people being forced to evacuate their homes • economic (financial costs) such as the cost of the cleanup and recovery • environmental (affecting the environment) such as the damage caused to animal habitats. Hard river management strategies are expensive strategies, often involving technology and modification of the river channel, using artificial structures. Examples include: • dams and reservoirs • levees/embankments • river straightening. Soft river management strategies are a more natural approach to river management, working with the natural processes of the river to reduce the flood risk. Examples include: • afforestation/reforestation

		• flood warnings • land use zoning. Video from Aberystwyth University about flood management strategies on Welsh rivers: Severn (Hafren), Ystwyth and Rheidol: Hard engineering approaches to river management (timeforgeography.co.uk). Hard and Soft Engineering Video: Problems of hard engineering & 'softer' alternatives (timeforgeography.co.uk) Soft Engineering: Reducing flood risk through land-use management and nature-based solutions (timeforgeography.co.uk) Suggested learning activities: • fieldwork: investigating changing land use along a local/Welsh river • OS map work/Satellite imagery analysis to identify changing land use along a local/Welsh river • fieldwork: investigating infiltration rates on different surface types • case study development of a housing scheme in a flood zone or of an HEP scheme along a Welsh/local river • fieldwork: investigating the impacts of tourism on a local/Welsh river landform, such as a waterfall • plotting, analysing and interpreting flood hydrographs • classifying the factors contributing to a flashy/flat flood hydrograph • complete a flooding impact assessment matrix • research a case study on a recent Welsh/local flood event, such as Pontypridd 2020 because of Storm Dennis: Latest set of Section 19 Flood Investigation Reports published (rctcbc.gov.uk) • classifying flood management strategies • completing a flood management evaluation matrix • identify stakeholders who would be for/against the different flood management strategies and justify opinions.

1.2 Changing coastlines		
	Content Amplification	**Teacher Guidance**
1.2.1 The processes that operate along a coastline	Learners should know the processes operating along a coastline, including: • weathering • mass movement • erosion • transportation • deposition. Learners should understand the similarities and differences between the processes operating within a drainage basin and the processes that operate along a coastline.	A coastline is a dynamic landscape located where the land meets the sea. Learners need to understand the different processes that operate along a coastline. Weathering occurs on the upper part of a cliff and can be categorised as mechanical, chemical and biological: • Mechanical weathering includes freeze thaw weathering and salt crystallisation. • Chemical weathering includes carbonation. • Biological weathering includes animal burrowing and root penetration. Weathered material moves to the beach below through processes of mass movement: • rockfalls – the movement of a mass of rocks off a cliff • landslide – a collapse of a mass of earth or rock from a cliff. Coastal Weathering and Mass Movement Video: Subaerial erosion processes (timeforgeography.co.uk) Erosion occurs in the wave contact zone at the base of the cliff and there are four types: • Hydraulic Action is when air is forced into cracks in a cliff by waves, forcing them to expand. • Abrasion/corrasion is when rocks carried in waves smash into cliffs, knocking bits off. • Solution/corrosion is where seawater dissolves minerals in the cliff. • Attrition is when rocks crash together as they move along in the sea.

		Coastal Erosion Video: Marine erosion processes (timeforgeography.co.uk) Transportation occurs to move sediment along the coastline. There are four types: • Solution is when dissolved minerals are carried in the flow of the water. • Suspension is when fine particles float along in the current. • Saltation is when rocks bounce along the seabed. • Traction is when boulders roll over smaller rocks on the seabed. Transportation of beach sediment occurs in a zig zag pattern. This is known as Longshore Drift. Waves/swash carry material up the beach in the direction of the fetch. The waves/backwash return material down the beach at right angles/perpendicular to the coastline. Longshore drift diagram: transportation-in-coastal-landscapes-geography-new-.8f9cacc.v2.jpg (750×446) (mammothmemory.net). Deposition: Material is deposited along a coastline in low energy conditions. Suggested Learning Activities: • annotated sketches to describe and explain the processes that operate within a drainage basin • photograph analysis to identify coastal process • coastal fieldwork – identifying locations along a local stretch of coastline where these processes are active • coastal fieldwork – sediment analysis along a stretch of coastline.

1.2.2 Constructive and destructive waves	Learners should understand: • wave formation • the characteristics of constructive and destructive waves • the role of the fetch in influencing wave characteristics • how seasonal changes in wave energy leads to differing beach profiles.	Constructive waves Constructive-Wave-1024x764.png (1024×764) (alevelgeography.com): • a long wavelength • a low frequency (8–10 waves per minute) • low - typically under one metre in height • typically found in sheltered bays and spits • build up sandy beaches • more common in summer • weak backwash strong swash. Destructive waves Destructive-wave_orig.png (1073×800) (thegeographeronline.net): • usually very tall and steep • a short wavelength • very frequent • weak swash strong backwash • more common in winter • erosion is greater. Coastal fetch: Fetch is just the maximum length of open water over which the wind can blow. Typically, the bigger the fetch, the greater the wave energy and more destructive the wave is. Waves have greater energy in the wintertime due to increased storm activity and stronger winds, making the waves more destructive. As a result, there is greater coastal erosion in the winter making the beach profile steeper. Waves have less energy in the summertime due to a reduction in storm activity and lighter winds, making the waves more constructive. As a result, there is greater coastal deposition in the summertime making the beach profile gentler.

		Beach profile image: beachprofile-300x225.jpg (300×225) (friendsofibsp.org). Types of Waves Video: Types of waves (timeforgeography.co.uk) Suggested learning activity: • annotated sketch diagram of a constructive and destructive wave • classification exercise/Venn diagram of constructive and destructive wave characteristics • map/atlas work to measure fetch distance • map/atlas work to explain why certain coastlines are more/less vulnerable to coastal erosion.
1.2.3 Development of erosional landforms	Learners should understand how coastal processes interact to create the following erosional landforms: • cave, arch, stack, stump sequence • cliffs • headlands and bays • wave cut platform. Learners should know an example of a local or Welsh coastline where erosional landforms can be located.	Cave – Arch – Stack - Stump sequence: • Destructive waves erode a headland made of impermeable rock through hydraulic action and abrasion. • A weakness runs through the headland such as a joint or bedding plane. This is more easily eroded. • The joint widens to form a wave cut notch. • Continual erosion causes the notch to enlarge to become a cave. • The cave erodes through the headland to become a coastal arch. • Weathering such as salt crystallisation and hydraulic action in the upper part of the headland weakens the roof of the arch until it eventually falls to the water below. • The remaining pillar of rock is a coastal stack. • Continual erosion and weathering cause the stack to collapse to form a coastal stump. For example: Green Bridge of Wales Diagram: https://bam.files.bbci.co.uk/bam/live/content/ztkmk2p/large. Stack Formation Video: Formation of a sea stack (timeforgeography.co.uk)

		Cliffs and wave cut platforms: • At high tide, the waves erode the base of the cliff in the wave contact zone by processes such as hydraulic action, abrasion and solution. • This creates a wave cut notch. • Above the wave cut notch there is an overhang which gets progressively bigger with increased erosion. • At the same time, the upper part of the cliff is weathered by processes such as freeze-thaw, salt crystallisation, carbonation and biological weathering, thus weakening the cliff. • Eventually the overhang undergoes gravitational collapse to the beach below and the cliff retreats backwards. • At the base of the cliff there is now a flat wave cut platform, with rock pools, that is visible at low tide but submerged at high tide. • The wave cut platform indicates how far backwards the cliff has retreated over time. Wave Cut Platform Diagram: 601981_orig.jpg (469×349) (weebly.com). Wave Cut Example: This is evident along the Glamorganshire Heritage Coast. Wave Cut Platform Video: Formation of a wave-cut (shore) platform (timeforgeography.co.uk) Headland and Bays: • Form along coastlines with alternating geology (permeable and impermeable). • Permeable/ soft rock coastlines are more rapidly eroded and weathered backwards to form sheltered bays. • Impermeable/ hard rock coastlines are more slowly eroded and weathered to form headlands. • The headlands help to shelter the bays allowing sand to build up in the bays creating a beach.

		Headland and Bay Diagram: formation+of+bay+and+headland.jpg (553×372) (bp.blogspot.com). Headland and Bay Formation Video: Large-scale erosional landforms (timeforgeography.co.uk) Headland and Bay Example: Whitmore Bay in Barry, Vale of Glamorgan is surrounded by Friars Point and Nells Point headlands. Suggested learning activities: • landform identification on OS maps • landform identification from photographs • annotated diagrams to explain landform formation • compare OS maps of the same stretch of coastline over time to see how the landforms have changed • coastal fieldwork – field sketches of the different coastal landforms.
1.2.4 Development of depositional landforms	Learners should understand how erosion, longshore drift and deposition interact to create the following depositional landforms: • beach • sand dune • spit. Learners should know an example of a local or Welsh coastline where depositional landforms can be located.	Beaches: Composed of eroded sediment that has been transported via longshore drift from elsewhere along the coastline and then deposited. • Sandy beaches occur where waves have limited energy and where the water is shallow, such as in sheltered areas like bays. Constructive waves build up beaches with their strong swash and a weak backwash, depositing sediment. • Pebble beaches occur where cliffs are being eroded and weathered and where there are higher energy waves, resulting in greater amounts of mass movement to the beach below. Example of a sandy beach: Whitmore Bay. Example of a pebble beach: Cwm Colhuw Beach, Llantwit Major. Coastal spit: • Erosion, weathering and mass movement of a cliff provide the beach with material that is moved along a coastline by longshore drift.

		• There is a sudden change in direction of the coastline, crating sheltered conditions allowing the sediment to be deposited. • The material is deposited in a long, thin finger-like shape that extends out from the coastline. • A hooked end often forms if there is a change in wind direction. • Spits will continue to grow due to the continual sediment supply thanks to longshore drift, creating a coastal bar, unless they travel out across a river estuary. • On a mature spit, sand dunes will develop. • In the sheltered zone behind the spit, a salt marsh develops. Coastal Spit Example: Ynyslas/Aberdyfi. Coastal Spit Diagram: 3fddaa8140e4364184d4587fab658b5b.jpg (931×439) (pinimg.com). Sand dunes form where there is: • a large supply of dry sand • a large, flat beach • strong onshore winds • an obstacle on the beach for the dune to form against, e.g. driftwood. Sand dunes: • Wind blows sand onshore, and it hits an obstacle on the beach and gets deposited around it. • The sand builds up to become an embryo dune. • As you move backwards away from the beach, the sand dunes get older and bigger, such as the fore dune or yellow dune and mature dune. • The dunes also become colonised with new plant species. • The first plants are known as pioneers such as marram grass and sea rocket.

		• As these plants die and decompose, they add nutrients to the soil allowing new species to emerge such as brambles. • Eventually, in the UK, oak woodland emerges. Sand dunes Diagram: iCzeRDDODaIILtYPFvfPOw_b.png (764×420) (quizlet.com). Sand dunes Example: Merthyr Mawr Sand Dunes. Sand dune Formation Video: Time for Geography | Sand dunes: formation and succession Suggested learning activities: • landform identification on OS maps • landform identification from photographs • annotated diagrams to explain landform formation • compare OS maps of the same stretch of coastline over time to see how the landforms have changed • coastal fieldwork – transects along a sand dune.

1.2.5 Human and physical factors that affect the rates of coastline change	Learners should understand:
	• physical factors that affect rate of coastal change, including:
	  • climate
	  • fetch
	  • geology – linking to concordant and discordant coasts.
	• human factors that affect rate of coastal change, including:
	  • human activity such as settlement, industry and agriculture
	  • hard and soft engineering/management
	  • sustainability issues of managing coastal change.
		Physical factors that affect rates of coastal change:
		
		• Climate: Wind, that produces waves, influences how quickly sediment is moved along a beach by the swash and backwash of longshore drift; Storms generate destructive waves where the backwash has more energy than the swash, removing sediment from a beach and making it smaller; In summer there are more constructive waves, where the swash has more energy than the backwash, meaning that beaches are built up and made bigger by them.
		• Fetch: Longer fetches allow waves to gather more energy, leading to increased rates of erosion. For example, the fetch across the Atlantic affecting Cornwall is thousands of kilometres in length whereas the fetch affecting the east coast of England is much shorter.
		Diagram: fetch-of-a-wave.png (1080×676) (internetgeography.net).

	Learners should know how these factors have influenced change along a stretch of local or Welsh coastline.	• Geology: The orientation of the geology influences the types of landforms produced. • Concordant coastlines – the different rock types are positioned parallel to the coast with erosion forming coves and long thin islands, e.g. the Dalmatian coast in Croatia. • Discordant coastlines – the different rock types are positioned 90° to the sea, leading to alternating bands of hard and soft rocks creating a coastline formed of bays and headlands, e.g. Pembrokeshire coast. • Rocks that are more heavily jointed or has more bedding planes, will also be eroded more quickly. Diagram: gGFVyKPmKIvuyK1FWpnYAQ_b.png (555×372) (quizlet.com). Human factors that affect rate of coastal change include: Hard engineering: permanent, manmade structures often involving technology Groynes: Wood or rock barriers built 90° to the beach to stop/slow longshore drift and increase deposition • Stop longshore drift, increasing deposition and beach size thus reducing rates of cliff erosion • Starve down shore beaches of sediment causing beaches to become narrow, increasing cliff erosion. Sea Wall: A wall made of hard rock or reinforced concrete that reduces the energy of waves when they hit it • Prevent flooding • Prevent/slow erosion • Expensive to build and maintain in the long-term. • Do not look attractive and can impede access to the beach.

		Rock Armour: Large boulders or large piles of coral are piled up in front of eroding cliffs. • Boulders absorb the wave energy, reducing/ slowing cliff erosion • Can be moved away by storms • Costs money to maintain and move the boulders back in place. Hard Engineering Video: Hard engineering approaches to coastal management (timeforgeography.co.uk) Soft engineering: Schemes that work with nature. Beach Nourishment: Sand is brought in and added to the existing beach to build it up. • cheap to construct • creates wider/higher beaches to reduce wave energy and block storm surges • increases deposition • must be done regularly as material is constantly removed by longshore drift • effects sea life if sand is removed from offshore sand banks. Beach Management Video: Soft engineering: Beach management (timeforgeography.co.uk) Dune Regeneration: Restoring sand dunes by stabilising them with sand and planting vegetation, such as marram grass, to hold the dune together. • cheap to construct • increases deposition and reduces erosion • can only be done on coasts with existing sand dunes • only offers protection from flooding for small areas of coastline. Sand Dune Management Video: Soft engineering: Sand dune management (timeforgeography.co.uk)

		Planting Mangrove Forests: Planting these salt-tolerant trees along the coastline reduces the energy of waves. • cheap (used in LICs) and sustainable • reduces wave energy and erosion • increases rates of deposition • can only be used in tropical locations. Coastal locations are desirable places to live and work and so are becoming crowded. They are especially popular with elderly retirees e.g. Aberaeron in Ceredigion with 56.4% economically inactive (2021). Coastal plains are popular with farmers using them for grazing animals. Flat coastal areas are popular places to locate large power stations, oil refineries, ports and steelworks e.g. Port Talbot or Pembroke Dock. Coastal areas are popular with tourist developments for example Barry Island – tourists visiting the beach can contribute to coastal erosion through carrying sand away on their feet. Sand can be extracted/dredged from coastal areas for use in construction industry this can speed up rates of coastal erosion. Shoreline Management Plans (SMP) are developed by councils in deciding how to manage a coastline. Options include: • managed retreat – allows the shoreline to move inland • do nothing – not implementing management plans in coastal areas • hold the line – management plans to keep the coastline in its current position • advance the line – build new coastal defences further out to sea • hard and soft strategies.

		SMP Example: Ceredigion County Council and Aberaeron Coastal Defence works 2024: Coastal Defence - Ceredigion County Council. Suggested Learning Experiences: • diamond nine or rank order the different factors affecting coastal change in terms of significance and justify reasoning • research a Welsh example of coastal flood management scheme and produce a fact file • classify coastal management strategies • complete an evaluation matrix on the different hard and soft management strategies • identify stakeholders who would be for/against the different coastal management strategies and justify opinions • analyse OS maps and photographs of coastlines impacted by industry or settlement.

1.3 Migration		
	Content Amplification	**Teacher Guidance**

1.3.1 Causes of migration	Learners should know:
	• what the term 'migration' means
	• migration classifications:
	  • forced or voluntary
	  • international or national
	  • legal/regular or irregular.
	
	Learners should understand:
	• the reasons for migration (such as escaping conflict, human rights violations, economic opportunity, joining family)
	• the different physical and human reasons for international economic migration:
	  • push factors associated with a named source country (social, economic, environmental and political)
	  • pull factors associated with a named host country (social, economic, environmental and political).
		Migration is the movement of people from one place to another.
		• emigration is when someone leaves a country
		• immigration is when someone enters a country
		• a migrant is someone who migrates.
		
		Equality, diversity and inclusion (EDI) Guidance: wjec_gcse_geography_guidance.pdf
		
		Classifications of migration:
		• forced – when a migrant must migrate in fear of persecution or because a war has broken out or because of a natural disaster
		• voluntary – when a migrant chooses to migrate e.g. for economic opportunities such as improved standards of living and quality of life
		• international – when the migration flows from one country into another e.g. Mexico into the USA or Poland into the UK
		• national – when the migration flows within a country such as from a rural to urban area e.g. rural to urban migration in Brazil or India
		• legal/regular migration – migrating to another country through official channels and abiding by the host country's immigration policy
		• irregular migration – migrating into another country in an irregular way, outside of the regulatory norms, or remaining in a country with an irregular status.
		
		Source country is the country the migrants are leaving.
		
		Host country is the country the migrants are moving to.

		The causes of forced migration include:
		• escaping war/conflict – Ukraine war
		• human rights violation – Rohingya Muslims have fled Myanmar
		• famine – Somalia and Ethiopia
		• natural disasters/climate change – Maldives and Tuvalu.
		
		The causes of voluntary migration can be classified as:
		• Push factors are the reasons that cause migrants to leave a country – migrants are pushed out by these factors.
		  • economic: high unemployment levels
		  • social: poor standards of education
		  • environmental: drought and famine
		  • political: unstable/corrupt governments
		
		• Pull factors are the reasons that cause migrants to move to a country – migrants are attracted to these factors.
		  • economic: improved employment prospects
		  • social: joining family
		  • environmental: less extreme climatic conditions
		  • political: trade blocs.
		
		The list of push/pull factors is not exhaustive.
		
		Suggested named examples of voluntary economic migratory flows:
		• Mexicans migrating into the USA
		• Polish people migrating into the UK
		• Syrian people migrating into Turkey.
		
		There are opportunities here to explore equality, diversity and inclusion contexts in terms of the examples selected.
		
		Welsh migration: Demography and migration in Wales (Census 2021) | GOV.WALES

		Suggested Learning Experiences: • heads and tails activity with migration types and their definitions • Venn diagram classification push and pull factors • matrix classification: push and pull factors for host and source country • diamond nine ranking exercise to consider significance of causes of migration • annotated sketch map to illustrate the causes of migratory flows • graphical data presentation to show migration rates • calculate net migration of different countries to compare spatial patterns • calculate net migration for one country to compare change over time • analyse data/from the World Migratory Report: Interactive World Migration Report 2024 (iom.int) • photograph analysis to identify push and pull factors • complete a decision-making exercise on whether the push factors outweigh the pull factors.

1.3.2 Impacts of migration	Learners should understand:
	• the impacts of international migration for a named source and host country, including:
	  • the impacts of migration on migrants (for example, asylum seekers, refugees)
	  • the experiences and contributions of those who migrate or have migrated
	  • impacts of migration, such as:
	  • brain drains
	  • community cohesion
	  • integration
	  • multiculturalism
	  • remittances
	  • segregation
	  • spread of culture.
		International Migration can have many different impacts – positive and negative – on both the source and host country as well as on the migrant themselves.
		
		Host country positive impacts:
		• brain gains through welcoming educated migrants to work and contribute to the local economy
		• migrants share their cultural heritage: language, dress, foods, festivals, promoting diversity.
		
		Source country positive impacts:
		• reduced pressures on services such as education and healthcare
		• migrants send remittances back home.

		Host country negative impacts: • segregation as some cultures struggle to integrate into the host country's society and this can lead to tension • increased pressure on services such as housing, education and healthcare. Source country negative impacts: • brain drains as educated and skilled workers leave the country to work elsewhere e.g. doctors • over-reliance on remittances. **The list of impacts on the host/source country is not exhaustive.** Impacts on the migrants: • negative: might feel isolated and excluded from society, especially if dealing with a language barrier • positive: opportunity to work, earn a decent wage and improve standards of living and quality of life. **The list of impacts on the migrants is not exhaustive.** Suggested named examples of voluntary international migratory flows: • Mexicans migrating into the USA • Polish people migrating into the UK. In the circumstances the migration flow is forced: • An asylum seeker is someone who flees their home country due to persecution or danger and seeks protection in another country but has not yet received official refugee status. • A refugee is an individual who has been granted this status by a host country or international body, recognizing that they cannot safely return home due to war, persecution, or violence.

		Suggested named examples of forced international migratory flows: • Ukrainians into the UK • Afghans into Iran and Pakistan. There are opportunities here to explore equality, diversity and inclusion contexts in terms of the examples selected. Suggested Learning Experiences: • Venn diagram classification of positive/negative impacts • classification matrix for positive/negative impacts in source/host countries • annotated sketch map outlining the impacts in the host and source country • data analysis to investigate differences between host and source country • diary entry written from the perspective of a migrant/ refugee • graph construction and analysis of refugee data UK/infographics summary of latest statistics - gov.uk (www.gov.uk) • role play: interview with a migrant/refugee • packing for a journey: what would you take with you?

1.3.3 Managing migration	Learners should understand:
	• strategies used to manage international migration, such as:
	  • managing illegal migration
	  • points based migration
	  • visa free travel.
	• ethical considerations of migration (including human rights)
	• public perceptions and the role of the media in influencing public perceptions on migration.
		Managing illegal migration:
		• cooperating with the source countries to try and solve the issues causing migration in the first place
		• cooperating with other countries to target the criminal gangs that are organising the migratory flows.
		
		Points based migration – to manage legal, economic migration:
		• Australia and Canada already use a points-based system
		• different points awarded for meeting different criteria
		• the more points accrued, the better the chance of being allowed into the host country
		• UK Points based system: The UK's points-based immigration system: an introduction for employers (accessible version) - GOV.UK (www.gov.uk).

		Visa Free Travel – to manage legal, short term stays e.g. tourism or transit: • visa application is not required • based on agreements between countries or regions • travellers must meet entry requirements and may need to show proof of onward travel or sufficient funds • for example, ESTA for US travel (from 2008) - Official ESTA Application Website, U.S. Customs and Border Protection (dhs.gov) • for example: ETIAS for EU travel (from 2025) - ETIAS - European Union (europa.eu). UNHDR: United Nations Declaration of Human Rights applies to everyone: Universal Declaration of Human Rights | United Nations • Article 3: Everybody has the right to life, liberty and security of person – providing the legislation to allow for safe refugee movements where people life, liberty or security are at threat. • Article 13: Everyone has the right to freedom of movement and residence within the borders of each state; Everyone has the right to leave any country, including his own, and to return to his country. • Article 14: Everyone has the right to seek and to enjoy in other countries asylum from persecution; This right may not be invoked in the case of prosecutions genuinely arising from non-political crimes or from acts contrary to the purposes and principles of the United Nations. UNHCR: United Nations High Commissioner for Refugees - UNHCR, the UN Refugee Agency | UNHCR – helps to ensure refugees can exercise their rights and provides them with necessary support. These international policies help to protect refugees from deportation, especially if their return would result in harm.

		Perception is about how a feature is regarded or understood. Public perceptions can be both positive and negative and these are reinforced by various media representations/headlines. Positive perceptions: • contribute to the local economy • fill labour shortages • foster cultural diversity. Negative perceptions: • strain on services • taking jobs from locals • challenging national identify. There are opportunities here to explore equality, diversity and inclusion contexts in terms of the examples selected. Suggested Learning Experiences: • map analysis of the main illegal migratory flows • read newspaper articles/watch news reports on illegal migration into the UK - what life is like for migrants who arrive on uk shores (youtube.com) • newspaper headline interpretation • perception Venn diagram classification • stakeholder perception justifications • what would you do? design your own migration policy and justify your decision • fieldwork: questionnaire on opinions and perceptions of migration and present the results.

1.4 Settlement change		
Content Amplification		**Teacher Guidance**
1.4.1 Urbanisation	Learners should know what is meant by the process of urbanisation. Learners should understand how urbanisation rates have changed over time and between places.	Urbanisation is the process by which an increasing proportion of people live in urban area areas, resulting in urban areas growing in terms of aerial extent. Rates of urbanisation vary between HICs and LICs: • HICs – High Income Countries • LICs – Low Income Country Urbanisation began in HICs with the onset of the industrial revolution whereas urbanisation in LICs/NICs it is more recent, beginning around 1950. Global urbanisation rates graph: 861474_orig.png (570×385) (thegeographeronline.net) – comparing rates in HICs and LICs. Urbanisation rates vary between different continents. Continental Urbanisation rates: 23349.jpeg (1200×1200) (statcdn.com) – comparing rates between continents. For a country to be classed as urban, over 50% of the population need to be living in urban areas. World Urbanisation rates: Urban population (% of total population) | Data (worldbank.org). Urbanisation rates in UK: Urban population (% of total population) - United Kingdom | Data (worldbank.org). Urbanisation rates in Brazil: Urban population (% of total population) - Brazil | Data (worldbank.org).

		Urbanisation rates in India: Urban population (% of total population) - India | Data (worldbank.org). There are two causes of urbanisation: • rural to urban migration • natural population increases. Suggested learning activities: • graph construction to show urbanisation rates over time or between countries • graphical analysis • statistical analysis • comparison of rates of urbanisation between different countries.

1.4.2 Urban land use patterns	Learners should understand:
	• the similarities and differences between the urban land use patterns of cities in contrasting countries and the physical and human reasons for these differences
	• the characteristics of the different sectors of a city:
	  • Central Business District (CBD)
	  • rural-urban fringe
	  • informal settlements
	  • inner city
	  • suburbs.
		Land use is what the land is used for also known as its function/purpose.
		
		The main urban land uses include:
		• residential
		• industrial
		• commercial/retail
		• administrative
		• infrastructure/transport
		• open space.
		
		Characteristics of the CBD include:
		• high-rise office buildings, hotels, and shopping malls
		• densely populated area with a mix of residential, commercial, and office buildings
		• crowded streets with lots of pedestrians and vehicles
		• very high land prices and property values
		• lack of open or green spaces.

		Characteristics of the Inner City include: • high density of buildings • lack of good quality open space (e.g., parks) • older housing stock, including 19th-century low-cost housing (such as terraced houses) • some industrial use • poor quality housing with a scarcity of gardens • gridiron street pattern • presence of derelict land • gentrified districts • rebranded/repurposed industrial/historical/cultural buildings • high rise luxury apartments • gated communities • tertiary industry: shopping and entertainment districts; hotels • modern high-rise offices. Characteristics of the Suburbs include: • sprawling, low-density development • predominantly single-family residential uses • separation of retail and commercial uses • car dependence so commuting rates high. Characteristics of the Rural Urban Fringe include: • mixture of land use, including residential areas, recreational facilities, and farming • better quality housing with larger gardens and houses due to lower land values and more open space • gradual change in types of buildings and land use as you move from the city centre towards the outskirts • conflict between urban and rural ways of life • impact of urban expansion on agricultural land.

		Characteristics of informal settlements include: • lack of security of tenure for land or dwellings • few/no basic services • poor infrastructure • inefficient land use • environmental degradation • poor living conditions. Features of a HIC city: • the CBD is found in the centre • land values in the CBD are high, so the most profitable shops and businesses locate here • industries and factories develop in the inner city and along transport routes • cheap, older, working class terraced housing lies close to the CBD in the inner city (with small plot sizes) and alongside the industry • larger, more expensive, middle-class housing is found in the suburbs, where properties have gardens and garages • high class housing is found in the rural-urban fringe locations, with increased distance from the CBD • smaller, expensive luxury apartments are in redeveloped inner-city locations • retailing is locating in the rural-urban fringe locations, such as retail parks and shopping malls • diagram: small (304×461) (bbci.co.uk). Features of a LIC city: • the CBD is in the centre • high-cost housing is found close to the CBD and along some transport routes • basic housing, known as the peripheria, is located between the high-cost housing and the informal settlements • industries and factories develop along transport routes

		• informal settlements are found around the edge of the city, where land values are lower • image: set_012.gif (546×322) (bbc.co.uk). Physical reasons for the land use differences • availability of space – to allow for urban sprawl • gradient of land – informal settlements often develop on unfavourable land, prone to landslides, such as steep slopes • proximity to features such as river flood plains – flood plains are flat and easier to build on although the flood risk makes them unfavourable and often informal settlements locate there • coastlines. Human reasons for the land use differences: • bid rent and competition for the land driving up land prices • sphere of influence – retailing prefers central locations due to having a large sphere of influence • nodal points and infrastructural patterns – all road networks and public transport routes meet in the CBD making it most accessible. Contrasting cities could include: • Cardiff • London • Sao Paulo • Mumbai. Suggested learning activities: • annotated sketch model of the land use of an urban area • photograph analysis and interpretation of different sectors of the city • most likely to exercise relating to the different urban land uses • classification of characteristics in the different sectors of the city • Venn diagram comparing land use in HICs and LICs • OS map analysis to identify features of the different sectors of the urban area

		• Decision Making Exercise for the location of a retail park • geographical fieldwork opportunity: urban CBD regeneration • geographical fieldwork opportunity: land use change along a transect through an urban area • graphical presentation to show variation in land/property prices across an urban area.

1.4.3
Global cities
	Learners should know:
	• the difference between:
	  • global cities
	  • megacities
	• named examples of each of the above and their global location and distribution.
	
	Learners should understand why a city can be classed as a global city and why opinions on this vary.
		Millionaire cities have over one million people living in them. Examples include London (9.6m) and New York (8.3m).
		
		Megacities have over 10 million people living in them. Examples include Paris (11.2m), Buenos Aires (16.8m), Tokyo (37.3m) and Sao Paulo (22.6m).
		
		City population data: Largest Cities by Population 2024 (worldpopulationreview.com).
		
		Global cities are cities that are connected to other cities/economic systems around the world through:
		• finance – location of bank headquarters or stock exchanges
		• trade – international ports for exports and imports or locations of MNCs
		• governance – governmental buildings or centres of governance located there
		• diversity – popular host countries for international migrants
		• media – media corporations located there
		• cultural centres – location for entertainment venues such as stadiums
		• innovation – location for top rated universities or leading in research and development.
		
		Global cities are dominant cities that have a strong global influence. There are over 300 identified global cities.

		Global cities can be classified as: • Alpha++ cities much better connected to the global economy than any other city e.g. London and New York • Alpha+ cities that connect with the global economy e.g. Paris, Tokyo • Alpha cities that connect important economic regions with the rest of the world e.g. Los Angeles, Dublin. Global Cities ranking 2023: The distributed geography of opportunity: the 2023 Global Cities Report | Kearney. Suggested learning examples: • graphical presentation and analysis to show the population of different global cities • cartographic presentation and analysis to show the population of different global cities • flow map to illustrate/compare the global links of different global cities.
1.4.4 Urbanisation in contrasting global cities	Learners should understand: • causes and impacts of urbanisation • responses to the problems caused by urbanisation • sustainability issues with responses to the problems caused by urbanisation • specific cultural identities in two contrasting global cities.	Rural to urban migration is responsible for urbanisation within countries. Examples of contrasting global cities include: • Sao Paulo • Mumbai • Cardiff • New York • Beijing. The causes of urbanisation are driven by natural population increase: • birth rate: the number of babies born per 1000 of the population • death rate: the number of deaths per 1000 of the population • natural population change: the difference between birth rate and death rate

		• natural increase: when the birth rate outweighs the death rate • natural decrease: when the death rate outweighs the birth rate • life expectancy: the average age a person is expected to live to. Life expectancy is high in HIC countries and is increasing in LIC countries. The causes of urbanisation are driven by push and pull factors. In LICs/NICs such as Brazil or India: Rural push factors include: • economic: unemployment or low wages • environmental: drought causing crop failure and famine • social: poor living conditions and poor health/education services. Urban pull factors include: • economic: employment opportunities and higher wages • social: improved living conditions and health/education services • environmental: fertile soils and more tolerable climate. In HICs such as London or Cardiff: Rural push factors include: • social: poor access to healthcare and education services • economic: rural unemployment and lack or rural investment • environmental: decline in availability of raw materials. Urban pull factors include: • social: improved access to healthcare and education services • economic: advanced transport links (port, airport, motorways and wider infrastructure) and industrial growth encourages further industrial investment creating employment opportunities • environmental: regeneration of the CBD/ inner city urban areas is encouraging re-urbanisation in recent years.

		The impacts of urbanisation in LICs/NICs such as Brazil or India include: • housing pressures and the creation of informal settlements • overemployment and the creation of the informal sector • healthcare pressures • education pressures • transport pressures • pollution • congestion. The impacts of urbanisation in HICs such as Cardiff or London include: • housing pressures • transport pressures • healthcare pressures • education pressures • congestion • pollution • social segregation. The response to the issues created by urbanisation in LICs/NICs such as Brazil or India include: • self-help schemes • site and service schemes • relocation schemes • developing exclusive enterprise zones such as the blue amazon • slum clearance and redevelopment. The response to the issues created by urbanisation in HICs such as Cardiff or London include: • tackling urban deprivation and poverty • social housing provision • urban regeneration • congestion charges and Ultra Low Emission Zone (ULEZ).

		Suggested learning examples: • Calculating natural population change for different countries using birth rate and death rate • graphical presentation of urbanisation rates in select global cities • categorisation matrix or Venn diagram for the push and pull factors • diary of a migrant outlining what life was like in rural areas and why they want to migrate to urban areas • decision making when packing for a journey – identifying what to take when migrating • photograph analysis describing life in the informal settlements • diamond nine ranking the issues of urban areas and justifying decisions • decision making: solving the issues in the informal settlements.

Learning Experiences

Learners should be encouraged to consider the following learning experiences and skills to further develop their understanding, appreciation and awareness of the subject content. Information in the table below provides opportunities for teachers to integrate the learning experiences into delivery.

Learning Experience	Exemplification of Learning Experience
Make appropriate use of digital technology when completing the qualification, for example through accessing satellite images and digital maps	1.1.3 Learners could access digital maps/GIS systems to identify features and landforms associated with drainage basins. 1.4.2 Learners could access digital maps/GIS systems or satellite images to identify and analyse the characteristics of the different land use sectors as seen in HICs and LICs.
Develop empathy, tolerance, compassion and curiosity, through studying different geographical contexts	1.3.1 Learners could investigate the causes of migration in different countries and assess the significance of different factors, including conflict, persecution, poverty and apply this knowledge to a justification for migration. 1.4.4 Learners could assess the extent of the impacts associated with urbanisation in HICs and LICs, especially the negative impacts, and use this knowledge to help develop a sustainable plan for overcoming the issues.
Participate in educational visits (other than fieldwork) in person or digitally	1.1.6 Learners could visit a location where river management strategies have been implemented to experience them first hand; they could also visit an HEP station such as Dinorwig, to understand how these schemes work and to visualise their scale. 1.4.1 Learners could visit old industrial sites that helped encourage the onset of urbanisation, such as Big Pit or Rhondda Heritage Park to learn about the role of the mines in drawing people to urban areas during the 19th Century.
Engage in collaborative working	1.1.4 Learners could work collaboratively conducting primary data collection on river landforms, such as measuring the changing depth across a river channel on a meander. 1.3.3 Learners could collaborate in investigating changing perceptions on the different migration management strategies that have been implemented by different countries, before designing their own migration policy.

Opportunities for embedding elements of the Curriculum for Wales

<table>
<tr><th colspan="4">Curriculum for Wales Strands</th></tr>
<tr><th colspan="4">Cross-cutting Themes</th></tr>
<tr><td rowspan="6">Local, National & International Contexts</td><td colspan="3">There are many opportunities to include Local, National and International Contexts in GCSE Geography. These opportunities are important to Learners because geography encourages them to think about their sense of ‘cynefin’ and their sense of belonging to the UK and the wider world. These can be explored through real life case studies in Wales, the UK and from around the world across the different themes in the specification. Geography can help to ensure that learners are knowledgeable about their culture, community, society and the world, now and in the past.

Below are some examples of how Local, National & International Contexts can be embedded into teaching and learning:</td></tr>
<tr><td>Specification Reference</td><td>Amplification</td><td>Example</td></tr>
<tr><td>1.1.2</td><td>The drainage basin system</td><td>Teachers focus on applying this theory to a local drainage basin or a drainage basin in Wales.
Learners could calculate mass balance within the drainage basin system, comparing inputs and outputs.</td></tr>
<tr><td>1.1.3</td><td>Drainage basin characteristics</td><td>Focussing on a local /Welsh drainage basin learners could identify features from an OS map or from photograph analysis. They could also visit the drainage basin to sketch/describe features when undertaking fieldwork.</td></tr>
<tr><td>1.3.2</td><td>Impacts of migration</td><td>Focussing on a national level, learners could evaluate how Wales has been impacted by migration flows. Learners could graph net migration figures for Wales and classify impacts (positive/negative) using a classification matrix.</td></tr>
<tr><td>1.4.3</td><td>Global cities</td><td>Learners to understand the characteristics of a global city and how they are linked to other countries around the world.
Learners could map the different connections for two select global cities (e.g. Cardiff and Sao Paulo) to compare the different global connection.</td></tr>
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<tr><td rowspan="4">Sustainability</td><td colspan="3">There are many opportunities to include Sustainability in GCSE Geography. These opportunities are important to Learners because considering the sustainability of their actions in relation to global issues such as climate change, deforestation, over-abstraction of resources and population growth have never been more important than they are now. Learners should be encouraged to think how their actions now may relate to the sustainability of life on earth for future generations, something that could and should be considered across all the different themes in the specification. This gives them the chance to become ethical and informed citizens of Wales and the world, showing their commitment to the sustainability of the planet.

Below are some examples of how Sustainability can be embedded into teaching and learning:</td></tr>
<tr><td>Specification Reference</td><td>Amplification</td><td>Example</td></tr>
<tr><td>1.1.6</td><td>Interrelationships between rivers and people</td><td>Learners to have the opportunity to evaluate how humans utilise river landscapes in terms of the positive and negative impacts. This could be because of tourism or in managing the flood risk. They need to consider the sustainability of human actions, such as installing hard or soft engineering types or in utilising Hydro-electric power (HEP). Learners could undertake fieldwork to assess the suitability of flood defences in a named location. Additionally, they could evaluate the advantages/disadvantages of HEP, to consider its overall level of sustainability.</td></tr>
<tr><td>1.2.5</td><td>Human and Physical factors that affect rates of coastal change</td><td>Sustainability can be addressed through considering the most appropriate approach to managing coastline change. Learners can evaluate the impacts of different strategies such as Shoreline Management Plans (SMPs) or hard/soft engineering, prior to reaching a decision. Activities that could be undertaken include completing a diamond nine ranking exercise in terms of the level of sustainability associated with the different coastal management strategies or assessing the views of different stakeholders prior to reaching a decision as to the most sustainable strategy to be adopted in a particular area.</td></tr>
</table>

	1.3.2	*Impacts of migration*	Sustainability can be addressed in terms of the unsustainable pressures being placed on local services because of increased populations in an area/country. Therefore, justifying the need for migration policy Learners could analyse the views of different stakeholders on the issue before having the opportunity to design their own migration policy points system.
	1.4.4	*Urbanisation in contrasting global cities*	Learners can understand the impacts of unsustainable rates of urbanisation in LIC cities resulting in the creation of informal settlements. Learners can investigate the characteristics of such global settlements and consider solutions to the problems these places face.
Relationships and Sexuality Education	**There are many opportunities to include Relationships and Sexuality Education (RSE) in GCSE Geography. These opportunities are important to Learners because through the study of people and places in geography, a range of different views and ideologies will be encountered, increasing knowledge of these views and encouraging learners to have fair and unbiased opinions based on what they learn. This will help them develop secure values, establish their spiritual and ethical beliefs and an appreciation of other people's values and views, both locally, nationally and around the world.** **Below are some examples of how RSE can be embedded into teaching and learning:**		
	Specification Reference	***Amplification***	***Example***
	1.3.1	*Causes of migration*	Learners must recognise the importance of relationships, in particular family connections, as an important pull factor in causing migration. Many migrants choose to migrate to meet up with family members who have already migrated. Migrants who do not have family members to meet up with might know of other migrant communities that they can join, and this would also serve as a pull factor for a migration flow. It is important that learners could develop empathy for the migrants in their need to migrate. Activities that could be undertaken include classification of causes of migration as push or pull factors or graphical presentation and analysis of migratory data.

	1.3.2	*Impacts of migration*	Learners must recognise that migration can contribute towards diverse societies and that these create both benefits and challenges. Some societies celebrate cultural diversity and promote positive relationships whilst others might create negative relationships through fostering fear/tension. Learners could undertake a roleplay activity; taking on the role of a migrant and describing the impacts experienced.
	1.3.3	*Managing migration*	Learners must have the opportunity to understand the rights of migrants and refugees, in relation to the UNHDR and UNHCR and how migrants have the right to feel safe. Learners must have the opportunity to appreciate inclusivity and non-discrimination and the value of diversity that migration contributes towards. Learners could address these themes through considering the views/perceptions of different stakeholders associated with migration.

<table>
<tr><td rowspan="5">Human Rights Education and Diversity</td><td colspan="3">There are many opportunities to include Human Rights Education and Diversity in GCSE Geography. These opportunities are important to Learners because it is vital to consider them when studying key current topics such as migration, settlement growth, and equality of access to resources. Past, present and future issues linked to Human Rights and Diversity must be considered when considering people, places and their interactions between them. Through this, learners can be educated to tackle ignorance and misinformation around this subject and to respect the needs and rights of others, as a member of a diverse society.

Below are some examples of how Human Rights Education and Diversity can be embedded into teaching and learning:</td></tr>
<tr><td>Specification Reference</td><td>Amplification</td><td>Example</td></tr>
<tr><td>1.1.6</td><td>Interrelationships between rivers and people</td><td>Learners must have the opportunity to understand that different stakeholders will have different views on the most appropriate method of flood protection in a particular area and will need to be respectful and mindful when dealing with this. Learners could take on the roles of conflicting stakeholders and justify their different opinions in a role play exercise.</td></tr>
<tr><td>1.3.1</td><td>Causes of migration</td><td>Learners must have the opportunity to understand that migration is often caused by conflict or persecution, violating their human right to live safely. Learners could have the opportunity to consider the severity of the different causes of migration, through completion of a decision-making task, such as Diamond 9.</td></tr>
<tr><td>1.3.3</td><td>Managing migration</td><td>Learners must have the opportunity to consider the unethical and ethical strategies of dealing with migration, adopted by different countries, including detention centres, deportation and points-based system. They can look at the UNHDR and the UNHCR and what these policies promote. Learners could have the opportunity to design their own ethical migration policy.</td></tr>
</table>

	1.4.2	*Urban land use models*	Learners must have the opportunity to investigate the diverse characteristics of the different urban sectors in terms of social, economic, environmental and cultural differences. This can be done for both HICs and LICs. Learners could learn about life in the informal settlements for migrants living in LICs such as Sao Paulo, Mumbai or Lagos. Learners could have the opportunity to annotate an OS map of a city to identify the different urban land use sectors and outline their characteristics. They could also use census data to identify the diverse demographic characteristics.

<table>
<tr><td rowspan="6">Careers and Work-Related Experiences</td><td colspan="3">There are many opportunities to include Career and Work-Related Experiences (CWRE) in GCSE Geography. These opportunities are important to Learners because many will go on to future careers in a world increasingly dominated by key geographical issues such as climate change and management of resources. Learners must be equipped with the knowledge and skills to understand these issues and to fire their interest in taking on a career that will make a positive difference to a sustainable future. Signposting opportunities like this is the first step to producing enterprising, creative contributors who are ready to play a full part in life and work.

Below are some examples of how CWRE can be embedded into teaching and learning:</td></tr>
<tr><td>Specification Reference</td><td>Amplification</td><td>Example</td></tr>
<tr><td>1.2.5</td><td>Human and physical factors that affect rates of coastline change</td><td>Learners must have the opportunity to complete questionnaires as part of a primary fieldwork experience, such as perception surveys on coastal management strategies.</td></tr>
<tr><td>1.3.1</td><td>Causes of migration</td><td>Learners must have the opportunity to deal with secondary data such as statistics and complete statistical/graphical analysis and interpretation and identify trends.</td></tr>
<tr><td>1.3.2</td><td>Impacts of migration</td><td>Learners must have the opportunity to complete interviews as part of a primary fieldwork experience, such as interviewing people on their migration viewpoints and transcribing the viewpoints.</td></tr>
<tr><td>1.4.2</td><td>Urban land use patterns</td><td>Learners must have the opportunity to complete surveys as a part of a primary fieldwork experience, such as environmental quality surveys or pedestrian counts in the different sectors of the city to see how they vary.

These opportunities provide authentic experiences for learners, both inside and outside the classroom. The skills utilised are transferrable and can be easily applied in the workplace.</td></tr>
</table>

Cross-curricular Skills – Literacy			
	There are many opportunities to include Literacy in GCSE Geography. These opportunities are important to Learners because need to be able to communicate effectively in different forms and settings, through both Welsh and English. Learners must be able to write and present succinctly and in depth when required to outline their knowledge and views, make ethical and informed decisions on a range of subjects, write and present fieldwork investigations and explain the concepts they are learning about. Learners should take delight in reading on a range of subjects inside and out of their academic subjects such as geography. This will then prepare them for further study and future careers where these skills will be vital as they get ready to play a full part in life and work. **Below are some examples of how Literacy can be embedded into teaching and learning:**		
	Specification Reference	***Amplification***	***Example***
Listening	*1.1.6*	*Interrelationships between rivers and people*	Learners will have the opportunity to listen to the views of stakeholders in terms of the impacts of flooding and appropriateness of hard or soft engineering strategies to manage the flood risk.
	1.2.5	*Human and physical factors that will affect the rates of coastal change*	Learners will have the opportunity to listen to the views of stakeholders in terms of the appropriateness of coastal management strategies to be implemented.
	1.3.1	*Causes of migration*	Learners could listen to the viewpoints of migrants justifying their reasons to migrate.
	1.3.2	*Impacts of migration*	Learners could listen to the experiences of migrants who have participated in migration.

	Specification Reference	Amplification	Example
Reading	*1.1.6*	*Interrelationships between rivers and people*	Learners will have the opportunity to read the viewpoints of different stakeholders associated with the different river management techniques to make a judgement as to how sustainable and appropriate the different approaches are, in different locations.
	1.2.5	*Human and physical factors that affect rates of change*	Learners will have the opportunity to read the viewpoints of different stakeholders associated with coastal management to evaluate the overall suitability of the different schemes.
	1.3.2	*Impacts of migration*	Learners could have the opportunity to read newspaper articles/reports on the different migratory flows and the impacts that arise because of the movement, to use as part of a wider research and classification task.
	1.4.4	*Urbanisation in contrasting global cities*	Learners could have the opportunity to read diary entries or news reports of what life is like in the informal settlements in LICs.
	Specification Reference	**Amplification**	**Example**
Speaking	*1.1.6*	*Interrelationships between rivers and people*	Learners could have the opportunities to debate the advantages and disadvantages associated with hard and soft engineering strategies or the advantages and disadvantages associated with HEP schemes.
	1.2.5	*Human and Physical factors that affect rates of change*	Learners could have the opportunity to discuss the advantages and disadvantages associated with the appropriateness of different coastal management strategies.
	1.3.1	*Causes of migration*	Learners could have the opportunity to discuss the significance of the different push and pull factors associated with causing international migration flows.

	1.4.4	*Urbanisation in contrasting global cities*	Learners could have the opportunity to decide upon the best way of solving the issues facing the informal settlements in LICs.
	Specification Reference	***Amplification***	***Example***
Writing	*1.1.5*	*How drainage basin landforms are created*	Learners could have the opportunity to annotate diagrams to explain how processes interact to create various landforms found in a drainage basin.
	1.2.2	*Constructive and destructive waves*	Learners could have the opportunity to compare the different characteristics associated with the different wave types.
	1.3.3	*Managing migration*	Learners could have the opportunity to design and justify a migration policy for the UK.
	1.4.2	*Urban land use patterns*	Learners could describe the different characteristics of the various sectors of an urban area.

Cross-curricular Skills – Numeracy			
	There are many opportunities to include Numeracy in GCSE Geography. These opportunities are important to Learners because using number effectively in different contexts is a key skill geographers need when learning across the topic and collecting, presenting and analysing data from fieldwork investigations. Learning to understand how to interpret data and apply mathematical concepts is a key aspect of both academic study and the world of work and provides geographers with a unique skillset that they can apply to a range of different situations. **Below are some examples of how Numeracy can be embedded into teaching and learning:**		
	Specification Reference	***Amplification***	***Example***
Developing Mathematical Proficiency	*1.4.1*	*Urbanisation*	Learners could look at how the populations of urban areas have changed over time. Learners need to interpret data and graphs showing this change and need to be able to identify trends
	1.1.6	*Interrelationships between rivers and people*	Learners could have the opportunity to compare flashy and flat hydrographs and using the data to work out lag time and peak discharge and assess the flood risk.
	1.3.1	*Causes of migration*	Learners could have the opportunity to compare trends in immigration and emigration of the UK and calculate net migration. They can then analyse trends in the data and use this to make predictions about the future.

	Specification Reference	***Amplification***	***Example***
Understanding the number system helps us to represent and compare relationships between numbers and quantities	*1.1.2*	*The drainage basin system*	Learners could plot discharge figures over the course of a year to understand how and why a river regime varies over time or they could compare input and output data for the drainage basin system to understand how it influences mass balance.
	1.2.5	*Human and physical factors that affect rates of coastal change*	Learners could look at maps and using the scale, work out fetch distances to prove the relationship between fetch and wave type.
	1.3.1	*Causes of migration*	Learners could have the opportunity to use data on immigration and emigration for the UK and using it to calculate net migration. They can then use this to predict future trends.
	1.4.1	*Urbanisation*	Learners could have the opportunity to calculate natural population change as this is a contributing factor to urbanisation, through calculating the difference between birthrates and deathrates of different countries.
	Specification Reference	***Amplification***	***Example***
Learning about geometry helps us understand shape, space and position and learning about measurement helps us quantify in the real world	*1.1.3*	*Drainage Basin Characteristics*	Learners must understand how the river channel varies as it flows from source to mouth and one of the ways this can be achieved is through investigating channel width and depth. Learners could conduct primary fieldwork to gather this data or use secondary data. They could then use this to plot cross sectional graphs and calculate the changing cross-sectional area of the channel.
	1.2.4	*Development of depositional landforms*	Learners must understand how coastal sediments change along a beach profile. Learners could conduct primary fieldwork to measure sediment profiles, including long, short and intermediate axis, and use the measurements to calculate/classify the coastal sediment types.

			https://pmt.physicsandmathstutor.com/download/Geography/Fieldwork/Notes/Coastal%20UK%20Fieldwork.pdf
	Specification Reference	***Amplification***	***Example***
Learning that statistics represent data, and that probability models chance help us make informed inferences and decisions	1.1.6	*Interrelationships between rivers and people*	Learners could have the opportunity to plot discharge and precipitation data on a flood hydrograph; they could compare flood hydrographs to determine the significance of the flood risk and make necessary management/mitigation decisions.
	1.3.1	*Causes of migration*	Learners could have the opportunity to analyse and interpret net migration data to determine if rates of migration flows are sustainable, in terms of the impacts identified in 1.3.2.
	1.4.4	*Urbanisation in contrasting global cities*	Learners could have the opportunity to compare rates of urbanisation in two contrasting cities; to assess if management strategies ought to be implemented to slow down urbanisation rates.

Cross-curricular Skills – Digital Competence			
	There are many opportunities to include Digital Competence in GCSE Geography. These opportunities are important to Learners because in an increasingly digital world, using digital technologies creatively to communicate, find and analyse information provides geographers with vital skills that set them up for future academic studies and careers. As learners become more digitally competent and aware it is vital that they channel this knowledge into using digital technologies safely and with care and apply it to a range of geographical contexts. Combining opportunities for literacy, numeracy and digital competence in geography will allow learners to undertake research, creatively present and analyse results, evaluate critically what they find, and express emotions through different media, ensuring they are set up to tackle future challenges and are ready to learn throughout their lives. **Below are some examples of how Digital Competence can be embedded into teaching and learning:**		
	Specification Reference	***Amplification***	***Example***
Citizenship	*1.3.3*	*Managing migration*	Learners could have the opportunity to look at the work undertaken by UNHDR and UNHCR to ensure the rights of migrants and refugees are met and that they are supported/protected.
	Specification Reference	***Amplification***	***Example***
Data and Computational Thinking	1.1.6	*Interrelationships between river and people*	Learners could have the opportunity to problem solve through assessing the significance of factors influencing the flood risk within a named drainage basin and suggesting appropriate management strategies to deal with the issue.
	1.2.5	*Human and physical factors that affect rates of change*	Learners could have the opportunity to problem solve through assessing the significance of factors influencing coastline change on a named stretch of coastline and suggesting appropriate management strategies to deal with the issue.

	1.3.1	*Causes of migration*	Learners could have the opportunity to demonstrate their data literacy through analysing and interpreting migration data and identifying future trends.
	1.4.3	*Global Cities*	Learners could demonstrate their data literacy through researching population data for the different global cities and calculating rates of change or percentage increase.

<table>
<tr><th colspan="4">Integral Skills</th></tr>
<tr><td rowspan="5">Creativity and Innovation</td><td colspan="3">There are many opportunities to include Creativity and Innovation in GCSE Geography. These opportunities are important to Learners because geography should encourage them to connect and apply their knowledge and skills to create ideas and projects and to think creatively to make decisions and solve problems. When faced with problems to solve and decisions to make on sustainable issues, learners will be able to think about and then make choices that reflect creative ideas and innovative solutions to issues from across the geographical world and beyond.

Below are some examples of how Creativity and Innovation can be embedded into teaching and learning:</td></tr>
<tr><td>Specification Reference</td><td>Amplification</td><td>Example</td></tr>
<tr><td>1.1.6</td><td>Interrelationships between rivers and people</td><td>Learners need to understand that there are both unsustainable and sustainable ways of using drainage basins and must therefore be able to complete decision making tasks on the most appropriate strategies for a particular place. They can evaluate the strengths and weaknesses of both hard and soft strategies for flood management before reaching a decision.</td></tr>
<tr><td>1.2.5</td><td>Human and physical factors that affect the rate of coastline change</td><td>Learners need to be able to evaluate the different coastal management strategies and determine which strategy is most appropriate in a given environment, based on the evidence available. They must also consider the advantages and disadvantages of the different ways in which humans interact with coastlines and could apply this to the development of their own coastline management plan.</td></tr>
<tr><td>1.3.3</td><td>Managing migration</td><td>Learners need to consider the various ways migration can be managed, both ethically and unethically, and apply this to the creation of their own migration policy.</td></tr>
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<table>
<tr><td></td><td>1.4.4</td><td>Urbanisation in contrasting global cities</td><td>Learners will understand the various challenges facing urban areas in HIC/LICs and must have the opportunity to evaluate the solutions to these challenges, to determine which strategy is the most sustainable.</td></tr>
<tr><td rowspan="4">Critical Thinking and Problem Solving</td><td colspan="3">There are many opportunities to include Critical Thinking and Problem Solving in GCSE Geography. These opportunities are important to Learners because the ability to critically assess resources and arrive at informed solutions to a range of problems is a vital skill learners should develop throughout their study. Learners should aim to question the validity and accuracy of resources and data across the units in the specification and apply this when making decisions and solving problems related to the key issues they will encounter. Learners should be encouraged to enjoy questioning and solving problems and be given a range of opportunities to do so within the subject of geography.

Below are some examples of how Critical Thinking and Problem Solving can be embedded into teaching and learning:</td></tr>
<tr><td>Specification Reference</td><td>Amplification</td><td>Example</td></tr>
<tr><td>1.3.2</td><td>Impacts of Migration</td><td>Learners must have the opportunity to evaluate geographical issues such as the impacts of migration, to determine where the impacts are most severe (source or host country), to be able to present an appropriate solution to the issues that arise.</td></tr>
<tr><td>1.44</td><td>Urbanisation in contrasting global cities</td><td>Learners must have the opportunity to evaluate geographical issues presented because of increased urbanisation, such as counter urbanisation and associated greenbelt pressures, socio-economic segregation, solving the issues facing informal settlements, and suggesting appropriate, sustainable solutions.</td></tr>
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<table>
<tr><td rowspan="4">Personal Effectiveness</td><td colspan="3">There are many opportunities to include Personal Effectiveness in GCSE Geography. These opportunities are important to Learners because all four purposes of the Curriculum for Wales combine to increase and improve personal effectiveness for the learner. Being organised and digitally literate, with strong literacy and numeracy skills, a critical thinker and innovator with knowledge of human rights and diversity, sustainability and issues at a range of scales will help learners to become ethical and informed citizens, ambitious and capable learners, healthy, confident individuals and enterprising and creative contributors to society.

Below are some examples of how Personal Effectiveness can be embedded into teaching and learning:</td></tr>
<tr><td>Specification Reference</td><td>Amplification</td><td>Example</td></tr>
<tr><td>1.3.2</td><td>Impacts of migration</td><td>Learners could debate the challenges and opportunities presented by migration, before reaching a decision on whether migration is good/bad for source/host countries</td></tr>
<tr><td>1.4.4</td><td>Urbanisation in contrasting global cities</td><td>Learners could debate the challenges and opportunities presented by geographical processes such as urbanisation, in terms of counter urbanisation and associated greenbelt pressures, socio-economic segregation, solving the issues facing informal settlements, and suggesting appropriate, sustainable solutions</td></tr>
</table>

Glossary for Unit 1

Term	Definition
Abrasion (coasts)	Waves throw sand and pebbles against the cliff, which wears away the land
Abrasion (rivers)	Sediment carried by the river scour and scrapes against the riverbed wearing it away and causing the river channel to deepen
Afforestation	Planting trees in areas where there were no trees previously
Agrichemicals	Chemicals used in farming such as fertilisers, pesticides and herbicides
Arable farming	Farming for crops
Arch	A natural opening in a cliff or headland where the sea can flow through
Asylum Seeker	Someone who has left their country and is seeking protection from persecution/human rights violations in the host country, but who has not been granted refugee status
Attrition (coasts)	Sediments carried by the waves knock into each other and get progressively smaller and more rounded
Attrition (rivers)	Sediments carried by the river crash into each other and get progressively smaller and more rounded
Backwash	The motion of water moving back down the beach, usually at right angles to the swash
Bay	A concavity of the coastline, often sandwiched between two headlands and constructed of permeable rock
Beach	A depositional landform consisting of sediments such as sand shingle and pebbles, that lies next to the sea or body of water
Bedding Plane	A lateral weakness in the rock
Bid Rent	The amount different land users are willing to pay for the land they want to locate on. Central CBD areas have high Bid Rents
Biological Weathering	Animals and plants force cracks in the rocks to widen and break apart
Birth Rate	The number of babies born per thousand of the population
Brain Drain	The emigration of highly trained or qualified people from a particular country

Brain Gain	The immigration of highly trained or qualified people into a particular country
Burgess	Model of land use whereby the city is split into concentric rings
Carbonation	Precipitation reacts chemically with rocks dissolving them
Cave	An enlarged indentation in the cliff or headland, created by coastal erosion
CBD	Central Business District – Commercial centre of an urban area
Channel	The main body of water flowing through the drainage basin
Channel Flow	Water travels in the main river channel
Closed System	A system where the amount of 'water' does not change, just where it is distributed
Concordant Coastline	Rocks are formed parallel to the sea so that erosion rates along the coastline are even
Condensation	A process whereby water changes state from a gas to a liquid on cooling
Confluence	A junction between two river channels, often indicating direction of flow
Congestion	A situation where a place is too busy or crowded
Constructive Wave	Waves that are low energy and contribute to deposition and building up of beaches
Death Rate	The number of people who die per 1000 of the population
Deciduous	Vegetation that loses its leaves in the wintertime
Deficit	If the outputs outweigh the inputs and there is a negative mass balance
Deforestation	Cutting down and removal of trees
Deportation	Forcing someone to leave a country, where they have no right to be there, or they have broken the law
Deposition	Sediments are dropped by the river channel in low energy conditions
Deprivation	To lack features, such as employment or basic services, which are deemed necessary for a decent standard of living
Derelict	In a very poor, run down condition

Destructive Wave	Waves that are high energy and contribute to erosion and the wearing away of beaches
Diaspora	The dispersal or spread of migrants from their original source country
Discharge	The amount of water in the channel at a given time and it is measured in cumecs (m^3/s)
Discordant Coastline	Rocks are formed perpendicular to the sea so that erosion rates vary along the coastline dependent on the rock type, often resulting in the formation of headlands and bays
Drainage Basin	An area of land drained by a river and its tributaries
Emigration	People leaving a country
Erosion	The wearing away of the land by rivers, waves, wind or ice
Eutrophication	Fertilisers run off into rivers and streams causing algae growth and depleting the river of oxygen, therefore impacting on the river ecosystem
Evaporation	A process whereby water changes state from a liquid to a gas on heating
Exfoliation	Repeated heating and cooling of the rocks causes them to weaken and break down
Export Processing Zone (EPZ)	A free trade area with companies located overseas, set up to enhance commercial and industrial trade links
Famine	The extreme scarcity of food
Fetch	The distance the wind blows, unobstructed, over the surface of water
Flood	When the bank full capacity of a channel is reached, and a river bursts its banks
Flood Hydrograph	A graph to show the relationship between a single precipitation event and river discharge
Floodplain	The flat land that occurs either side of the river, especially in the lower course, that is prone to regular flooding
Forced Migration	When migrants have no choice but to migrate
Freeze Thaw	Repeated freezing and thawing of the rocks causes them to weaken and break down
Fringe	Transition zone outside of the suburbs that has mixed rural and urban land uses
Geology	The type of rock in an area

Global Cities	Cities that play an important role in the global economic system of finance and trade
Gorge	The narrow, steep sided valley carved out as a waterfall retreats upstream
Gradient	The steepness of the land
Groundwater	Water is stored underground in the rocks
Groundwater Flow	Water travels laterally through the rocks
Groynes	A low wooden/concrete barrier on a beach built perpendicular to the sea to restrict/slow down longshore drift
Hard Engineering	Engineering that involves technology and is expensive, often involving river channel or coastline modification
Headland	An area of land that protrudes out into the sea, often constructed of impermeable rock
HIC	High income, more developed country
Host Country	Country where the migrants are moving to
Hoyt	Model of land use whereby the city is split into different sectors
Hydraulic Action (coasts)	The force of waves crashing against a cliff, trapping and compressing air in cracks, wearing the rocks away
Hydraulic Action (rivers)	The force and weight of the water crashes against the riverbanks wearing them away and causing the river channel to widen
Hydro Electric Power (HEP)	Sustainable power generated by running water passing through turbines
Hydrograph/Regime	The expected pattern of river discharge measured over the course of the year
Hydrological Cycle	The continual movement of water between the land, sea and the atmosphere
Irregular Migration	Migrating into another country in an irregular way, outside of the regulatory norms, or remaining in a country with an irregular status
Immigration	People moving into a country
Impermeable	Hard rock that is more resistant to erosion and weathering
Infiltration	Water that soaks downwards into the soil

Informal Economy	A sector of the economy that is not taxed or monitored by any form of government; workers are not regulated by the state e.g. street selling
Informal Settlement	A residential area where the inhabitants do not own the land on which they live. They have occurred spontaneously
Infrastructure	Structures/facilities needed for places to function e.g. roads, electricity, water supply, internet or mobile phone coverage
Inner City	The sector of the city that surrounds the CBD and is often associated with 19th Century terrace housing, run down neighbourhoods and some wholesale manufacturing
Input	Water that enters the drainage basin system such as via precipitation
Integration	The intermixing of people who were previously separated
Interception	Trees and other vegetation catch falling precipitation
International Migration	Migration that crosses international borders
Joint	A vertical weakness in the rock
Lag Time	The time difference between peak rainfall and peak discharge.
Landslides	The rapid downward movement of loose earth
Land use	What the land is used for, as in its function such as forestry or farming
Land use	What the land is used for, also known as its function e.g. mining or farming
Lateral erosion	Erosion of the riverbanks causing the channel to widen
Legal Migration	Migrating to another country through official channels and abiding by the host country's immigration policy
LIC	Low income, less developed country
Life Expectancy	The average age a person is expected to live to
Longshore Drift	The process by which sediment is moved along the coastline in a zig zag pattern
Mass balance	The difference between the inputs and outputs in a system

Mass Movement	The downward movement of loose material such as material falling from a cliff to a beach below
Meander	A bend in the river
Meander Scar	An oxbow lake that has drained its water away and has become vegetated
Mega Cities	Cities with over 10 million people living in them
Meta Cities	Cities with over 20 million people living in them
Migrant	People who migrate
Migration	The movement of people from one place or another to live
Millionaire Cities	Cities with over 1 million people living in them
MNC	Multi-National Companies operate in many countries around the world e.g. Nike
Mouth	Where the river channel meets the sea
Multiculturalism	The presence of several distinct cultural or ethnic groups within a society
National Migration	Migration within a country, such as from rural to urban areas
Natural Decrease	When the death rate outweighs the birth rate
Natural Increase	When the birth rate outweighs the death rate
Natural Population Change	The difference between a country's birth rate and death rate
NIC	Newly industrialised country that is developing
Nodal Point	All roads and transport networks meet at the nodal point, often in the centre of the CBD
Notch	Indentations in a cliff or headland caused by coastal erosion
Open System	A system where the amount of 'water' changes due to variations in inputs and outputs resulting in a variation in mass balance
Output	Water that exits the drainage basin system such as Channel flow or evaporation
Overemployment	Where the demand for labour exceeds supply

Overland Flow	Water travels on the surface of the ground. Sometimes referred to as surface run off
Oxbow Lake	An isolated meander loop
Pastoral Farming	Farming for animals
Perception	The way in which something is regarded or understood
Percolation	Water that soaks downwards into the rocks
Permeable	Soft rock that is less resistant to erosion and weathering
Persecution	Hostility and mistreatment due to a persons' ethnicity, religion, sexual orientation or political beliefs
Pioneer Plant Species	The first plants to colonize a barren ecosystem such as a sand dune or salt marsh
Plunge Pool	The deep pool found at the base of a waterfall
Poverty	The state of being poor when compared with others
Precipitation	Water that falls to the ground in the form of rain snow sleet and hail
Pull Factors	Factors that encourage migrants to move to an area
Push Factors	Factors that cause migrants to leave an area
Quality of Life	The standard of health, comfort, and happiness experienced by a person or community
Redevelopment	Construction of new buildings in an urban area, typically after demolishing the existing building
Reforestation	Planting trees in areas where trees have been cut down
Refugee	An individual who has been granted this status by a host country or international body, recognizing that they cannot safely return home due to war, persecution, or violence.
Remittances	Immigrants sending sums of money back to the source country
Residential	An urban land use consisting of housing
Retail Parks	A location containing many shops, outside, usually located on the edge of an urban area

Reurbanisation	The movement of people back into urban areas after regeneration has occurred
River Cliff	The steep sided profile on the outside bend of a meander formed from erosion
Rock Armour	Boulders of hard impermeable rocks placed along a coastline to deflect wave energy and slow down coastal erosion
Rockfalls	The rapid downward movement of loose rocks
Rural to Urban Migration	Movement of people from rural to urban areas, contributing to urbanisation
Salt Crystallisation	Salt crystals grown in cracks in the rocks forcing them to break apart
Salt Marsh	Coastal wetlands that are often flooded with salt water
Saltation (rivers)	Pebbles bounce and leapfrog along the riverbed
Saltation (coasts)	Pebbles bounce and leapfrog along the seabed with the waves
Sand Dune	An accumulation of sand and small sediments shaped into a mound by the wind, that form perpendicular to the coastline
Saturated	Holding as much ‘water’ as can be absorbed
Sea Walls	Coastal walls designed to protect the coastline from both flooding and coastal erosion
Segregation	The separation of people with differing characteristics
Shopping Malls	An undercover location containing many shops, usually located on the edge of an urban area. Smaller versions can be found in the CDB
Shoreline Management Plan (SMP)	An assessment of the risks associated with different coastal processes
Silt/Alluvium	Fine sediment deposited by a river, often on the flood plain that is highly fertile
Slip Off Slope	The gently sloping profile on the inside bend of a meander formed from deposition
Soft Engineering	Engineering that is kinder to nature, often working with natural processes or features of a river channel or coastline
Solution (transport in rivers)	Minerals are carried by the river channel in a dissolved state
Solution (transport in coasts)	Material is carried along the coastline in a dissolved state

Solution (erosion in coasts)	Salt water reacts chemically with the cliff, dissolving it
Solution (erosion in rivers)	Water reacts chemically with rocks in the riverbed and banks dissolving them
Source	Where the river channel starts, often in upland areas
Source Country	Country where the migrants are leaving
Sphere of Influence	The size of the area surrounding an urban area that is influenced by features of the urban area
Spit	A narrow finger shaped depositional landform that projects outwards from the land into the sea, in the direction of the prevailing wind
Stack	A vertical pillar of rock left behind after the collapse of an arch
Standards of Living	The degree of wealth and material comfort available to a person or community
Stores	A location within a system where 'water' remains for a length of time
Stump	The remnants of a stack that has collapsed due to continual erosion and weathering
Suburbs	Residential areas on the edge of urban areas, located between the inner city and the fringe
Surplus	If the inputs outweigh the outputs and there is a positive mass balance
Suspension (rivers)	Sands and silts float along in the river channel
Suspension (coasts)	Fine sediments such as sand float along the coastline
Swash	The motion of water moving up the beach once a wave has broken, usually in the direction of the fetch
Throughflow	Water travels laterally through the soil
Traction (rivers)	Large boulders roll along the riverbed in high energy conditions
Traction (coasts)	Large boulders roll along the seabed in high energy conditions
Trade Bloc	An agreement between countries in which barriers to trade and migration are eliminated for participating countries, such as the EU
Transfers	A process which transfers 'water' from one store to another

Transpiration	Tres and other vegetation release water vapour from their leaves
Transportation (rivers)	The movement of sediment downstream
Transportation (coasts)	Sediments are carried along a coastline
Tributary	A smaller channel that flows into a bigger channel
UNHCR	United Nations High Commissioner for Refugees is policy designed to protect asylum seekers, refugees and displaced people
UNHDR	Universal Declaration of Human Rights outlining the human rights of all people
Urbanisation	The building of towns and cities
Urbanisation	The increasing proportion of people living in urban areas, resulting in urban areas increasing in size
Vertical Erosion	Erosion of the riverbed causing the channel to deepen
VISA	An endorsement on a passport indicating that the holder is allowed to enter, leave, or stay for a set period in a country
Voluntary Migration	When migrants choose to migrate
Water Table	The surface of the groundwater store
Watershed	The upland boundary of a drainage basin
Wave Cut Platform	A flat rocky shelf in front of a cliff, indicating cliff retreat, observable at low tide
Weathering	Is the breaking down or dissolving of rocks