Relief of the UK

Relief of the UK can be divided into uplands and lowlands. Each have their own characteristics.

Key

Lowlands

Uplands

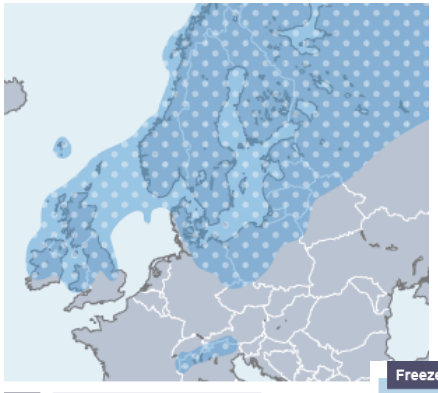
Areas +600m: Peaks and ridges cold, misty and snow common. i.e. Scotland

Areas - 200m: Flat or rolling hills. Warmer weather. i.e. Fens

Glaciers in the UK

Approximately 20,000 years ago, much of northern Europe water covered in a ice sheet, this then covered much of; Scotland, Wales and Northern England.

From 18,000 years onwards, these ice sheets and glaciers started to melt and retreat leaving behind carved out and depositional landforms.



Ice covered land

Types of Erosion

The break down and transport of rocks – smooth, round and sorted.

Abrasion	As the glacier moves downhill, rocks that have been frozen into the base and sides of the glacier scrape the rock beneath. The rocks scrape the bedrock like sandpaper, leaving scratches called **striations** behind.
Plucking	rocks become frozen into the bottom and sides of the glacier. As the glacier moves downhill it '**plucks**' the rocks frozen into the glacier from the ground.

Glacial landforms created by erosion.

There are a handful of landforms created by erosion, the main one is a corrie. Ensure you are confident with identifying and explaining these landforms.

Mechanical Weathering Example: Freeze-thaw weathering

Stage One

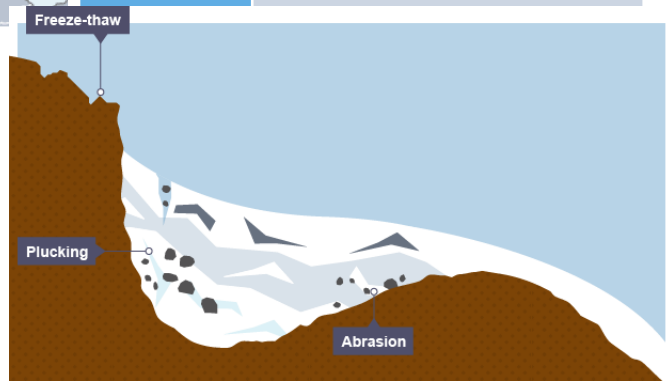
Water seeps into cracks and fractures in the rock.

Stage Two

When the water freezes, it expands about 9%. This wedges apart the rock.

Stage Three

With repeated freeze-thaw cycles, the rock breaks off.



How does a corrie form?

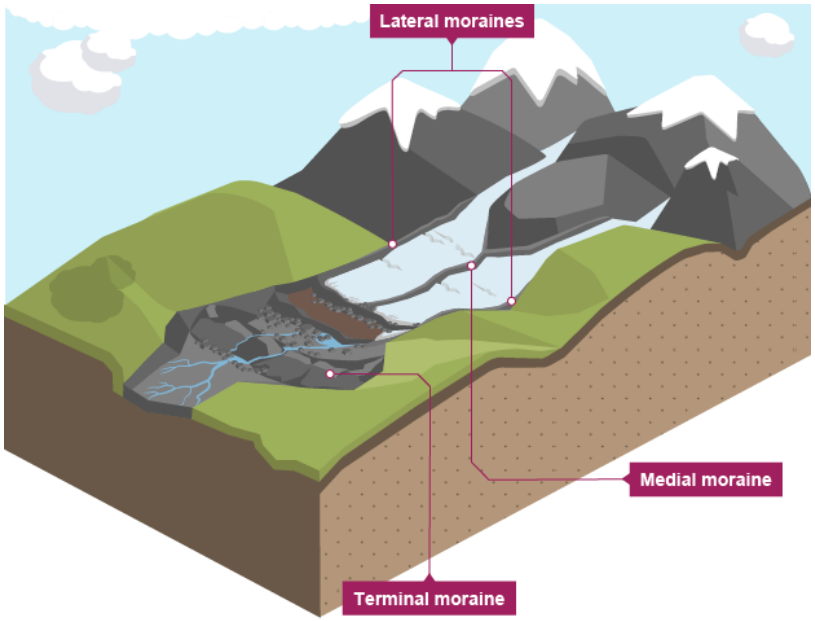
1	Snow collects in a sheltered hollow on the side of a mountain. This is usually on North-facing slopes in the northern hemisphere. The snow doesn't melt in the summer because it is high up, sheltered and cold.
2	Every winter, more snow collects in the hollow. This becomes compacted and the air is squeezed out leaving ice.
3	The back wall of the corrie gets steeper due to **freeze-thaw weathering** and **plucking**.
4	The base of the corrie becomes deeper due to **abrasion**.
5	As the glacier gets heavier it moves downhill. The glacier moves out of the hollow in a circular motion called **rotational slip**.
6	Due to less erosion at the front of the glacier a corrie lip is formed.
7	After the glacier has melted a lake forms in the hollow. This is called a corrie lake or tarn.

Examples of upland glacial features

Pyramidical peak- Snowdon **Arete- Crib Goch** **Corrie- Llyn Idwal**	**Ribbon lake- Llyn Ogwen**

Unit 1c
Physical Landscapes in the UK

AQA



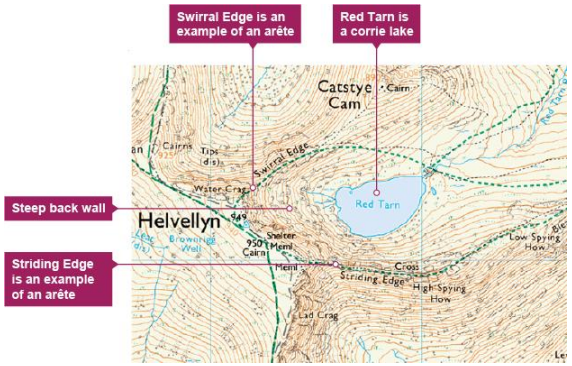
Moraines

These are depositional features found at the bottom of a glaciated valley, ensure you know the different types of moraines.

Lateral moraine	material deposited along both sides of the glacier. This moraine is usually made up of weathered material that has fallen from the valley sides above the glacier.
Medial moraine	material deposited in the middle of the glacier. This is caused by the lateral moraines of two glaciers when they meet.
Terminal moraine	material deposited at the end of the glacier.

Further information can be found in BBC Bitesize:
https://www.bbc.co.uk/bitesize/guides/zxn87hv/revision/1

OS maps
Ensure you can identify glacial features on a OS map. (use contour lines!)



Case study
Glaciers create beautiful landscapes which has many users

Farming- common on the upper slopes where the soil quality is poor, in the lower slopes you'll find more arable farming (crops).
Quarrying- minerals in the hills can be used for materials in building and industry.
Forestry- Trees produce fuel and timber.
Tourism- people whom come and visit the region can pay money which benefits the local economy.

Tourism in glaciated regions

Regions like the **Lake District** and **Snowdonia** attract millions of tourists each year. These bring many advantages and disadvantages.

Positives:
-Money is spent in the region which creates employment for the local residents.
-People enjoy the scenery which is good for their well being and fitness.

Negatives:
-Traffic congestion leads to frustrations and delayed journeys.
-Footpath erosion has an impact on the landscape.

Water Cycle Key Terms

Precipitation	Moisture falling from clouds as rain, snow or hail.
Interception	Vegetation prevent water reaching the ground.
Surface Runoff	Water flowing over surface of the land into rivers
Infiltration	Water absorbed into the soil from the ground.
Transpiration	Water lost through leaves of plants.

Physical and Human Causes of Flooding.

***Physical:* Prolong & heavy rainfall**
Long periods of rain causes soil to become saturated leading runoff.

***Physical:* Geology**
Impermeable rocks causes surface runoff to increase river discharge.

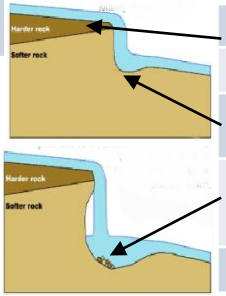
***Physical:* Relief**
Steep-sided valleys channels water to flow quickly into rivers causing greater discharge.

***Human:* Land Use**
Tarmac and concrete are impermeable. This prevents infiltration & causes surface runoff.

Upper Course of a River

Near the source, the river flows over steep gradient from the hill/mountains. This gives the river a lot of energy, so it will erode the riverbed vertically to form narrow valleys.

Formation of a Waterfall



1) River flows over alternative types of rocks.

2) River erodes soft rock faster creating a step.

3) Further hydraulic action and abrasion form a plunge pool beneath.

4) Hard rock above is undercut leaving cap rock which collapses providing more material for erosion.

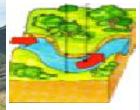
5) Waterfall retreats leaving steep sided gorge.

Middle Course of a River

Here the gradient get gentler, so the water has less energy and moves more slowly. The river will begin to erode laterally making the river wider.

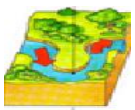
Formation of Ox-bow Lakes

Step 1



Erosion of outer bank forms river cliff. Deposition inner bank forms slip off slope.

Step 2



Further hydraulic action and abrasion of outer banks, neck gets smaller.

Step 3

Erosion breaks through neck, so river takes the fastest route, redirecting flow

Step 4

Evaporation and deposition cuts off main channel leaving an oxbow lake.

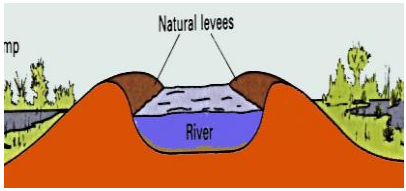
Lower Course of a River

Near the river's mouth, the river widens further and becomes flatter. Material transported is deposited.

Formation of Floodplains and levees

When a river floods, fine silt/alluvium is deposited on the valley floor. Closer to the river's banks, the heavier materials build up to form natural levees.

✓ Nutrient rich soil makes it ideal for farming.
✓ Flat land for building houses.



River Management Schemes

Soft Engineering

Afforestation – plant trees to soak up rainwater, reduces flood risk.
Demountable Flood Barriers put in place when warning raised.
Managed Flooding – naturally let areas flood, protect settlements.

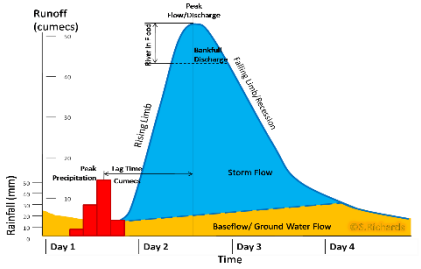
Hard Engineering

Straightening Channel – increases velocity to remove flood water.
Artificial Levees – heightens river so flood water is contained.
Deepening or widening river to increase capacity for a flood.

Hydrographs and River Discharge

River discharge is the volume of water that flows in a river. Hydrographs who discharge at a certain point in a river changes over time in relation to rainfall

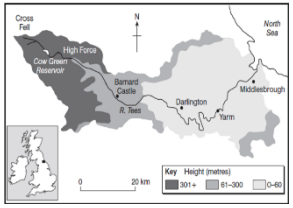
1. **Peak discharge** is the discharge in a period of time.
2. **Lag time** is the delay between peak rainfall and peak discharge.
3. **Rising limb** is the increase in river discharge.
4. **Falling limb** is the decrease in river discharge to normal level.



Case Study: The River Tees

Location and Background
Located in the North of England and flows 137km from the Pennines to the North Sea at Red Car.

Geomorphic Processes
Upper – Features include V-Shaped valley, rapids and waterfalls. High Force waterfall drops 21m and is made from harder Whinstone and softer limestone rocks. Gradually a gorge has been formed.
Middle – Features include meanders and ox-bow lakes. The meander near Yarm encloses the town.
Lower – Greater lateral erosion creates features such as floodplains & levees. Mudflats at the river's estuary.



Management
-Towns such as Yarm and Middleborough are economically and socially important due to houses and jobs that are located there.
-Dams and reservoirs in the upper course, controls river's flow during high & low rainfall.
- Better flood warning systems, more flood zoning and river dredging reduces flooding.