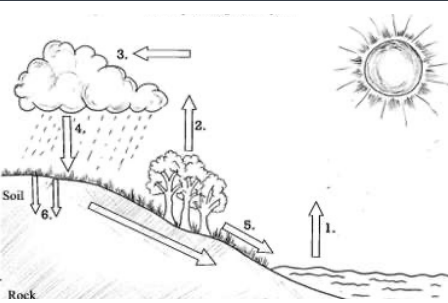
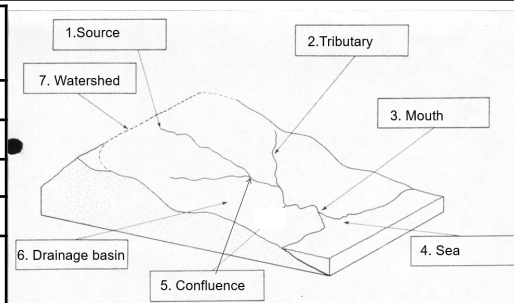


# KS3 Geography: Rivers



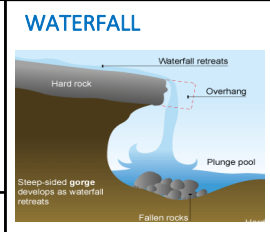
<b>Evaporation</b>	When the sun heats up water from the sea and it goes into the air.
<b>Transpiration</b>	When the sun heats up water from the leaves of trees.
<b>Condensation</b>	When water vapour cools and turns into clouds
<b>Precipitation</b>	Rain, hail, sleet and snow that falls from the clouds
<b>Surface run-off</b>	When the water runs off the surface of the ground.
<b>Groundwater flow</b>	When water goes into the ground (infiltration) and flows through the rocks/soil underground.



<b>Drainage Basin</b>	The area of land in which water drains into a specific river.
<b>Source</b>	The point where the river begins.
<b>Tributary</b>	A stream or small river that joins a larger stream or big river.
<b>Confluence</b>	A point where two streams or rivers meet.
<b>Mouth</b>	The point where the river meets the sea or ocean.

<b>River</b>	A channel of water which flows downstream.
<b>Social uses of the river</b>	<ul style="list-style-type: none"> <li>Supplying water to people's homes: <i>Water is taken from the Thames, cleaned and piped to millions of homes. Dirty water is collected from homes, cleaned and put back in rivers.</i></li> <li>Leisure activities: <i>Rowing, canoeing, swimming, picnics, walking. Over 250,000 fishing licenses are brought each year to fish along the Thames and its tributaries.</i></li> <li>Transporting people: <i>The Thames River Boats transport thousands of people to work everyday. Tourists also enjoy Thames cruises.</i></li> </ul>
<b>Economic uses of the river</b>	<ul style="list-style-type: none"> <li>Use in industries: <i>Factories (e.g. the Ford Factory in east London) uses water for cooling and washing factory machinery.</i></li> <li>Transporting goods to other countries: <i>London Gateway Port is located in East London. It is used for importing and exporting goods.</i></li> <li>Producing electricity to sell: <i>In power stations, steam drives turbines. River water is used to cool tanks of steam. For example in the power station beside the Thames at Didcot.</i></li> <li>Agriculture (farming) <i>A lot of the River Thames passes through rural areas and farmland. Farmers use the river water to water their crops in dry weather (irrigation).</i></li> </ul>

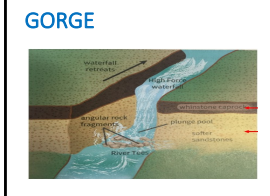
## LANDFORMS FORMED BY EROSION



**WATERFALL**

**A waterfall is a steep fall of water, where water flows over a ledge of hard rock.**

- Waterfalls occur in areas where hard rock overlies soft rock.
- The soft rock erodes more quickly than the hard rock, creating a plunge pool and overhanging ledge.
- Further erosion of the soft rock, makes the plunge pool deeper and the overhanging ledge unstable. Eventually the ledge falls into the plunge pool.
- As the steps 1-3 are repeated, the waterfall retreats upstream.



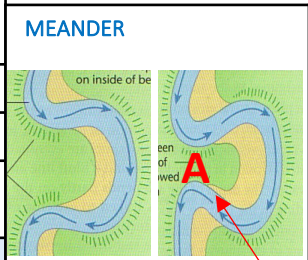
**GORGE**

**A gorge is a narrow, steep sided valley that is found immediately downstream from a waterfall.**

It is formed by the gradual retreat of a waterfall over hundreds or thousands of years.

<b>Erosion</b>	The wearing away or breakdown of rocks by wind, water or ice.
<b>Hydraulic Action</b>	The force of water hits against the river channel and removes material. It is common with fast moving, high energy water.
<b>Abrasion</b>	Sediment carried by the river hits the river channel and removes material.
<b>Corrosion</b>	Chemicals in the water dissolve rocks (e.g. limestone)
<b>Attrition</b>	Stones carried by the river hit into each other, gradually making the rocks smaller and smoother. Rocks in the upper course are large and more angular than rocks in the lower course.
<b>Transportation</b>	Eroded material is carried by the river downstream.
<b>Traction</b>	Large particles roll along the river bed.
<b>Saltation</b>	Pebble-sized particles bounce along the river bed.
<b>Suspension</b>	Small particles (silt and clay) are carried in the water.
<b>Solution</b>	Soluble materials dissolve in the water and are carried along.
<b>Deposition</b>	Deposition takes place where a river does not have enough energy to carry sediment (its load). As a result it is dropped.

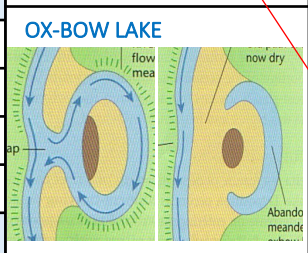
## LANDFORMS FORMED BY EROSION and DEPOSITION



**MEANDER**

**A bend in the river.**

- It starts with a slight bend.
- Water moves faster on the outside of the bend and slower on the inside.
- The fast water erodes the outside of the bend. The slower water deposits material on the inside of the bend.
- Continued erosion and deposition makes the bend bigger.



**OX-BOW LAKE**

**U-shaped lakes formed when a meander is no longer connected to a river**

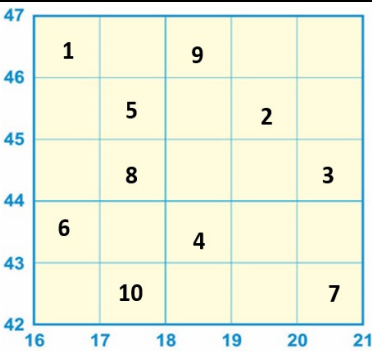
- Further erosion and deposition make the meander bend larger and the neck of the meander (A) narrows.
- Eventually the neck breaks through and the water takes the most direct route, avoiding the meander.
- As less water is flowing through the meander, the energy is reduced = deposition. The meander is blocked off and an oxbow lake is created.

An OS map is a very detailed map. They are split up into squares, known as grid squares.

- A 4 figure grid reference directs you to a certain grid square.
- A 6 figure grid reference directs you to a certain point within a grid square.

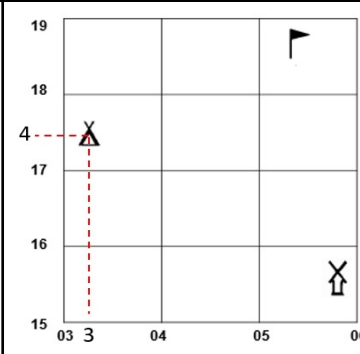
How to read grid references: remember the rule **along the corridor, up the stairs**.

ALWAYS send to the **BOTTOM LEFT** corner.



**4 FIGURE GRID REFERENCES**

- \_\_\_ \_\_\_ / \_\_\_ \_\_\_
1. Draw a **X** in the bottom left corner of the grid square.
  2. **Along the corridor** – go along the horizontal axis until you reach the line that the X is on.
  3. **Up the stairs** – go along the vertical axis until you reach the line that the X is on. **1 = 16,46.**



**6 FIGURE GRID REFERENCES**

- \_\_\_ \_\_\_ \_\_\_ / \_\_\_ \_\_\_ \_\_\_
1. What is the grid square? **03,17**
  2. To work out the 3<sup>rd</sup> number you state how many 10<sup>ths</sup> across the campsite is in 03, 17 = **033**, 17 \_
  3. To work out the 6<sup>th</sup> number you state how many 10<sup>ths</sup> up the grid square the campsite is = **033**, **174**
  4. Therefore the six figure grid reference is **033, 174**

**FLOODING OF SOMERSET IN 2014**

Somerset is located in south-west England. The area is very flat, the maximum altitude is 8m above sea level. In January and February (2014), the River Tne and Parrett flooded. A **river flood** occurs when **water overflows the river channel and spreads across the surrounding land**. The worst hit areas were Burrowbridge, Bridgewater and Muchelney.

**CAUSES OF THE FLOOD** - watch this video [Geography KS3 / GCSE: The impacts of the 2014 floods on Somerset - BBC Teach](#)

<b>Slope steepness</b>	If there is a steep slope, water flows quickly into the river = floods. There are two peaks that surround Somerset the Quantocks and Mendips. When it rains, water flows down into the area of Somerset.
<b>Precipitation</b>	Intense rain = flooding. Between December (2013) to February (2014), the UK experienced very wet weather. The South West of England saw intense rainfall (350mm of rainfall, 100mm more than the average), and storm surges from the Atlantic caused coastal flooding.
<b>Rock Type</b>	Impermeable rock = more surface run off = water quickly reaches river channel = flood. Some towns in Somerset have a number of car parks which are concrete and tarmac, an impermeable surface.
<b>Settlements</b>	A growth of settlements = the creation of more concrete surfaces, which are impermeable = more surface runoff = more flooding.
<b>Deforestation</b>	The leaves of trees intercept rainfall as it falls to the ground = water takes longer to reach the river. If trees are cut down, water quickly reaches the river = flood. Trees have been cut down to make space for farming and new houses.

**EFFECTS OF THE FLOOD**

<b>Social impacts</b>	<ul style="list-style-type: none"> <li>• More than 600 homes flooded, with families moving into temporary housing. Many people did not return home for 6 months.</li> <li>• Homes lost water services due to contamination</li> <li>• Homes experienced power cuts.</li> <li>• Crime rates increased as people stole from the evacuated homes.</li> </ul>
<b>Economic impacts</b>	<ul style="list-style-type: none"> <li>• The flood cost £10 million.</li> <li>• Transport lines were flooded, preventing commuters getting to work.</li> <li>• Local businesses were flooded, affecting jobs and local economies.</li> <li>• Floodwater covered agricultural fields and destroyed crops. These crops could then not be exported (sold). This led to the increased price of wheat and bread.</li> </ul>
<b>Environmental impacts</b>	<ul style="list-style-type: none"> <li>• Habitats were flooded, affecting wildlife, particularly ground nesting birds.</li> </ul>

**RIVER MANAGEMENT STRATEGIES**

<b>Embankment</b>	Raised river banks, built next to rivers. <i>There are high embankments that run along the River Thames in London.</i>
<b>Advantages</b>	They are very effective at preventing flooding. They are built from concrete, which means they are strong and long lasting.
<b>Disadvantages</b>	During storms, water can sometimes go over the embankments. They are expensive and unnatural to look at.
<b>Flood Relief Channel</b>	A additional manmade river channel is built to divert water away from high value land. <i>The Jubilee River channel was a flood relief channel to reduce the amount of water in the River Thames in Windsor and Eton (west London).</i>
<b>Advantages</b>	Advantages: the relief channels prevent the main river from overflowing its banks = it is very effective.
<b>Disadvantages</b>	Disadvantages: it causes disruption as it is being built and can be very expensive.
<b>Afforestation</b>	Trees are planted in the drainage basin.
<b>Advantages</b>	Trees intercept rainfall and take water out of the soil. This reduces the amount reaching rivers. Wooded areas look attractive and provide wildlife habitats.
<b>Disadvantages</b>	The land cannot be used for other activities, such as farming. It is less effective than embankments and flood relief channels at reducing the risk of flooding.
<b>Land Use Zoning</b>	The government allocates areas of land to different uses, according to their level of flood risk. <i>Land closest to the river, at high risk, is used as parkland/playing fields. Land further from the river is used for housing and industry.</i>
<b>Advantages</b>	It reduces the cost of future floods..
<b>Disadvantages</b>	It does not prevent the flood from occurring. It also only applies to new housing developments. Finally it can reduce the value of existing homes that are said to be in a high risk area.
<b>Preparation</b>	The Environment Agency and local government educate people how to protect themselves from future floods. <i>Moving valuables upstairs, using flood gates and sandbags to keep floodwater away.</i>
<b>Advantages</b>	It reduces the cost of future floods as people are better able to protect themselves and their belongings.
<b>Disadvantages</b>	It does not prevent the flood from occurring. House prices drop if they are deemed at risk of flooding.