Rivers Revision Notes

Common river terms
Source: Where the river begins
Course: The journey of the river.
Tributary: A small river that joins a larger river.
Confluence: The point where a smaller river joins a larger river.
Mouth: Where the river enters the sea.
Estuary: Part of the river mouth that is tidal.
River Basin: The area drained by a river and its tributaries.
Watershed: Highland that separates two river basins.

Stages of a river

1. Youthful or Upper stage
   Steep slope, moving very fast, lots of erosion and the valley has steep sides.

2. Mature or Middle stage
   Gentle slope, river beginning to slow down, some erosion, deposition begins and the valley begins to widen.

3. Old age or Lower stage
   Slope almost flat, moving very slowly, only deposition and a wide flat valley.

River Transportation
Rolling: The larger stones are dragged along the riverbed.
Bouncing: Smaller sized particles are picked up and dropped by the river.
Suspension: The moving water carries lightest particles along.
Solution: Particles of rocks are dissolved by the water e.g. limestone.

Processes of river erosion (wearing away the landscape)
(Marking Scheme: 2 processes @ 3marks each, 1 mark name it, 1 statement and 1 explain)
Hydraulic Action: The force of moving water.
Abrasion: When the rivers load hits off the bed and banks wearing it away.
Attrition: The rocks carried by the river knock off each other and become rounded.
Solution: The water dissolves some of the rocks it flows over e.g. limestone.

Features of river erosion
(Marking scheme: 10 marks, 1 mark name feature, 3 marks for labelled diagram and 6 marks for two formations @ 3 marks each, {1 mark statement and 2 marks development})

Landform/Feature: **Waterfall** (Youthful stage)
Example: Powerscourt waterfall, Co. Wicklow.
Processes: Hydraulic action, Abrasion, Attrition, Solution.
Formation: 1. Where the river flows over a vertical drop. (Description)
2. The river flows over an area of hard (resistant) and soft (less resistant) rock.

3. It erodes the soft rock quicker leaving a drop in the rivers course.
4. At the base of this drop a plunge pool develops, due to the force of the falling water.
5. The water also undercuts the waterfall forming an overhang.
6. This will eventually collapse and the waterfall will retreat upstream forming a gorge.
(Hint: Remember FEED: Feature, Example, Explain and Diagram, always must be labelled)

V – Shaped valley (Youthful stage):
- It has a narrow floor and steep sides.
- It is formed when the river cuts down into its riverbed (Vertical Erosion) e.g. Burrin, Co. Carlow.

Interlocking Spurs (Youthful stage):
- When the valley sides jut out on either side of the river and seem to interlock.
- The river is unable to erode them as they are made of hard resistant rock.
- It flows around them e.g. Burrin, Co. Carlow.

<u>Features of river deposition</u>
(Marking scheme: 10 marks, 1 mark name feature, 3 marks for labelled diagram and 6 marks for two formations @ 3 marks each, {1 mark statement and 2 marks development})

Landform/Feature: **Floodplain** (Mature stage)
Example: Burrin, Co. Carlow
Processes: Deposition.
Formation: 1. It is an area of flat land on either side of the river. (Description)
2. During a flood the river spreads out over this area and drops its load.
3. It drops the larger material nearest the river and the finer material further out.
4. The fine material is called alluvium and is very fertile, it is good for farming.
(Hint: Remember FEED: Feature, Example, Explain and Diagram, always must be labelled)

Landform/Feature: **Ox – Bow Lake**
Example: Liffey, Co. Dublin.
Processes: Deposition
Formation: 1. It is a horseshoe – shaped lake on the floodplain of a river. (Description)
2. When menders grow very pronounced the neck of land between them becomes very narrow.
3. During a flood the river flows straight instead of around the meander cutting through the narrow neck of land.
4. Sediment deposited by the river seals off both ends of the old meander loop. An ox- bow lake is formed.

5. Overtime the ox – bow lake will dry – up and form an ox – bow scar.
(Hint: Remember FEED: Feature, Example, Explain and Diagram, always must be labelled)

Meanders (Mature stage):

- Bends in the river.
- Deposition occurs on the inside (Convex) bend as the water is moving slowly here. Erosion occurs on the outside (Concave) bend as the water is moving faster e.g. Burrin. Co. Carlow.

Levees (Old stage):

- During a flood the larger material is dropped close to the river.
- This builds up overtime to form raised banks of alluvium on either side of the river e.g. Burrin, Co. Carlow.

Delta (Old stage):

- It is a triangular shaped piece of land formed at the mouth of a river.
- The river drops its load. If the sea is unable to remove it, it builds up.
- The mouth becomes clogged and the river breaks up into smaller channels called distributaries e.g. Glendalough Lakes, Co. Wicklow.

Case Study: Flooding
(Hint: This can be asked as the disadvantages and advantages of rivers.)
(Marking Scheme: 10 marks)
What? Mississippi floods. (2 marks name it)
Where? Drains 40 % of the land in USA.
When? 2001.
Causes? The government built 2,000 km of artificial levees.
(4 marks outline what happened)
They straightened its course for shipping.
(2 marks statement, 2 explaining it)
Water level rose 7 m due to 3 times normal amount of rainfall.
Melting of heavy snow.
Effects? Negative? 60 people killed. (2 marks negative effect)
Buildings destroyed. (1 statement, 1 explaining it)
Shipping on river delayed for months.
Water supply and sewage systems affected.
Crops destroyed and livestock killed.
Positive? Once the water dried up a rich layer of alluvium was laid down which is good for farming. (2 marks positive effect, 1 statement, 1 development)

Case Study: Dams and Hydroelectricity
(Hint: This can also be asked as the disadvantages/advantages of rivers. Or the economic importance of rivers.)
(Marking Scheme: 10 marks)
What? Pollaphuca dam. (2 marks name it)
Where? On the river Liffey, Blessington, Co. Wicklow.

Why? To create hydroelectricity from running water.
Causes? The ESB built the dam to create renewable energy, energy that can be used over and over again. (4 marks outline what happened) (2 marks statement, 2 explain)
Effects? Negative? 2,000 hectares of farmland was flooded. (2 marks negative effect)
100 families had to be relocated. (1 statement, 1 explaining it)
New roads and bridges had to be constructed.
Positive? The reservoir supplies 400 million litres of water to Dublin a day.
The artificial lake behind the dam is used as an amenity for the people of Dublin for water sports, fishing etc.
(2 marks positive effect)

<u>Other advantages of rivers</u>

- Natural route ways for transporting goods.
- Good flat land on the floodplains for settlement e.g. Limerick on the Shannon.
- Deep estuaries can be used as ports for industries e.g. Aughnish Island, Shannon.
- Tourism fishing, cruising and water sports.