

Year 7 Geography Revision Booklet – Rivers

Name:

Class:

Teacher:

Your exam will be in the dates from Monday 6th June to 17th June. Your teacher will set each week some revision for you to complete. **This is like homework and not optional.** This is the minimum you should think about doing. You will need to read through your notes two or three times in the lead up to your exam.

| Week beginning | Task | Due |
|----------------------|--|-----|
| 2 nd May | Flashcards on key terms. | |
| 9 th May | Diagrams showing the formation of waterfalls and ox-bow lakes | |
| 16 th May | Practice exam question: Describe the effects of flood using a case study (8 marks) | |
| Over half term | A3 mind map on the whole unit | |

Key Terms

Use your book and research to find a definition for each of these key terms. You can use the

following link to help you http://www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers

| | |
|----------------|--|
| Source | |
| Mouth | |
| Upper Course | |
| Middle Course | |
| Lower Course | |
| Erosion | |
| Transportation | |
| Deposition | |
| Waterfall | |
| Meander | |
| Oxbow lake | |
| Delta | |
| River Channel | |
| Flood | |
| Snowmelt | |
| Deforestation | |
| Dam | |

Processes of erosion

Key ideas

- Erosion – the wearing away of the bed and banks

| Name of erosion process | Description |
|-------------------------|--|
| Hydraulic action | The sheer force of the water hitting the bed and banks |
| Abrasion | When rocks are scraped against the beds and banks |
| Attrition | Rocks hitting each other and getting smaller |
| Solution | The water dissolving the rocks such as limestone |

- Transportation – the movement of the eroded material

| Name of erosion process | Description |
|-------------------------|---|
| Traction | When the largest material is rolled along the bed |
| Saltation | When small pebbles bounce and leap-frog over each other |
| Suspension | When small particles such as sand are carried floating in the river |
| Solution | The dissolved material is carried by the river |

- Deposition – the dropping of the eroded material due to a loss of energy

How does a river changes down its valley?

| | Upper | Middle | Lower |
|----------------------|--------------------------|-------------------------|--|
| Gradient (steepness) | Very steep | Flatter | Flattest |
| Width | Narrow | Wider | Widest |
| Valley shape | V shaped and steep sides | U shaped, flatter sides | Very wide U shape with very flat sides |

Formation of a waterfall

1. Hard rock overlays softer less resistant rock.
2. As the river flows it erodes the softer rock first and the harder rock second.
3. The material broken off swirls around at the bottom of the river creating a plunge pool.
4. The hard rock forms an overhang which collapses.
5. This process continues over repeats and a waterfall is formed.

Labelled waterfall diagram

Plunge pool develops

Formation of an ox-bow lake

1. Erosion on the outside of the bends make the neck narrow
2. The neck gets narrower because of hydraulic action and abrasion
3. During a flood the river breaks through the neck as it takes the shortest course
4. The bend is cut off forming an ox-bow lake

Labelled ox-bow lake diagram

Ox-bow lake

Deposition

Floodplain

Cause

| Cause | Explanation |
|-----------------------|---|
| Heavy rainfall | When rainfall is heavy, soil may become saturated more quickly, leading to less infiltration and increased surface run off, causing discharge to increase more quickly and possible flooding. |
| Snowmelt | During spring extensive melting of snow may cause an increase in water within the river system, increased discharge and potential for flooding. |
| Deforestation | Fewer trees lead to decreased interception of rainfall, resulting in shorter lag times and rapid rises in discharge leading to potential flooding. |
| Building construction | Impermeable surfaces associated with urban areas, will reduce infiltration, increase surface run off, shorter lag times and increase rise in discharge leading to possible flooding. |

The Boscastle Flood

You need to be able to talk about the following:

- Cause - what made the flood happen
- Effects - what changes happened due to the flood
- Responses - what people did to help after the floods

The cause:

- Over 60 mm of rainfall (typically a month's rainfall) fell in two hours.
- The ground was already saturated due to the previous two weeks of above average rainfall.
- The drainage basin has many steep slopes, and has areas of impermeable slate causing rapid surface run-off.
- Boscastle is at the confluence (where tributaries meet) of three rivers - Valency, Jordan, and Paradise. A large quantity of water all arrived within a short space of time causing the rivers to overflow.
- The flooding coincided with a high tide, making the impact worse.

The effects:

| Social effects | Economic effects | Environmental effects |
|---|--|---|
| 58 properties destroyed 84 cars wrecked 60 people evacuated | Damage to infrastructure - some roads completely impassable 3 shops destroyed 4 footbridges washed away and structural damage to road bridge Car parks washed away Insurance companies had to pay out thousands for the damage 'Witchcraft Museum' - was destroyed and led to lower tourism numbers | Trees uprooted and washed downstream Soil erosion 20 tonnes of soil moved and deposited Sewers burst |

The responses:

Immediate responses

- Helicopters from RAF and Navy
- Buildings searched
- Trees removed
- Roads cleared
- Sandbags put in place

Long Term Responses

- £4.5 million flood defence scheme

- drainage systems improved
- channels widened and deepened
- banks of river reinforced

Flood management

Below is a picture of a dam

Definition: Dams are huge walls built across the rivers, usually in the upper course.

Example: Katse Dam, Lesotho

| Advantages | Disadvantages |
|---|---|
| Generate electricity | Expensive |
| Stop flooding downstream | Land is flooded behind the dam |
| Provide jobs during construction and maintenance of the dam | People may have to move due to flooding behind the dam wall |
| | Loss of productive farmland behind the dam |

Other methods of flood management

| What is it? | Advantages | Disadvantages |
|--|---|---|
| Afforestation – planting trees which can help to absorb some of the water | It is cheap It makes the valley look nicer with more trees | Does not stop flooding |
| Managed flooding – the river can flood naturally in places to prevent flooding further downstream | It costs nothing | Does not stop flooding |
| River straightening – the channel can be widened or deepened so that water can travel faster along the river | The channel of the river can be altered, diverting floodwater away from settlements | Expensive Altering the river channel may lead to a greater risk of flooding downstream, as the water is carried there faster |

Can you?

- Explain erosion, transportation and deposition
- Explain different types of erosion
- Label a diagram of an oxbow lake
- Draw/label a diagram of a waterfall
- Explain how waterfalls are made
- Identify and explain different features in the long river profile (long, medium and lower profile)
- Explain the causes of a flood
- Describe the social, economic and environmental effects of a flood
- Explain a form of flood management (dam)
- Evaluate the good and bad points of dams and other forms of flood management

Useful websites

http://www.bbc.co.uk/bitesize/ks3/geography/physical_processes/rivers_flooding/revision/1/

Britain's Worst weather

<https://www.youtube.com/watch?v=Wy46Gd0XON4>