

## Water on the Land Revision

### Session 1

- Give the difference between **vertical** and **lateral** erosion and where you would expect these to happen on the river's course.
- On revision cards give the 4 processes of erosion (hydraulic action, abrasion, attrition and solution) explaining each type. Remember these are the same for coasts as well so it is really important that you know them!
- On revision cards give the 4 processes of transportation of river load. You can draw a picture to help you remember this with the different sizes of load. (Traction, saltation, suspension and solution). These are also the same for coasts so learn them!
- Draw a diagram showing the long profile of the river from source to mouth (this is just a line showing how the steepness of the slope changes). Draw a cross profile for the upper, middle and lower course of the river (this is a cross section of what the river looks like showing the width of the valley).

### Session 2

- Recap what you did in the last session. Get someone to test you on your revision cards.
- Draw a diagram of a waterfall and label on the following: hard rock, soft rock, plunge pool. Explain how the waterfall is formed over time with bullet points. Don't forget to use the processes of erosion. Explain how eventually a gorge will be created.
- Now do the same for a meander bend. Draw diagrams to show how over time it will become an oxbow lake. Label where erosion and deposition are happening on your diagram. Bullet point the process that happens over time using your diagrams to help you. Draw a cross-section of the meander bend to show where shallow and deep water are found and where slow and fast flow of water are found. Label the river cliff and the slip-off slope. Put your pictures up on the wall somewhere where you will see them!

### Session 3

- Now you need to look at the diagram that people often forget- how levees and flood plains are formed. You need to show 3 pictures showing how natural levees (river banks) and the flood plain build up with silt over time each time the river floods. It's easy this one, so don't panic when you see the word levee!
- Now explain to someone (or read out loud, or even record yourself!) how each of the river landforms are formed: waterfalls and gorges, meanders and oxbow lakes and levees and flood plains. Where would you find each of these on the long profile of the river?

### Session 4

- Now we are going to start looking at flooding. To do this you need to know what can affect the amount of water in a river. Using revision cards, list what can affect this: high rainfall over a long time, or intense rainfall; snowmelt or frozen ground, steepness of the slopes, type of rock (impermeable, permeable, porous and pervious) and whether the land has lots of Tarmac and buildings (urban areas) or trees. Make sure you can explain how each one can affect the amount of water in the river. You could draw a picture to show all these. You also need to know which ones are physical (natural) causes of flooding which are most of them, and which ones are human.
- Flooding can be shown on a hydrograph. You need to draw a sketch of one of these showing the level of the river and how it changes during a flood. You could sketch them for 2 different areas and explain why they are different. Label the peak rainfall, peak discharge and the lag time.
- Finally for this section you need to know some areas of the UK that have flooded in the last 20 years, you can use all the recent news for this- make sure you can name some areas. You also need to know that flooding has increased in the last 20 years too.

## Session 5

- Recap the previous session and make sure you can explain all the factors that affect flooding. You can use these in this session where you are going to look at 2 flooding case-studies. You need to know one case-study from a richer area of the world (eg Boscastle) and one from a poorer area of the world (eg Bangladesh). For both the case-studies you need to know the causes (physical and human) of the flood, the effects (short-term and long-term) and the responses (short-term and long-term). Make sure you know which are the economic effects too. This is very similar to what you need to know for your restless earth case-studies so if you follow the same structure this will help you. Do a big mind map for each one. If you are doing the higher paper, you will need to know detailed facts and figures about the floods. Put your mind maps on the wall where you will see them. You can look at video footage of the floods on YouTube and news articles too to help you remember them.

## Session 6

- Recap the last session, can you remember the causes, effects and responses for each flood?
- Now you are going to look at how flooding can be prevented. On revision cards, explain the difference between hard and soft engineering and the advantages and disadvantages of each (also known as the costs and benefits).
- Hard engineering techniques that you need to know are dams and reservoirs and straightening the river channel. On revision cards explain how these work and the costs and benefits of using them.
- Soft engineering techniques that you need to know are flood warnings, preparation, flood plain zoning (allowing some areas to flood) and 'doing nothing' (ie accepting floods are natural events that we can't control and adapting to this). On revision cards explain how these work and the costs and benefits of using them.

## Session 7

- Recap the last session. Can you explain the differences between hard and soft engineering and give some examples for each?
- The last section of work for this unit is often forgotten! And the examiners like to put it in! You need to know how we manage water supply in the UK.
- On a revision card, explain why our demand for water is increasing.
- On another card, explain which parts of the UK have a water surplus and which have a deficit (shortage). Explain how water has to be transferred by pipeline from areas of surplus to areas of deficit.
- On another card, explain why water supplies need to be sustainable and give 3 ways that people can reduce their water use.
- The final case-study you need to know for this unit is a dam/reservoir such as Kielder Water. You need to know the economic (money and jobs), social (effects on the community) and environmental (wildlife) effects of building the reservoir. Put this information on a mind map and put your mind map next to your flooding ones to help you learn them!
- Well done!! Now remember to keep going over all that you have learned. Ask someone to test you!