

<p><b>Question(s)</b></p> <p>Define the terms:</p> <p>(a) watershed (b) source (c) confluence</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Watershed – marks the edge of a drainage basin (it is the highest point of land) Source – the starting point of a river Confluence – the point at which a smaller river (tributary) joins the main river</p>
<p><b>Question(s)</b></p> <p>Define the terms:</p> <p>(a) tributary (b) mouth</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Tributary – a small stream which will join the main channel Mouth – point at which a river enters the sea.</p>
<p><b>Question(s)</b></p> <p>What are the 4 processes of erosion?</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Abrasion – caused by the scraping away of the river bed and banks by the load carried by the water. Attrition – occurs as rocks bang each other in the river channel – gradually breaking each other down Solution – dissolving of minerals in the rocks in the bed and banks which are carried away in solution Hydraulic action – the force of the river causes the river bed and banks to wear away</p>
<p><b>Question(s)</b></p> <p>Explain what is meant by slumping and creep in the context of rivers</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>- Slumping – downslope movement of material when river erodes the bottom of the valley side undercutting the slope – causing materials from the valley side to move downslope (or undercutting of river bank – causing the bank to slump downwards). - Soil Creep – slow downslope movement of individual soil particles due to gravity</p>
<p><b>Question(s)</b></p> <p>How and why does width and depth of a channel change from source to mouth</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Width and depth increases – initially due to vertical erosion followed by lateral erosion as the river moves along its coast.</p>

<p><b>Question(s)</b></p> <p>Describe and explain what happens to the following river characteristics with increasing distance downstream:</p> <p>(a) Velocity (b) Gradient (c) Discharge</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Velocity – this is the speed of flow which increases with distance downstream (as there is less friction due to less contact between the river bed and its banks).</p> <p>Gradient – this is the slope of the river bed) – will decrease as the river flows downstream as it passes from the upland area down to the lowland area where it enters the sea</p> <p>Discharge – amount of water passing a given point in a given time – as the river goes downstream it is fed by more tributaries and therefore the discharge increases.</p>
<p><b>Question(s)</b></p> <p>Name the typical features found in the upper course of a river</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>a. V-shaped valley b. Waterfalls and plunge pools c. Rapids d. Gorges e. Potholes</p>
<p><b>Question(s)</b></p> <p>Where in a river would you expect to find the following features:</p> <p>a. Meanders b. Levees c. Gorges d. Ox-bow lakes</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Meanders and Ox-bow lakes – Middle Course Levees – Lower Course Gorge – Upper Course</p>
<p><b>Question(s)</b></p> <p>Which river features are a product of both erosion and deposition processes?</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Floodplains, Meanders and Ox-bow lakes</p>
<p><b>Question(s)</b></p> <p>Describe and explain the formation of waterfall</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>These form where a river crosses a band of less resistant after flowing over resistant rock – creates a small ‘step’ over which water flows as a vertical drop . The soft rock is eroded quicker than the hard rock – gradually the hard rock is undercut by hydraulic action and abrasion force of the falling water creates a plunge pool. Eventually the cap rock is left unsupported due to the undercutting and collapses. Fallen rocks enlarge the plunge pool by abrasion. Process repeats itself and a gorge forms as the waterfall retreats upstream</p>

<p><b>Question(s)</b></p> <p>Describe and explain the formation of a meander</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- meanders are bends in the river which are asymmetrical in cross section (deeper on the outer bank and shallower on the inner bank).</li> <li>- the swing of the flow of the water within the channel results in water being flung to the outer bank causing faster flow and therefore great erosion on the outer bank</li> <li>- creates a river cliff due to undercutting by lateral erosion</li> <li>- on the inner bend – slow flowing due to shallower, low energy zone (increased frictional drag) – deposition occurs due to lower velocity, creating a slip-off slope</li> </ul>
<p><b>Question(s)</b></p> <p>Describe and explain the formation of a floodplain and levee</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Floodplains are flat areas of land surrounding the river, levees are raised banks surrounding the river. When a river floods, water spreads over the surface and there is increased frictional drag resulting in deposition</p> <p>Subsequent periods of flooding results in layers of material building up a fertile floodplain</p> <p>When a river bursts its bank the largest material is deposited closest to the edge of the river (as heavier) and finer material travels further (needs less energy to transport) resulting in the formation of levees.</p>
<p><b>Question(s)</b></p> <p>Give 3 situations in which a river may deposit its load</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- inner bends of meanders</li> <li>- when a river floods – increased friction, slowing velocity – largest material dropped first – then finer material</li> <li>- when the river enters the sea – velocity slows down and deposition occurs</li> </ul>
<p><b>Question(s)</b></p> <p>Describe and explain how an ox-bow lake will form</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- meander neck narrows due to erosion on the outer bends</li> <li>- eventually the two outer bends meet and the river cuts through the neck of the meander – water now takes its shortest route rather than flowing around bend</li> <li>- deposition gradually seals off the old meander bend – forming straighter river</li> <li>- old meander bend has been left isolated from the main channel - over time this feature may fill up with sediment</li> </ul>

<p><b>Question(s)</b></p> <p>Describe and explain the differences in velocity between the inner and outside bend of a meander</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- Outer bend – fast flowing (as deeper and less frictional drag) – greater velocity – resulting in erosion</li> <li>- Inner bend – slow flowing (shallower – more frictional drag) – slower velocity – results in deposition.</li> </ul>
<p><b>Question(s)</b></p> <p>Describe the typical characteristics of a waterfall</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- Water falling over a ‘step’ in the landscape</li> <li>- steep sided gorge</li> <li>- deep plunge pool</li> </ul>
<p><b>Question(s)</b></p> <p>Describe and explain the main changes in a river valley from the upper to the lower course</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Upper Course – narrow and v-shaped valley (steep slopes)  Middle Course – broader valley with gentle slopes  Lower course – very wide and flat valley</p>
<p><b>Question(s)</b></p> <p>Describe 3 effects of flooding in the 2004 Boscastle Floods</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- Fall in house prices as Boscastle becomes associated with serious flood risk</li> <li>- Mental trauma – residents suffered stress and anxiety</li> <li>- 50 cars lost</li> <li>- Gardens, village green covered in deposits of silt and mud - 6 properties completely destroyed.</li> </ul>
<p><b>Question(s)</b></p> <p>Give 3 examples of hard engineering and 3 examples of soft engineering river management techniques</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Hard Engineering – channelisation; embankments; flood relief channels; dams</p> <p>Soft Engineering – land-use zoning; afforestation; washlands</p>
<p><b>Question(s)</b></p> <p>Outline the advantages and disadvantages of levees in river management</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>Advantages – also used as pathway; provide habitats for wildlife; often earth / grass banks so blend well with the environment.</p> <p>Disadvantages – when concrete is used they are ugly; if they burst due to the pressure of the water can cause worse flooding than without.</p>

<p><b>Question(s)</b></p> <p>Outline how people undertaking planning to reduce the effects of river flooding</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- Land-use zoning – used to identify areas at most risk of flooding and those which are less at risk – used to influence planning permission – responsibility of local government (i.e. county councils in the UK).</li> <li>- Higher risk areas – given over to low value uses such as recreation (parks / playing fields)</li> <li>- Some building still takes place in flood risk areas – planning laws are to change so that any properties built in these areas can only be built if flood protection measures are in place.</li> </ul>
<p><b>Question(s)</b></p> <p>Outline ways in which people alter building design to reduce the effects of river flooding.</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <ul style="list-style-type: none"> <li>- electrical sockets situated at 1.5m up the wall (to reduce need for re-wiring after flood)</li> <li>- boilers to be situated on the first floor so not damaged in a flood - some houses in places like Bangladesh built on stilts so raised above ground and reduce the possible damaging effects on belongings</li> <li>- replace wooden floors / carpets with tiles so that they don't get wet and rot</li> <li>- fit non-return valves to drains and water inlet pipes</li> </ul>
<p><b>Question(s)</b></p> <p>What are the physical causes of flooding?</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>heavy rainfall.  long periods of rain.  snowmelt.  steep slopes.  impermeable rock (doesn't allow water through)  very wet, saturated soils.  compacted or dry soil</p>
<p><b>Question(s)</b></p> <p>What are the human causes of flooding?</p> <p><b>Y11 Rivers</b></p>	<p><b>Answer(s)</b></p> <p>urbanisation, because towns and cities have more impermeable surfaces. deforestation, because removing trees reduces the amount of water intercepted and increases run-off.</p>