Worksheet 3

1 Changing river environments

**1.1 The main hydrological characteristics and processes that operate in rivers and drainage basins**

1 As a river travels downstream, it changes the landscape through river processes. There are three main river processes. Fill in the gaps to define each using the words in the box:

|  |
| --- |
| drops picked up moved broken down wearing away |

a

Erosion involves the \_\_\_\_\_\_\_\_\_\_\_\_ of rock by the force of the water and the load it is carrying. Rivers erode the riverbank and bed. Material that is carried by the river is \_\_\_\_\_\_\_\_\_\_ into smaller, rounder and smoother pieces.

b

Transportation is when material is \_\_\_\_\_\_\_\_\_ by the river and \_\_\_\_\_\_\_\_\_downstream. Rivers can carry large volumes of material when in flood.

c

Deposition is when the river \_\_\_\_\_\_\_\_\_ its load. This occurs when a river loses its energy.

2 There are many ways that a river erodes material and transports its load.

a Name the four types of erosion.

b Name the four types of transportation.

c Name the factors that cause a river to deposit its load.

Table 1 Factors affecting river processes: some examples

|  |
| --- |
| Erosion, transportation and deposition |
| Heavy rainfall higher discharge increased action of river processes  Higher temperature increased evaporation lower discharge and reduced action of river processes |
| Steep slopes result in fast-flowing rivers with strong erosive power.  Gentle slopes encourage deposition. |
| Rivers erode valleys made of soft rock at a rapid rate.  Very porous (chalk) and permeable (carboniferous limestone) rocks may lack surface river flow for all or part of the year. |
| Snowmelt and melting glaciers have a big impact on river regimes and processes. |
| South-facing slopes (in the northern hemisphere) have higher rates of evaporation and transpiration, which can affect discharge. |

3 Look at Table 1.

a List the factors that affect rivers processes.

b Choose one and write a paragraph exploring its impact.