

Rivers and Flooding

River features, erosion processes, waterfalls, flood hydrographs and flood management.

Name _____ Date _____ Class _____

Learning objective: I can describe river processes and landforms and explain how floods can be managed.

✓ I can use river vocabulary ✓ I can explain how a waterfall forms ✓ I can read a hydrograph

1 Key words Match each word to its meaning.

1 source	☐	A a smaller river that joins a larger one
2 mouth	☐	B the area of land drained by a river and its tributaries
3 tributary	☐	C where a river meets the sea or a lake
4 confluence	☐	D the high land that separates two drainage basins
5 drainage basin	☐	E where a river begins
6 watershed	☐	F where two rivers join

2 Erosion processes Match each process to its description.

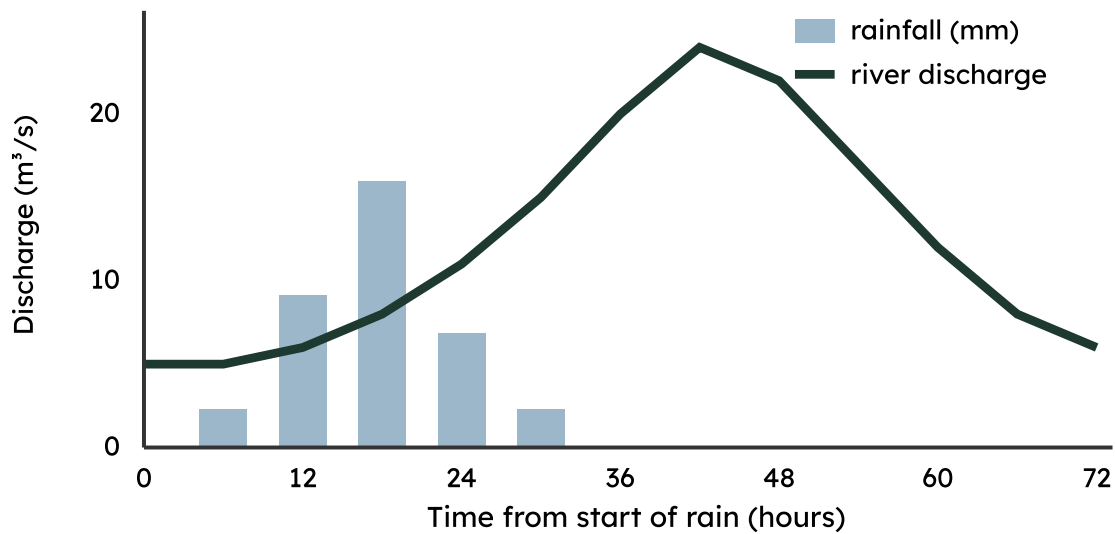
1 hydraulic action	☐	A some rocks, such as limestone, dissolve in the water
2 abrasion	☐	B rocks knock into each other and become smaller and rounder
3 attrition	☐	C rocks carried by the river scrape the bed and banks
4 solution	☐	D the force of the water pushes air into cracks in the bed and banks

3 How a waterfall forms Number the stages in order (1–5).

☐	A the overhang of hard rock collapses
☐	B the waterfall retreats upstream, leaving a gorge
☐	C the river flows over a band of hard rock lying on top of softer rock
☐	D a plunge pool is eroded at the base by hydraulic action and abrasion
☐	E the softer rock is eroded more quickly, undercutting the hard rock

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4 Reading a flood hydrograph The graph shows rainfall and river discharge during a storm.



5 Read the hydrograph

- At what time was the peak rainfall?

- What was the peak discharge?

- Calculate the lag time (time between peak rainfall and peak discharge).

- Suggest **two** things that would make the lag time shorter.

6 Managing floods Write **hard** or **soft** engineering for each.

Method	Hard or soft?
building a dam and reservoir	
planting trees upstream (afforestation)	
raising the banks with embankments (levees)	
restricting building on the floodplain (zoning)	

Answer Key

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Question	Answers
1 Key words	1 E; 2 C; 3 A; 4 F; 5 B; 6 D
2 Erosion processes	1 D; 2 C; 3 B; 4 A
3 How a waterfall forms	Correct order: C, E, D, A, B the river flows over a band of hard rock lying on top of softer rock → the softer rock is eroded more quickly, undercutting the hard rock → a plunge pool is eroded at the base by hydraulic action and abrasion → the overhang of hard rock collapses → the waterfall retreats upstream, leaving a gorge
5 Read the hydrograph	1. 18 hours 2. 24 m ³ /s, at 42 hours 3. 42 – 18 = 24 hours 4. Any two: steep slopes; urban areas with concrete/tarmac; saturated or frozen ground; deforestation; heavy, intense rain; impermeable rock such as clay.
6 Managing floods	building a dam and reservoir – Hard or soft?: hard planting trees upstream (afforestation) – Hard or soft?: soft raising the banks with embankments (levees) – Hard or soft?: hard restricting building on the floodplain (zoning) – Hard or soft?: soft

Teaching note: the hydrograph data are invented for practice. The answers in the key are read from that data.