River Hydrographs

A **river's flow varies throughout the year**. A **river hydrograph** is the type of **diagram** used to display the **rises and falls** of a **river's flow** throughout **one year**. The diagram that follows, **when completed**, will display the **river hydrograph** for the **River Rhône**:-

Plot the data given below as **hydrographs** for the middle courses of **both** the **River Rhône** and the **Grande Eau.** (They should be drawn as **bar or line graphs**).

The River Rhône

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
River Flow (cumecs)	1750	1750	2000	2150	2250	2100	1600	1300	1200	1750	2100	1900

Fig 1

The Grande Eau

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
River Flow (cumecs)	3	4	6	7	9	8	6	4.5	3.5	3	3.5	3

Fig 2

(The figures above are given in "**cumecs**" - **cubic metres of water per second**")

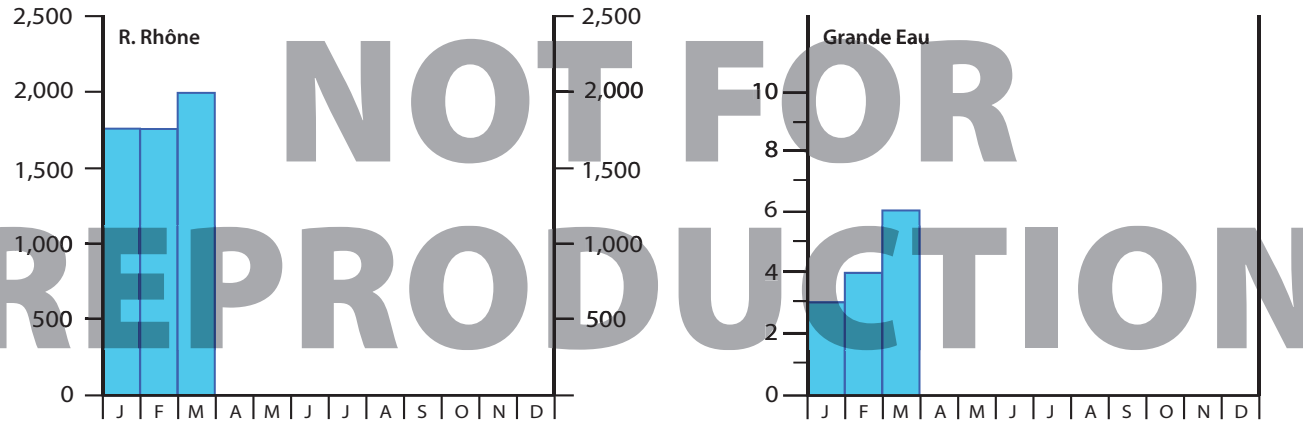


Fig 3

On the **RIVER RHÔNE** graph only:-

(b) **Draw a line** across the **River Rhône** graph **at the value of 1750 cumecs (the average flow)**.
(c) **Shade** in all **twelve** bars **below this line** in **light blue**.
(d) **Shade**, in **dark blue**, all those **parts of bars** that are **above the 1750 cumecs line**.

It can be seen from the above **river hydrograph** for the **River Rhône** that the **two times** of the year when **river flow is particularly high** are (1) Between the months of _____ and _____ and (2) Between the months of _____ and _____. This can be explained because _____.

On the **RIVER GRANDE EAU** graph only:-

(e) Calculate the **average monthly flow** for the **Grande Eau** = _____ cumecs.
(f) Into the **table** below, **add** either a "**-**" or "**+**" to show whether the river flow that month is **above** the average or **below** the **average**:-

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

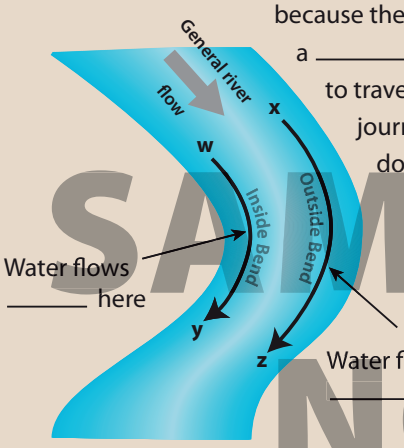
Fig 4

The diagrams (fig 10) below show how some of the river landforms that you will study along the Grande Eau are formed.

Wordbank: outside; deposits; erodes; meander; quickly; fast; slowly; river cliff; slower; longer; point bar deposits; inner

A

As a river flows around a M in its course, the water has to travel F _____ up the _____ of the meander. This is because the water has a _____ distance to travel on its journey downstream.

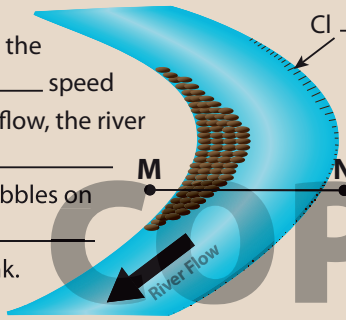


Distance W to X is **greater than/less than** (*delete*) the distance of Y to Z

B

With its fast speed of flow, the river _____ the outer bank of the meander. This makes features called R _____ Cl _____

PLAN VIEW



Due to the _____ speed of flow, the river _____ pebbles on the _____ bank.

These features are called P_____ B_____ D _____

C

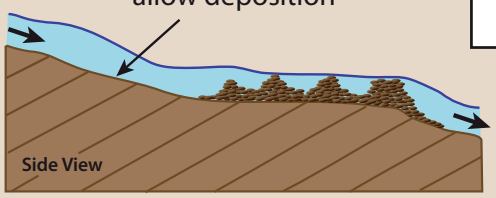
(i) Draw a line (in pencil first) to show the shape of the river's bed between M and N. (**Clue**: think ***Erosion*** and ***Deposition***).

River Bed Profile across a Meander

(ii) Now **add two arrows** to the above diagram. **Label** them with the ***reason*** for the diagram water depths.

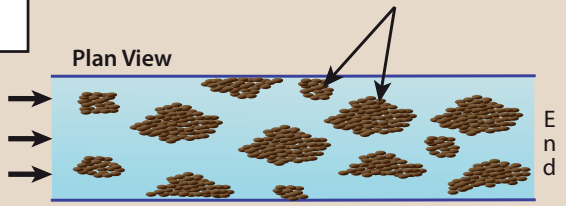
D

Water too fast flowing to allow deposition



Wordbank
Braided
Energy
Deposition

Temporary pebble 'islands'



When a river's gradient becomes more gentle then the river loses _____

This loss of energy results in lots of _____

(i) A chocked river channel like this is called a _____ River

(ii) Use a pencil to draw the 3 routes that the arrows might take to reach the "end".

Fig 10