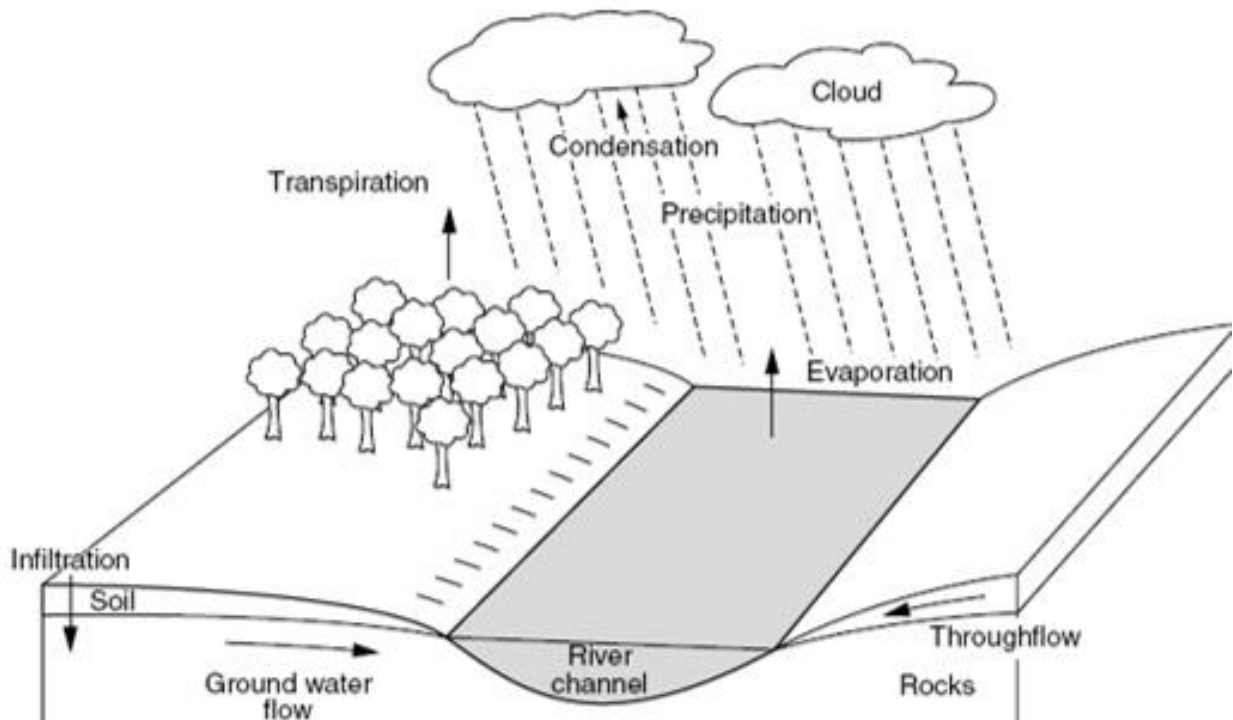


# Water Cycle and Hydrographs



**The Channel Capacity of a River**=The amount of water a river can hold is the channel capacity. People can manage flooding by increasing the channel capacity.

**DISCHARGE:** The volume of water multiplied by the velocity of the river at a given time, measured in cumecs (cubic metres of water per second).

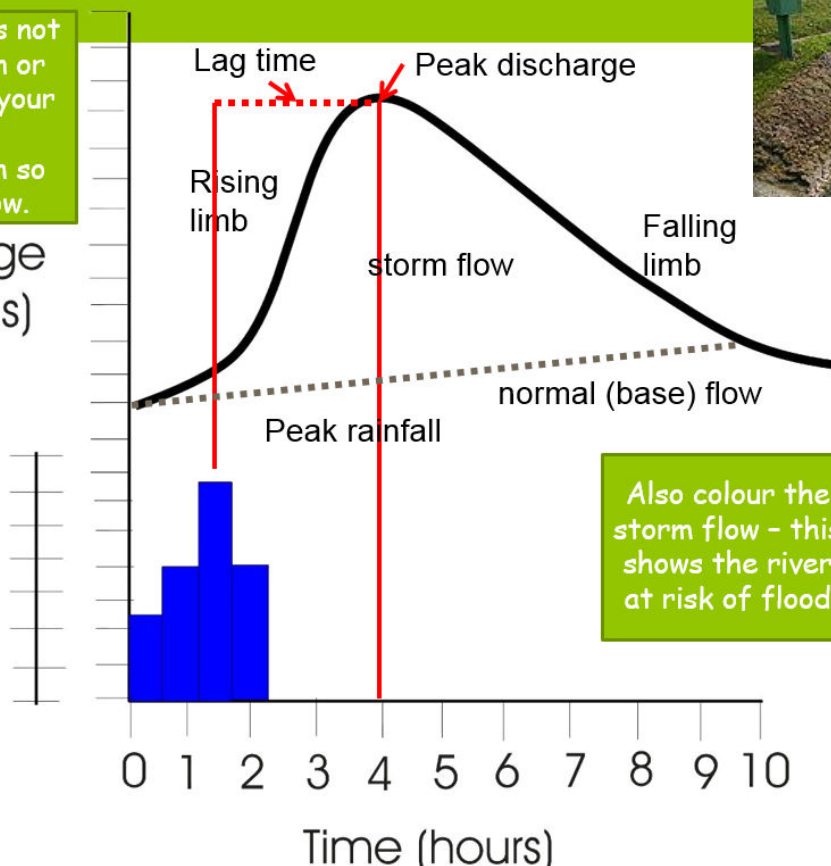
Discharge is measured at a gauging station that looks like this



Lag time has not been drawn or labelled on your booklet hydrograph so label it now.

Discharge (cumecs)

Rainfall (mm)



Also colour the storm flow - this shows the river at risk of flood

# What factors influence the Shape of a Hydrograph?

Intercepted

throughflow

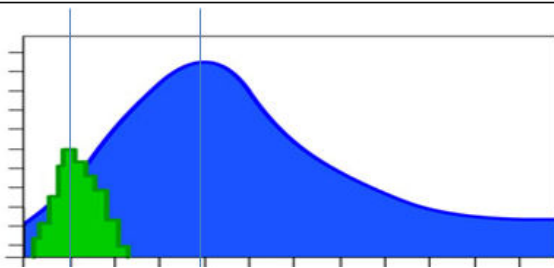
quickly  
slowly

groundwater flow

Surface runoff

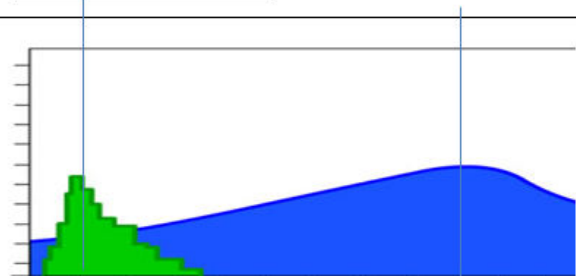
## Short lag time and high flood risk

This means that precipitation is getting into the river channel \_\_\_\_\_.  
This happens because the precipitation is moving as \_\_\_\_\_.

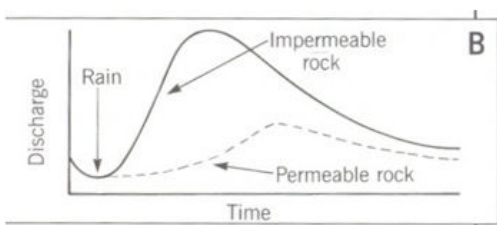
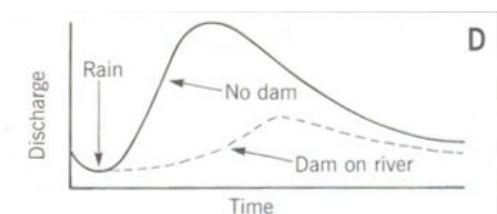
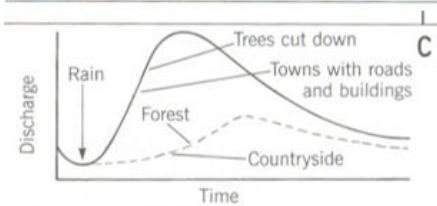
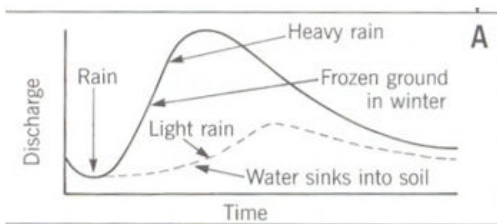


## Long lag time and low flood risk

This means that precipitation is getting into the river channel \_\_\_\_\_. This happens because the precipitation has been \_\_\_\_\_ by trees. The Water also moves slowly towards the river as \_\_\_\_\_ above the water table or \_\_\_\_\_ below the water table.



## Match the hydrographs to the explanations



**Precipitation and Weather:** Light rain means there is more time for the water to infiltrate and a longer lag time. If the ground is frozen there will be more surface runoff and so flooding. If the ground is hard from dry weather there will be more surface runoff and so flooding.

**Underlying Rock:** Impermeable rock means water can't infiltrate so there is more surface runoff so more flooding. Permeable rock will allow infiltration and slow down the flow of water to the river so there is a longer lag time and lower flood risk.

**Land Use:** If trees are cut down there will be less interception so the water will get to the river quicker meaning there will be a steep rising limb as the discharge will rapidly increase.

**River Management:** By building a dam on a river the water can be controlled in times of heavy precipitation. This means that the rising limb is gentle and the peak discharge is always low reducing the flood risk.