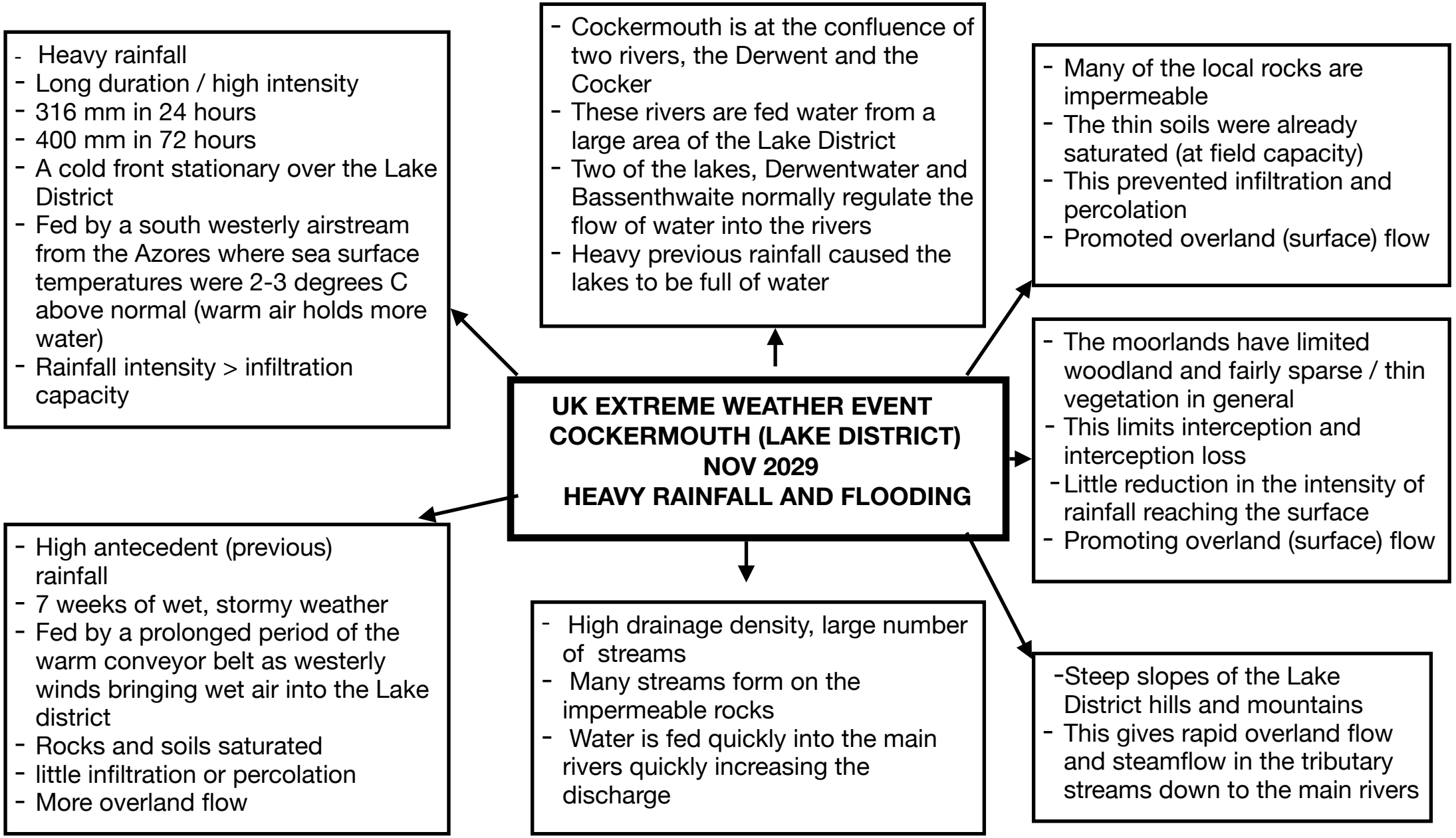

- Heavy rainfall
- Long duration / high intensity
- 316 mm in 24 hours
- 400 mm in 72 hours
- A cold front stationary over the Lake District
- Fed by a south westerly airstream from the Azores where sea surface temperatures were 2-3 degrees C above normal (warm air holds more water)
- Rainfall intensity > infiltration capacity
- Cockermouth is at the confluence of two rivers, the Derwent and the Cocker
- These rivers are fed water from a large area of the Lake District
- Two of the lakes, Derwentwater and Bassenthwaite normally regulate the flow of water into the rivers
- Heavy previous rainfall caused the lakes to be full of water
- Many of the local rocks are impermeable
- The thin soils were already saturated (at field capacity)
- This prevented infiltration and percolation
- Promoted overland (surface) flow
UK EXTREME WEATHER EVENT
COCKERMOUTH (LAKE DISTRICT)
NOV 2029
HEAVY RAINFALL AND FLOODING
- The moorlands have limited woodland and fairly sparse / thin vegetation in general
- This limits interception and interception loss
- Little reduction in the intensity of rainfall reaching the surface
- Promoting overland (surface) flow
- High antecedent (previous) rainfall
- 7 weeks of wet, stormy weather
- Fed by a prolonged period of the warm conveyor belt as westerly winds bringing wet air into the Lake district
- Rocks and soils saturated
- little infiltration or percolation
- More overland flow
- High drainage density, large number of streams
- Many streams form on the impermeable rocks
- Water is fed quickly into the main rivers quickly increasing the discharge
-Steep slopes of the Lake District hills and mountains
- This gives rapid overland flow and steamflow in the tributary streams down to the main rivers