Year 7

How do physical processes shape our local area

Key concepts

All students should understand what the hydrological cycle is and related key terms.

Students to be able to describe the drainage basin of the River Wharfe using key terms. To understand how the river Wharfe changes from source to mouth.

To investigate the human and physical causes of flooding, looking at the river Wharfe as an example.

To understand the social, economic and environmental impacts of flooding, with reference to the Otley floods.

The positives and negatives of a range of flood management techniques, including hard and soft engineering and applied to flood management in Otley.

To understand the importance of mud.

To complete a piece of fieldwork on infiltration rates. To write up a piece of field work.

Upper Course	Middle Course	Lower Course
V shaped Valleys Waterfalls Interlocking spurs Gorges Here the river is narrow, shallow and its course is quite steep.	Meanders (Bolton Abbey) Wide 'U shaped' valleys (Wharfedale	*Mouth* *Estuary* *Floodplain* *Delta* *Levees*

Social – the effects on people

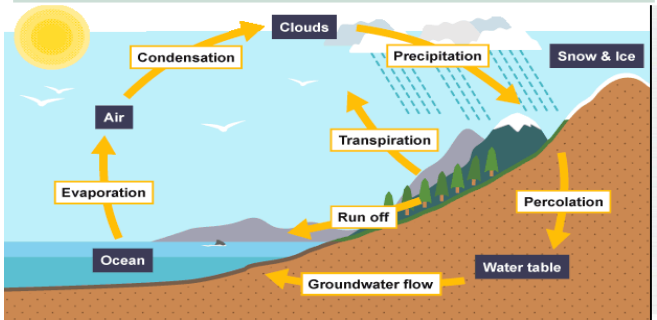
Economic – the effects on the economy (money)

Environmental – the effects on the environment (habitats and landscape)

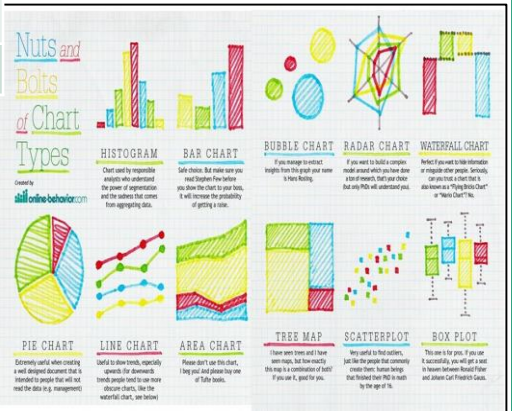
Why Do River Flood?

Human Factors	Physical Factors
Altering the river course	Very wet soil
Cutting down trees (deforestation)	Steep slopes
Buildings	Impermeable rock
	Hard dry soil
	Continuous Rainfall

Blocked drains



Hard Engineering	Soft Engineering
Dams and reservoirs	River restoration/Afforestation
Channel straightening	Flood warnings
Flood relief channels	Floodplain zoning
Embankments	Wetlands and flood storage areas



Soft engineering:
does not involve building artificial structures, but takes a more sustainable and natural approach to managing the potential for river flooding. Each approach has its advantages and disadvantages.

Hard engineering:
Involves building artificial structures which try to control rivers. They tend to be more expensive. Each hard engineering strategy has its advantages and disadvantages.

Key Terms

Drainage basin	A drainage basin (catchment area) is an area of land that acts like a sponge, carrying water out to the sea.
Watershed	the area of high land forming the edge of a river basin.
Source	where a river begins.
Mouth	the end of a river, usually where it meets the sea
Confluence	the point at which two rivers meet.
Tributary	a small river or stream that joins a larger river.
Channel	where the river flows.
Drainage Basin	the area of land drained by a river and its tributaries.
Surface runoff	When water runs off the surface
Infiltrate	When trees stop rain from hitting the ground
Impermeable	When water cannot soak into a surface
Intercept	When trees stop rain from hitting the ground
Evaluate	Consider what went well in your fieldwork investigation and what could have been improved.

The stages of a Fieldwork Investigation

1.Identifying what you are going to investigate

2. Choosing appropriate methods of data collection

3. Collecting your data

4. Presenting the data you have collected in appropriate graphs

5. Analysing your data and reaching conclusions

6. Evaluating your investigation.