

_____ SCHOOL
GEOGRAPHY DEPARTMENT



Topic 6: Geographical Investigations

GCSE Data Collection Booklet

NAME:

CLASS:

Emergency Contact Information:

Specification Check:

Investigating river processes and pressures

Investigating how and why drainage basin and channel characteristics influence flood risk for people and property along a river in the UK.

Fieldwork and research	General focus of fieldwork
1. Formulating enquiry questions	Students must have an opportunity to develop understanding of the kinds of questions capable of being investigated through fieldwork in river environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Selecting fieldwork methods	Fieldwork data collection must include at least: • one quantitative fieldwork method to measure changes in river channel characteristics • one qualitative fieldwork method to collect data on factors that might influence flood risk.
3. Secondary data sources	• A flood risk map e.g. Environmental Agency Flood Risk map • One other source chosen by the centre.

Our enquiry questions:

How and why do drainage basin and channel characteristics change as you go downstream along the River Chess?

How does flood risk change as you go downstream?

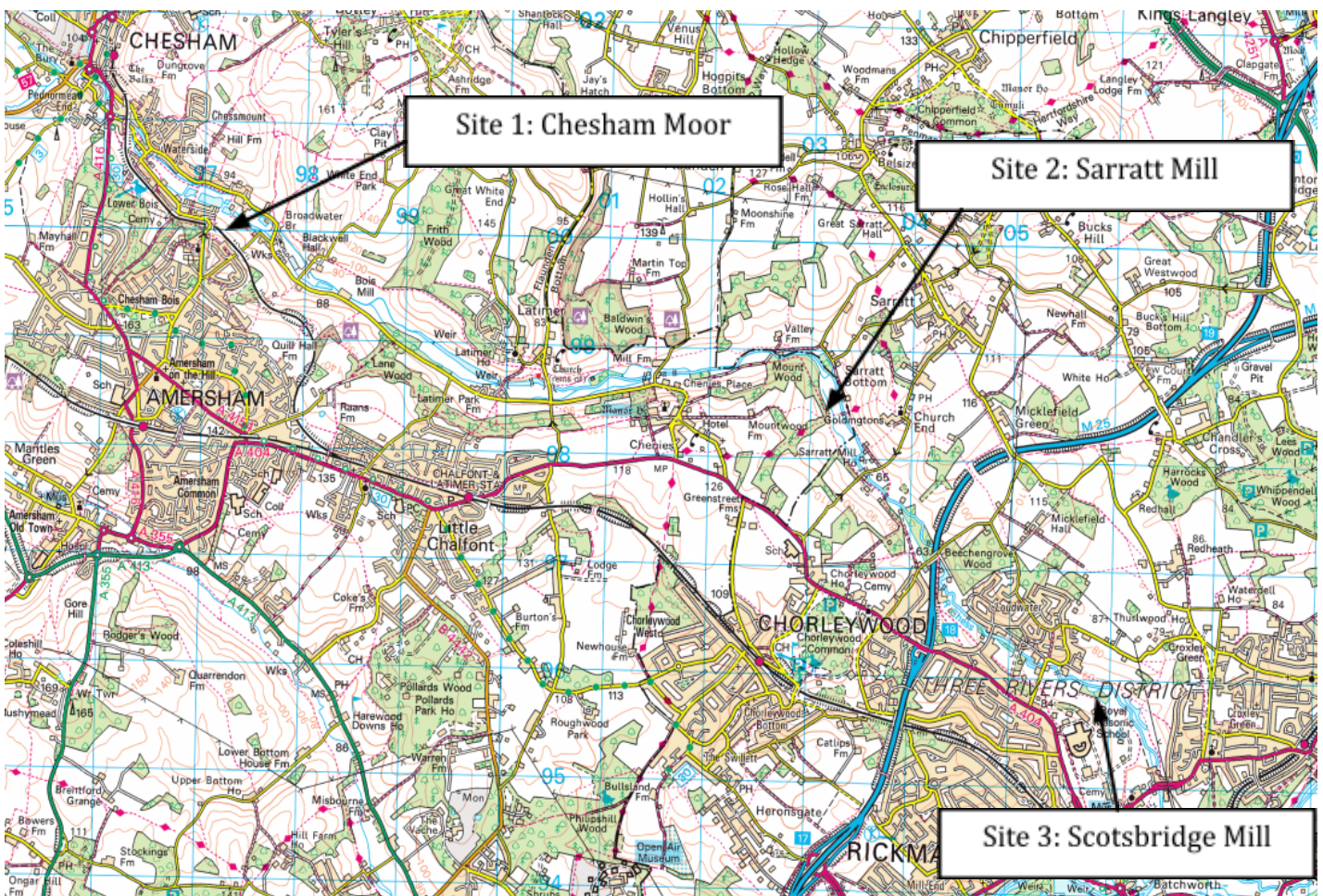
Hypothesis:

The Day at the River Chess

In groups you will visit different sites along the River Chess and complete a range of **primary data collection methods**. The **data collection methods** will allow you to gather data to answer the enquiry question above and follow the **route of enquiry**. The methods you will carry out are in the table below:

Primary Data Collection – at the River Chess	
Quantitative Data Collection	Qualitative Data Collection
1. Bedload sample 2. Channel characteristics 3. Flow rate	1. Flood impact assessment 2. Field sketches
Secondary Data Collection – in school	
1. British Geological Survey Map 2. Environment Agency Flood Risk Map	

Where will you carry out your Data Collection along the River Chess?



Methods

Data Collection Method	What did this method involve?	Primary or secondary?	Quantitative or Qualitative?	Method of sampling used	Reliable or not? Why?
Bed load Sampling (size and roundness)					
Channel Characteristics (width, depth, wetted perimeter)					
Flow rate (float distance / time)					
Field Sketches					
Flood Impact Assessment					
Other notes:					

Different Types of Sampling

What is sampling?

- A shortcut method for investigating a whole population
- Data is gathered on a small part of the whole parent population or sampling frame, and used to inform what the whole picture is like
- **Why sample?**
- In reality there is simply not enough; time, energy, money, labour/man power, equipment, access to suitable sites to measure every single item or site within the parent population or whole sampling frame. Therefore an appropriate sampling strategy is adopted to obtain a representative, and statistically valid sample of the whole.

Sampling considerations

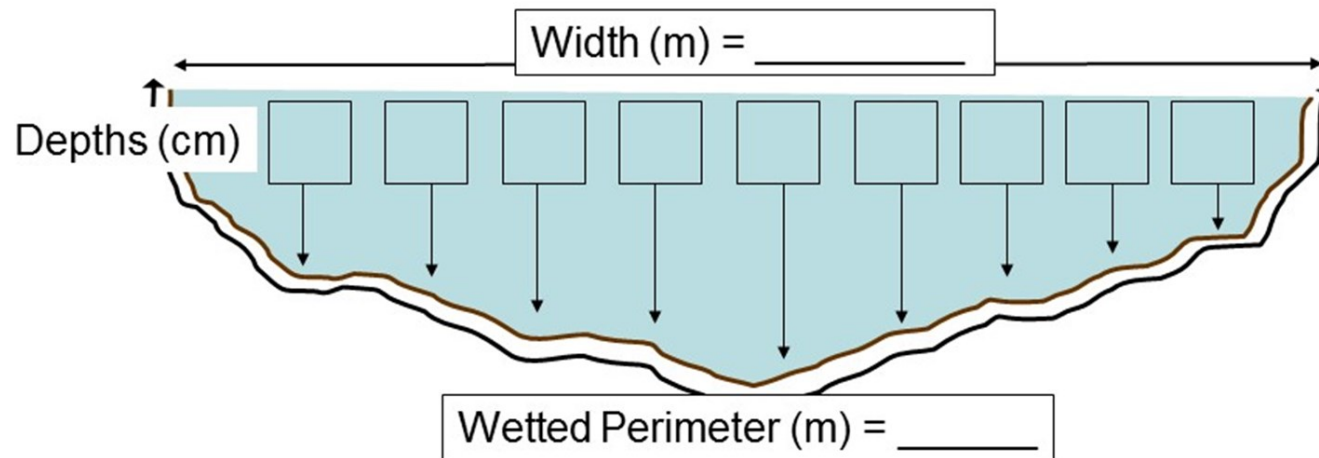
- Larger sample sizes are more accurate representations of the whole
- The sample size chosen is a balance between obtaining a statistically valid representation, and the time, energy, money, labour, equipment and access available
- A sampling strategy made with the minimum of bias is the most statistically valid
- Most approaches assume that the parent population has a normal distribution where most items or individuals clustered close to the mean, with few extremes
- A 95% probability or confidence level is usually assumed, for example 95% of items or individuals will be within plus or minus two standard deviations from the mean
- This also means that up to five per cent may lie outside of this - sampling, no matter how good can only ever be claimed to be a very close estimate

Sampling technique	Definition	Advantages	Disadvantages
Random	Where samples are chosen fairly randomly and every person has an equal chance of being selected		
Systematic	Means working to a system to collect data, eg. Every 10m along a road to record land use or environmental quality.		
Stratified	Means collecting a sample made up of different parts, for example deliberately selecting samples of different people within an area so you include the whole range of people found there.		

Risk Assessment

Consequence	Likelihood				
	Rare	Unlikely	Possible	Likely	Almost Certain

SITE 1: CHESHAM MOOR



Bedload Sample	1	2	3	4	5	6	7	8	9
Bedload Size									
Bedload Roundness									

Power's index of roundness

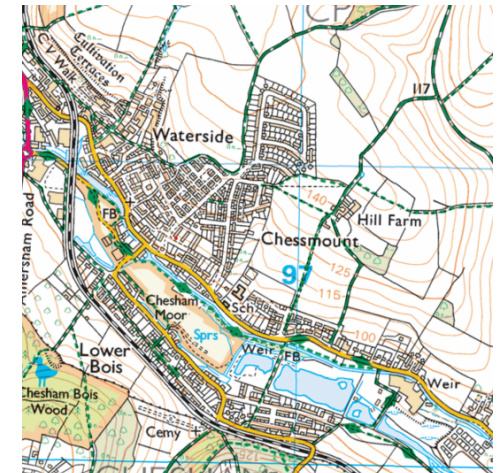
Class 1 Very angular	Class 2 Angular	Class 3 Sub-angular	Class 4 Sub-rounded	Class 5 Rounded	Class 6 Well rounded

Float Time (s)

- 1.
- 2.
- 3.

Float Distance = _____ m

Gradient (degrees)



Notes:

SITE 1: CHESHAM MOOR

Draw **field sketch** here with 5 annotations.

Description of site:

Key ideas for annotations:

How likely is the site to **flood**?

What evidence is there of **river management**?

What important **natural features** are there? (weather conditions, vegetation, geology, topography)

What **process** can you see happening? (erosion, deposition, transportation)

Is there evidence that the river is **changing downstream**?

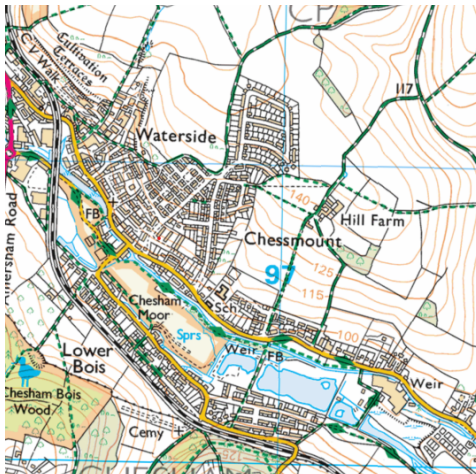
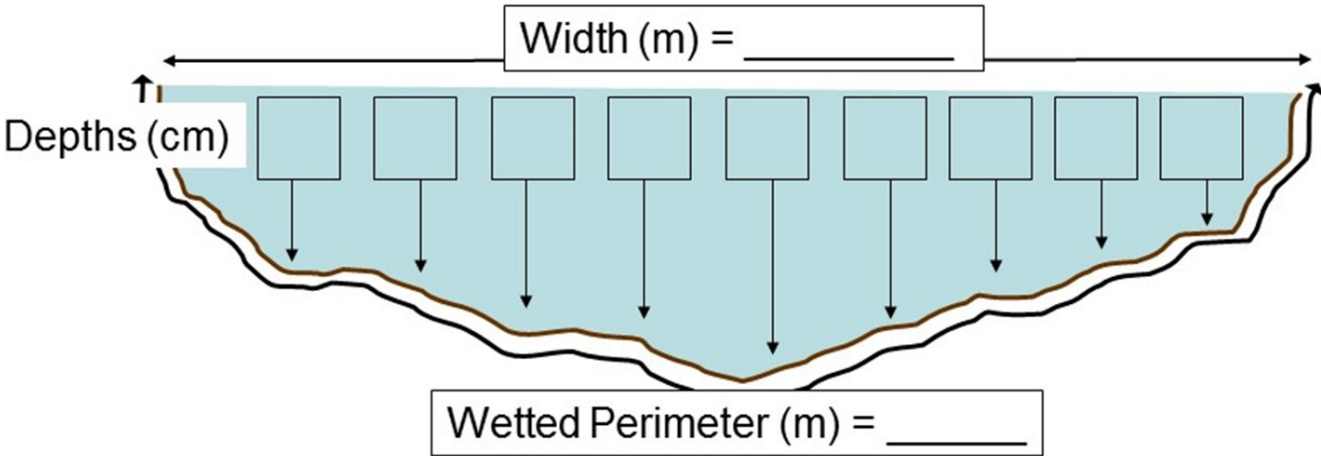
SITE 1: CHESHAM MOOR

FLOOD IMPACT ASSESSMENT

Social impact		Economic impact		environmental impact	
0	Nobody effectively services affected	0	No impact to businesses	0	Low environmental important habitats affected e.g. car parks wasteland
1	few people affected minimal destruction to community life	1	Minimal impact Few employees affected	1	Some buildings affected Low environmental important habitats impacted Minimal pollution
2	Some people affected some non-vital services affected e.g. shops offices	2	Some businesses are damaged closed Some employees affected Median value activity e.g. small retail affected	2	Normal put buildings affected median important habitats impacted e.g. gardens parkland farm land Increase in pollution
3	Many vital services affected e.g. hospitals health clinics Vulnerable people EG children elderly affected Large disruption to community life	3	High-value economic activity affected EG large retail Large number of employees affected Businesses shut down	3	Historic buildings affected High important habitats impacted e.g. conservation areas nature reserves Toxic or hazardous pollution
use the flood impact assessment table and give us a score from 0 to 3 and add up to get the <i>total flood impact score</i>					

	Social impact score	Economic impact score	Environmental impact score	Total flood impact score	Evidence of Human interference and channel management?
Site 1 -----					
Site 2 -----					
Site 3 -----					
Examples of human interference and channels management • Evidence of bank erosion • Channels artificially widened • Channel artificially straightened either partially or completely • Evidence of bank support or repair e.g. sandbags • Artificial banks ie large sections of the river lined by concrete banks and all brick walls • Soft engineering AG log deflectors brush barriers					

Site 2: Saratt Mill



Bedload Sample	1	2	3	4	5	6	7	8	9
Bedload Size									
Bedload Roundness									

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Description of site:

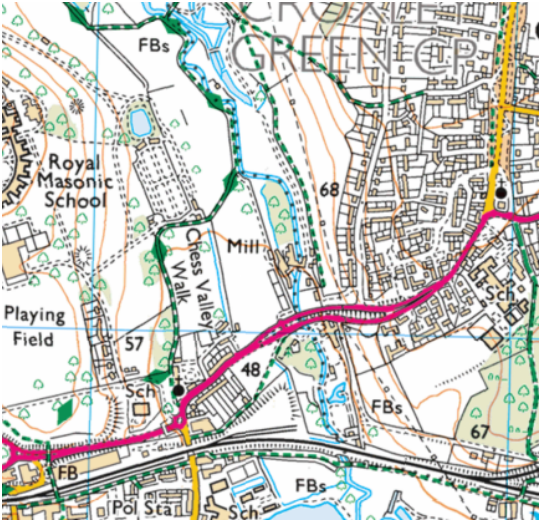
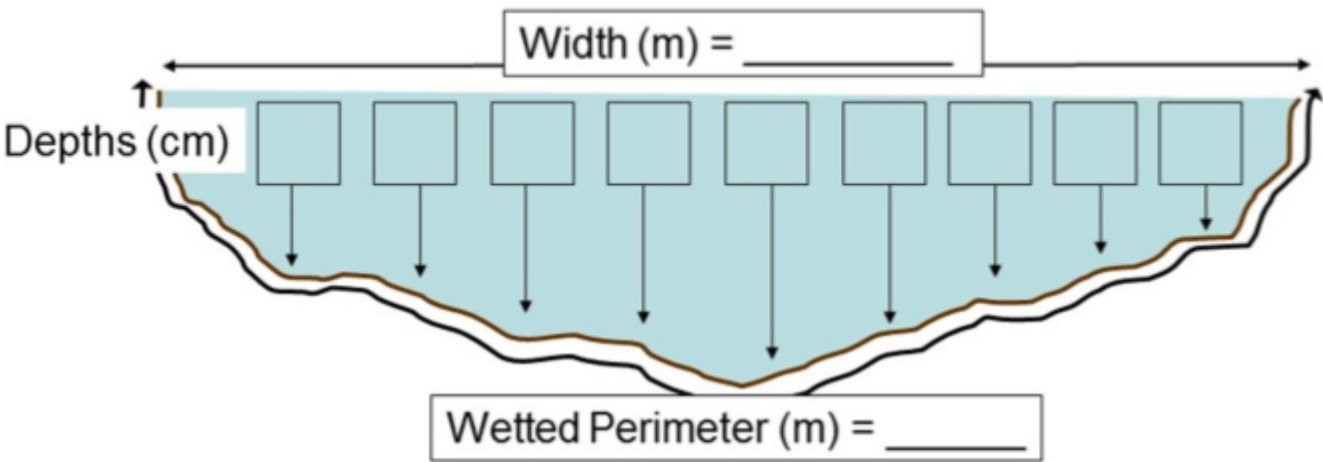
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Site 3: Scottsbridge Mill



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