Pearson

GCSE Geography

Fieldwork Pack

Rivers

Contents

Introduction

This pack is designed for you to work through if your school has chosen to opt for a fieldwork study of a river as part of your course.

You can use these materials either as part of your revision process or as preparation with your teacher. In your course you will be prepared to answer questions about your own fieldwork experiences: what you did, how you gathered information and so on; so-called **familiar topics**

This is what the Exam Board know when they set these questions based upon **familiar** fieldwork experiences:

1. That you have had a chance to discuss what fieldwork is for – in other words *what* you are trying to find out and *why* you are trying to find it out. This will be in the form of an enquiry 'question' – for example 'as you go further downstream channel discharge increases.'
2. That you have carried out fieldwork and research as part of your investigation of a river channel and the impact of flooding.
3. That you have used at least **one** quantitative method to gather data – a technique that will involve numbers and measurement, and at least **one** qualitative method which will not involve numbers or measurement.

You will be following *either* Pearson Edexcel GCSE (9-1) Geography Specification **A**, *or* Specification **B**. Check with your teacher if you're unsure which one you are doing.

Specification A

Task	Investigation of a change in a river channel
Fieldwork Methods	Fieldwork data collection must include at least: • one quantitative fieldwork method to measure river discharge • one qualitative fieldwork method to record landforms that make up the river landscape. Human interaction: students must develop their understanding of the implications of river processes for people living in the catchment area
Secondary data sources	• A flood risk map e.g. Environment Agency flood risk map • One other source.

Specification B

Task	Investigating how and why drainage basin and channel characteristics influence flood risk for people and property along a river in the UK
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
Secondary data sources	• A flood risk map e.g. Environmental Agency Flood Risk Map • One other source chosen by the centre

Rivers Fieldwork: Prior Knowledge Quiz (Answers on page 24)

Q.1. Fieldwork in geography is all about following an enquiry. Number these stages (1-4) to show the correct order in which they are completed.			
Data collection *stage ……*	Conclusion and Evaluation *stage ……*	Hypothesis or enquiry question *stage ……*	Data presentation and analysis *stage ……*

Q.2. Which one of the following measurements of a river has to be to be part of your fieldwork?	
A channel characteristic e.g. its width or depth	The type of rock that the river flows on
The gradient of the channel	The size of the floodplain

Q.3. Identify the correct definition for data collected by 'systematic sampling'.	
Data that is collected by chance	Data that is collected from each important part of a river
Data that is collected at sites positioned at equal intervals from each other	Data that is only collected from one specific section of a river

Q.4. Suggest one potential risk of undertaking fieldwork in a river location.

Q.5. Which type of erosion process involves river sediment dissolving in water?			
Attrition	Abrasion	Solution	Hydraulic action

Q.6. What is the difference between 'primary' and 'secondary' data sources?

Q.7 Name one type of 'hard engineering' that is used to manage rivers.

Q.8. Name the three measurements you need to make to calculate river discharge

Q.9. Name one type of qualitative fieldwork method that could be used to investigate a river

Q.10. How might an Environmental Agency flood map help you with a river investigation?

Background information: River Processes and Flooding

1. Useful links and starting points

- The Time for Geography website has lots of short video clips to help you boost your geographical knowledge about river processes (linked here).
- This also provides a useful introduction to river landscapes (link) with a case-study.
- The BBC Bitesize website here also has an Edexcel-specific section that covers all of the main physical processes and types of management that affect rivers.
- To find out more about flooding and how rivers are managed, have a look at this link

2. River Processes

- **Denudation** is the wearing away of the land – it includes weathering, transport and erosion. There are four key processes of erosion that act on river landscapes.

Hydraulic action	Abrasion	Solution	Attrition
The impact of the force of the water that widens joints in the rock weakening it.	Fragments of rock grind against the rock, causing it to wear away the bed and banks.	Rocks such as limestone that are more susceptible to the weak acidity of rainwater are dissolved and carried away.	Rock fragments and pebbles collide into each other, causing them to become smaller and rounder.

- **Weathering** is the breakdown of rock ‘in situ’ – that material is then subject to gravity and other **transport** methods and much of it ends up in rivers, which is why rivers contain sediment.
- Rivers are the most important agents of **erosion** taking water and sediment to seas and oceans, and creating distinctive landscapes and landforms

3. River management

For much of human history rivers were not managed but in the last two centuries most major rivers have been managed with both short-term and long-term impacts on people and the environment.

- **Hard engineering** management involves building artificial structures which try to control natural processes (e.g. dams, weirs, levees).
- **Soft engineering** management does not involve building artificial structures but takes a more sustainable and natural approach to managing rivers and their floodplains (e.g. restoration of wetlands and washlands).

Each engineering strategy has its advantages and disadvantages for different groups of people and can affect river landscapes in different ways.

The Six Stages of Enquiry

The Exam Board also know that you will have been talked through the six stages of the fieldwork process, as shown below.

The right-hand column is a trimmed down version of the 'Description'.

Stage in the enquiry process	Description (in the specification – 'teacher speak')	Which means…
1	Understanding of the kinds of question capable of being investigated through fieldwork and an understanding of the geographical enquiry processes appropriate to investigate them.	What were we actually trying to find out? How was our fieldwork organised?
2	Understanding of the range of techniques and methods used in fieldwork, including observation and different kinds of measurement.	Why did we take the measurements that we did? How did that help answer the question in Stage 1?
3	Processing and presenting fieldwork data in various ways, including maps, GIS, graphs and diagrams (hand-drawn and computer-generated).	How did we show our results? What maps, diagrams and graphs did we use?
4	Analysing and explaining data collected in the field, using knowledge of relevant geographical case studies and theories.	What did our results show? Were they what we expected from our understanding of geography?
5	Drawing evidenced conclusions and summaries from fieldwork transcripts and data.	Overall and looking back to our question in Stage 1, what did we find out?
6	Reflecting critically on fieldwork data, methods used, conclusions drawn and knowledge gained.	Was the design of this day OK? Could we have done things better?

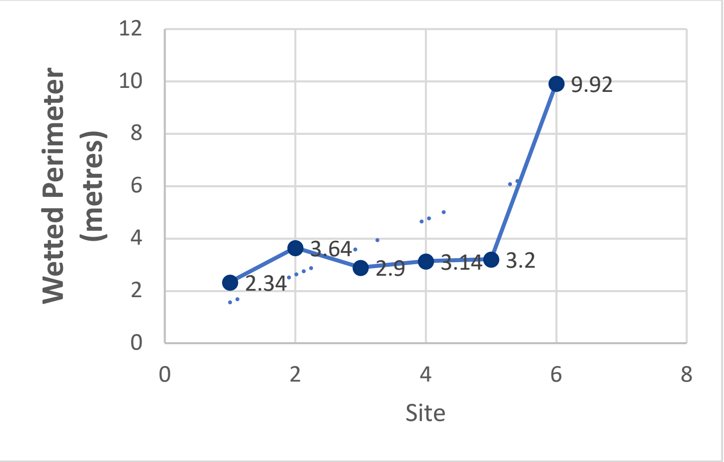
Now see how far you can get in answering the questions below. You will not be able to answer all of these until the end of the learning period, but they can be answered as you go along.

Stage in the enquiry process	Possible questions	Responses for your feedback
1	Explain how you chose the location for your fieldwork Explain why the enquiry question that you chose was appropriate to investigate	
2	Explain how you selected the sites/location for your data collection Explain one **quantitative** method that you chose for your data collection Explain two reasons why your data collection may not always have been accurate/reliable. Explain one **qualitative** method of data collection that you used Explain the role of secondary data in your enquiry.	

3	Explain how you presented one set of results of your data collection. Draw an annotated diagram/graph to show how you presented/explained some of your fieldwork data. Explain how you used GIS to help show your results.	
4	Explain how case studies/theories helped you explain your results	
5	Explain the methods you used to analyse your data	
6	Explain how you would improve your enquiry.	

The material below shows answers prepared by a school whose GCSE Geography students carried out their geographical investigation on the River Mithic.

Stage in the enquiry process	Possible questions	Responses for River Mithic fieldwork
1	Explain how you chose the location for your fieldwork	*It needed to be close to school to ensure that we had enough time to collect data. There are also legal and practical issues about access to sites. These had been checked by a pilot study in 2015, including whether the river was safe to measure (i.e. not too wide/deep) and previous years had visited the sites without any incidents.*
	Explain why the enquiry question that you chose was appropriate to investigate	*Our enquiry questions were:* *a) Do the channel characteristics change downstream?* *b) 'How do downstream changes in the river affect the flood risk?* *We measured width, depth and velocity. In this way we were able to calculate discharge which was appropriate because we wanted to find out how it increased as we went downstream. We had suggested that width would change most, then depth and then velocity.*
2	Explain how you selected the sites/location for your data collection	*We had to consider the length of time needed to drive to the location and then access the sites from the minibus. We tried to use systematic sampling, but it wasn't possible because of access issues and rights of way. We recognised that this would affect the reliability of the results.*
	Explain one **quantitative** method that you chose for your data collection	*We measured depth/width using rulers and tapes at six different locations along the River Mithic.). We measured width at 'bankfull' stage and at its actual level using a tape. We measured depth at three places at the same site; one in the middle of the channel and two more to divide the channel into quarters.*
	Explain two reasons why your data collection may not always have been accurate/reliable.	*1.It was hard to establish both the bankfull and channel width because the top of the banks were not always accessible and it was hard to decide exactly where to take the measurement from – it also varied a great deal and keeping the tape taut was difficult.* *2. The depth was very variable with large stones in some places but not in others; the equipment was simple and it was not always possible to hold the ruler vertically.* . *3. Reliability considerations might include the typicality of the weather and antecedent conditions as well as precise location of the sites, for example site 4 was/is just upstream of a bridge which ponded up the water.*

		4. The sites that we chose were chosen because of accessibility along footpaths or by the roadside. Some of these sites did not seem typical of the channel at the place we made the measurements because the channel was visibly wider or narrower just a few metres up or downstream. So, although our measurements were as accurate as we could make them, they may not have been reliable because they were not typical parts of the channel.
	Explain one **qualitative** method of data collection that you used	*We interviewed a local resident who lived next to the floodplain close to Mithbury – they explained how they had had some difficulty insuring their property after the last very wet winter but they also explained that this was not directly a result of river flooding but more to do with high groundwater levels.*
	Explain the role of secondary data in your enquiry.	*We used environmental agency flood maps that showed that in the Mithbury area there was a 1 in 100 years risk of flooding. We used this together with the Digimap 1:25000 OS map to identify the relationship between flood risk and river discharge. A second source was the Meteorological Office data of rainfall for the months before we collected the data to check how reliable our measurements might be.*
3	Explain how you presented one set of results of your data collection.	*We chose to show the wetted perimeter on a line graph with each site showing the wetted perimeter on the y-axis (in metres) with each site from Site 1 (upstream) to Site 6 (downstream shown on the x-axis). This showed a clear but not consistent trend of increasing wetted perimeter downstream as suggested by the Bradshaw model.*
	Draw a diagram/graph to show how you presented/explained some of your fieldwork data.	
	Explain how you used GIS to help show your results.	*We used GIS to add a layer to the Digimap to show the changing discharge at the six data collection sites which we marked on the map showing the discharge graphs that we had constructed for each site. We also added the Environment Agency flood risk data to this map.*

4	Explain how case studies/theories helped you explain your results	*The Bradshaw model suggests that discharge will increase downstream because channel width, depth and velocity all increase. Of these, velocity is the hardest to measure because the increases are usually quite small. The reason for these changes is that tributaries join the main stream as well as more added from overland flow, throughflow and groundwater flow. This will normally increase flood risk downstream.*
5	Explain the methods you used to analyse your data	*We entered our data on the data sheets provided by our teachers to show width, depth and velocity measurements at the three sites that we had been allocated. We also visited the other three sites and made field sketches of these locations. We recorded any issues with the data collection on those sheets. Once we returned to school, we calculated the discharge (Q = w.d.v) for each site:* *Q = discharge* *w = width* *d = depth* *v = velocity.* *We then compared them with the results from the other group who visited in the afternoon and discussed possible reasons for differences; these would have to be something to do with the precise places chosen to take the measurements or the accuracy of those measurements because nothing changed in the few hours between the measurements being made. We also had access to data collected by the previous year's students so that we could look at differences which may affect the reliability of our results. Having drawn up tables of data we then put them on a line graph which clearly showed the downstream changes; we annotated that graph to explain any variations from the Bradshaw model predictions.*
6	Explain how you would improve your enquiry.	*Obviously, accuracy could be improved by better equipment especially for the measurement of velocity. There were many issues of access to sites and the impact of quite small variations in choosing the precise place to take the measurements. It might have been better to choose sites that were further apart but that would have raised time issues as well as the safety issues of dealing with a wider and deeper channel. Our channel depth was seldom more than 100mm and the bed was so variable chance played a very large part. Visiting only six sites in total did not allow us to use any statistical techniques such as Spearman's correlation which might have shown if our results were statistically significant – in other words if there is a correlation between width and depth of the channel. It might be possible to find a river closer to school which would give us the time to take measurements at 8 sites (a minimum for Spearman) or we could have split into smaller groups.*

Remember that you do not need to learn the detail of your results; that would be a memory test and not a test of your geography. If you do remember a few details then use them but it is much more important to understand what you did and why you did it rather than learning the precise width of the river at Site 1 – but handy to remember what happens as you go downstream – did it get wider?

Student Tasks

You will also be presented with **unfamiliar** material which you will be asked about. Some of these questions will be based on resources. These questions may be asking you to make judgements about the quality of the plans whilst others will be about the conclusions that were drawn.

The same six stage process will provide the basis for the questions that you will be asked.

In the next section we will ask a series of questions and ask you to answer them. Once again you can do this in any order, but the final question is the most challenging and best left until last.

It is very important for you to note that most of these questions are NOT questions that you are likely to see on an examination paper. They are designed to get you used to the special nature of the fieldwork section of this course and what it includes.

Question 1: Have a look at the resource below and then answer the question.

Study Figure **1**, which is the data collected by a group of students studying river gradient changes in two different upland locations with contrasting rock types.

- The students measured river gradient on two different streams at locations chosen using a geology map.
- They measured river gradient at eight sites at each location using ranging poles, tapes and a clinometer.
- The sites were about 1 km apart with Site 1 furthest upstream and Site 8 furthest downstream.

Location 1 – Boulder Clay	Gradient (degrees°)	Location 2 – Sandstone	Gradient (degrees°)
Site 1	7	Site 1	12
Site 2	7	Site 2	8
Site 3	6	Site 3	10
Site 4	6	Site 4	9
Site 5	5	Site 5	4
Site 6	6	Site 6	4
Site 7	4	Site 7	10
Site 8	3	Site 8	7
Average Gradient	**5.5**	**Average Gradient**	**8.0**

Figure 1

Suggest a suitable enquiry question that the students could have investigated.

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Now look at the following enquiry questions:

Answer A: Are the rivers different?
Answer B: Does geology make any difference?
Answer C: Does gradient change as you go down the river?
Answer D: What's more important – geology or site number?

For each of these responses, write a quick comment – good, bad, what's missing?

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B.
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C.
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D.
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Question 2:

Now look at Figure 2a and Figure 2b below. This was included in a piece of fieldwork when students measured channel gradient at their six sites with Site 1 closest to the source of the river. Students worked in pairs and this student, with one other student, measured gradient at Site 3.

They described the methods used to measure the gradient at Site 3 as follows:

Step 1: Gradient – I recorded the gradient at site 3 – others measured at different sites	Step 2: The gradient was taken using a set of ranging poles and a gun clinometer. By placing the two ranging poles 10 metres apart (which was measured using a measuring tape), one upstream and one downstream, and a gun clinometer was held against one of the poles lining it up with the other using the sight, the measurement was then taken. The measurement was taken by locking the clinometer in place, once looking downstream, and once looking upstream to get an accurate measurement.	Step 3: The gradient was taken once upstream, and once downstream to get a more accurate result. The gradient was needed so that it can be investigated how it changes downstream, this can then be used to check it against the Bradshaw model.	Step 4: The clinometer appeared difficult to use and some of the results seemed greatly inaccurate. This was resolved by taking averages to get as accurate results as possible and discounted any anomalies.

Figure 2a

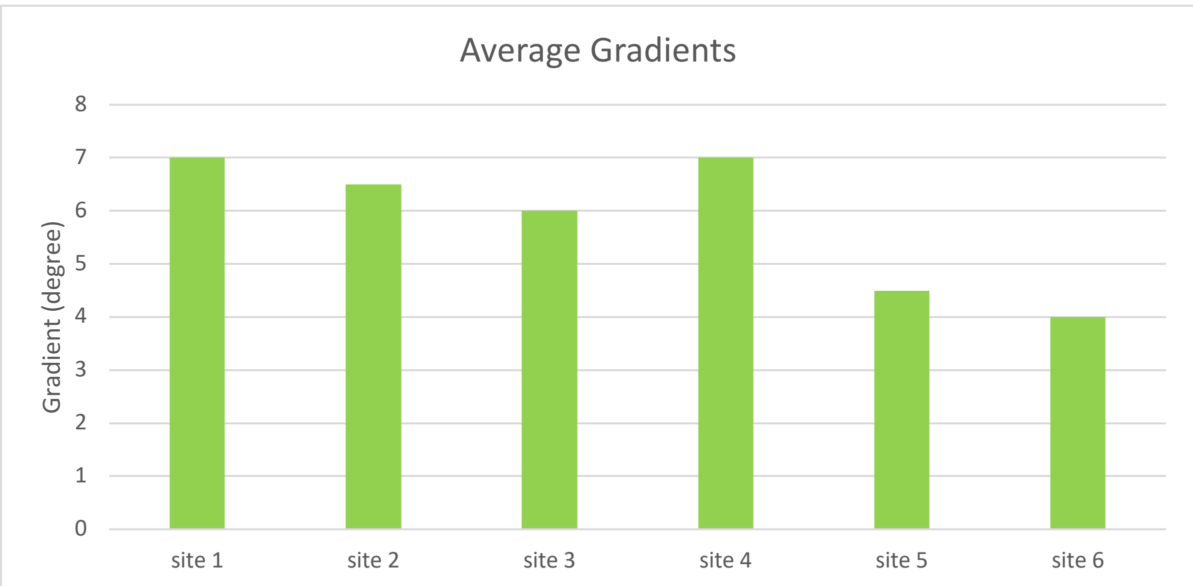

Figure 2b

(a) How would you describe the differences in the gradient of the channel?

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(b) Explain one weakness of this method of showing the results in Figure 2b.

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(c) The student concluded that the gradient of the channel declines downstream.

Explain two possible problems with this conclusion.

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2…………………………………………………………………………………………………

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Question 3:

A group of students visited Porlock in Somerset, south-west England to collect their data – they used a flood risk map (Figure 3a) to help them select their sites along the River Hawkcombe.

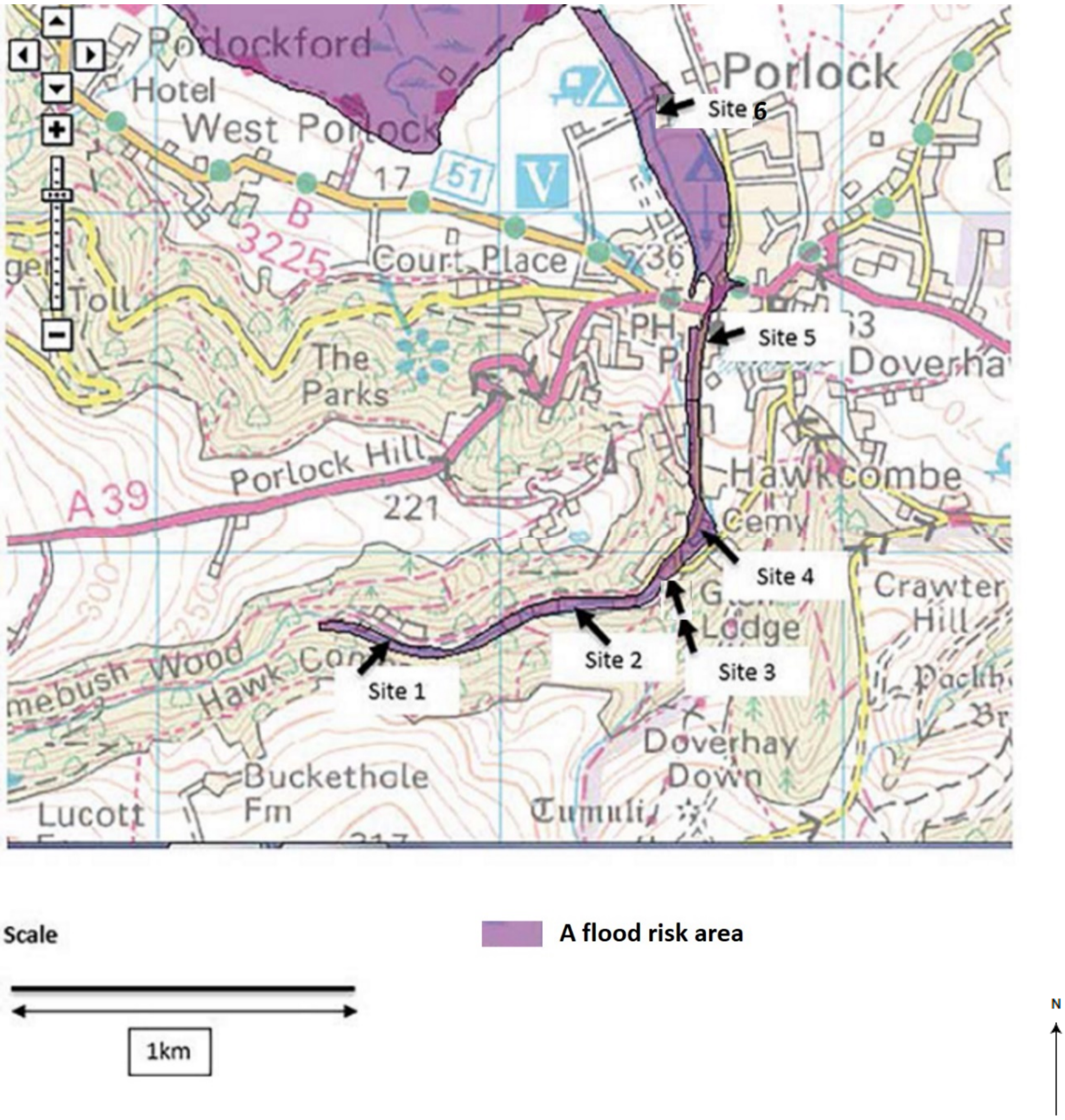

Figure 3a

(a) Comment on the students' choice of sites.

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The students were studying changes in river channel characteristics as you move downstream and the impact on flooding. They were going to measure channel width and depth and then calculate the wetted perimeter of the channel.

Their results are shown below in Figures 3b, 3c and 3d. The method used to calculate the wetted perimeter is shown for Site 1.

Site	**Width (metres)**	**Depth (metres)**	**Wetted perimeter = W+2D (metres)**
1	2.2	0.07	So 2.2 +2x 0.07 = 2.34
2	3.1	0.28	3.66
3	2.1	0.40	2.90
4	2.2	0.47	3.14
5	2.5	0.35	3.20
6	4.8	2.56	

Figure 3b

(b) Complete Figure 3b by calculating the wetted perimeter at Site 6

Show your working

……………………………………..metres

(c) Now draw a graph showing the wetted perimeter for all six sites and a best-fit line to show the trend.

(d) Now annotate your graph suggesting possible reasons for the changes in the wetted perimeter that you have shown.

You should use Figures 3a, 3b from the pages above and 3c and 3d on the next page to help you do this.

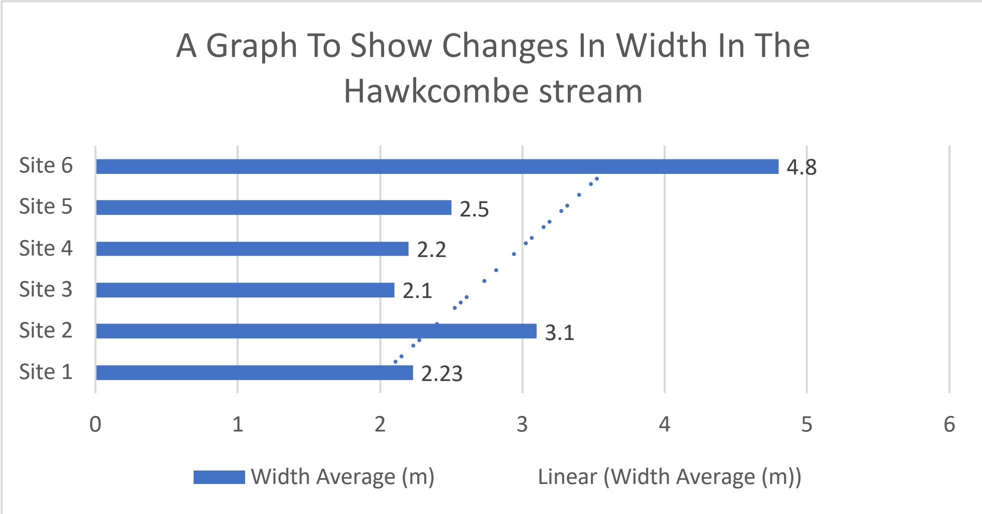

Figure 3c

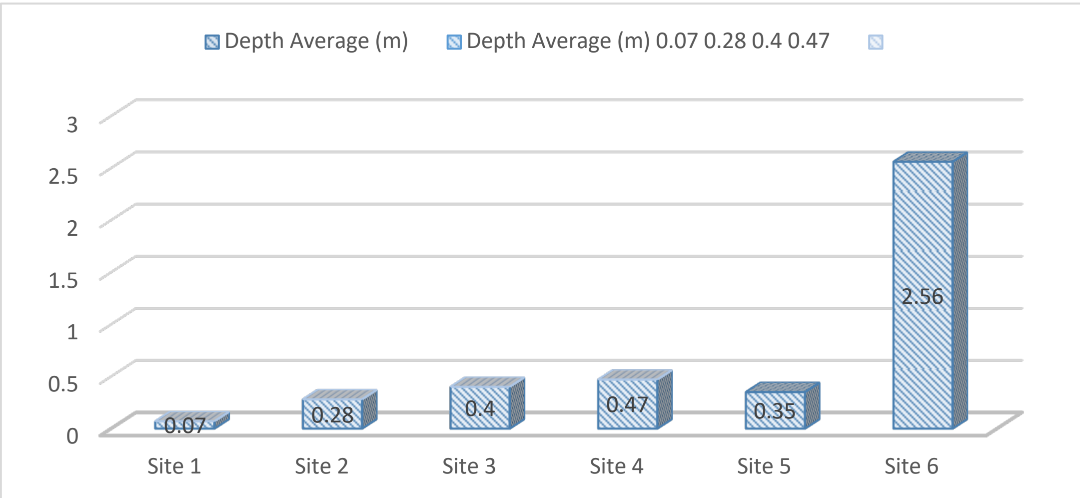

Figure 3d

(e) Do you have any comments about the selection of sites made by the students – think about PLS+ - Practicality ('do-ability'), Legality, Safety + does it make geographical sense to do this ?

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Question 4:

Introduction to question 4

This three-part question brings together some of the skills that we have been covering in the earlier part of this booklet. It is in the style of an exam question although rather 'fatter' than any question that you actually have to answer will be. The 'answers' that are provided are written in the style of a proper mark scheme and you may need some help from your teacher with that, especially understanding the AOs (Assessment Objectives) and how they affect the marking.

Question 4

A group of students were asked to help plan their forthcoming fieldwork day investigating downstream changes in a river and the flood risk posed by the river. The fieldwork day was to take place in late May in 2018 using the school minibus to make the journey.

They carried out their research using the internet looking for photographs, maps and other secondary data sources.

They were asked to:

1. choose a suitable location,
2. select 6 possible sites for data collection and
3. decide the methods to be used in gathering data about river discharge and flood risk

They chose a location 35 miles from the school shown below.

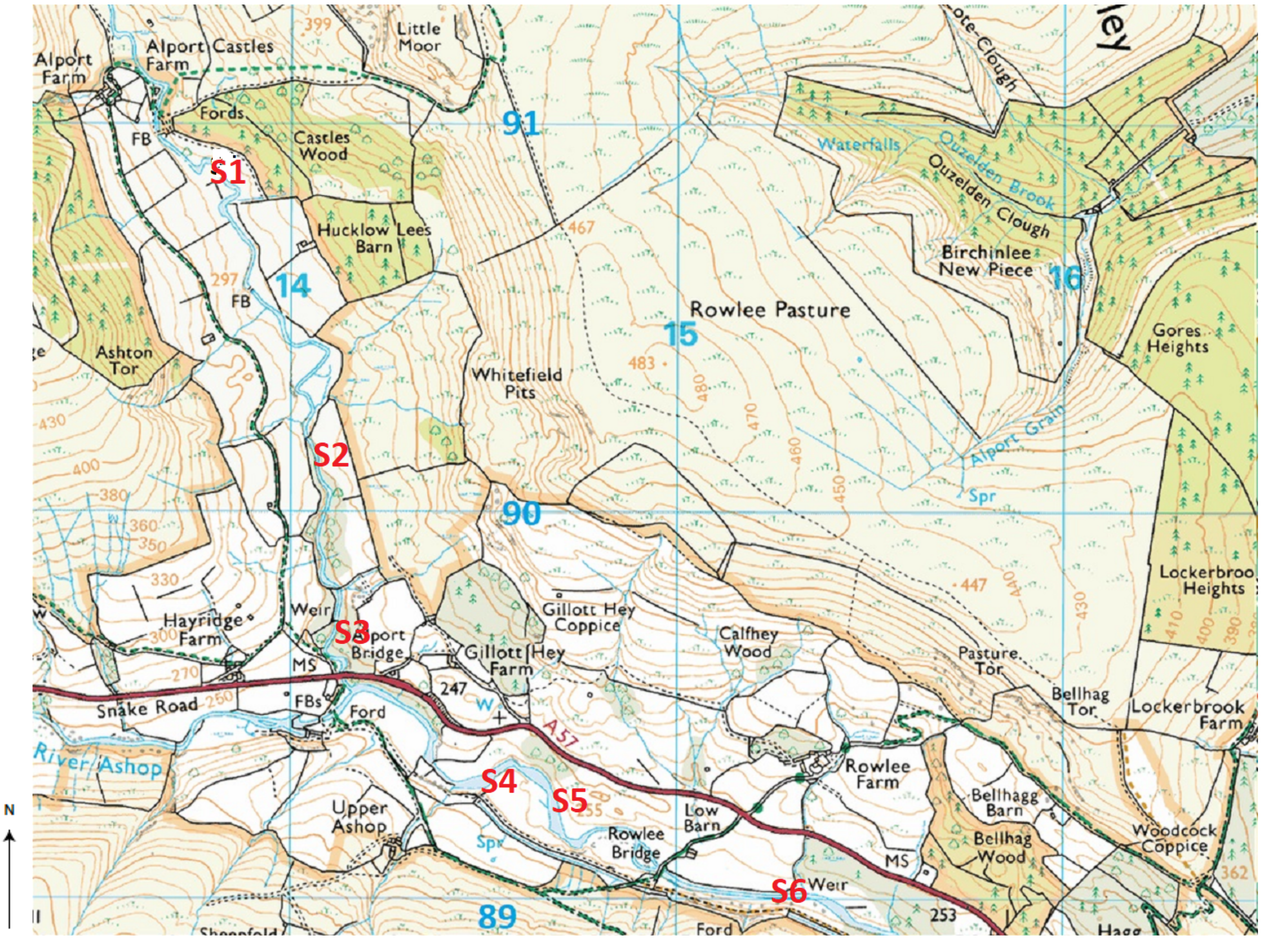

Figure 1: The chosen location and sites (S1 – S6) shown on a 1:25000 map (each blue grid square is 1km^2

Three sites were chosen along the River Alport (S1-S3) and three along the River Ashop (S4-S6). It was suggested that the minibus should be parked at Alport Bridge (S3) – see Figure 2.

Figure 2: A Google image of Alport Bridge and photograph taken at 142895

Figure 3: Just below the confluence of the River Alport and River Ashop at different times of year

(a) Suggest a hypothesis that the students could investigate (2)

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(b) Explain the methods that the students should use to measure the width and depth of the rivers at these six sites. (6)

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After discussion, it was agreed that the students' plan should be rejected although several suggestions were made that would have improved it.

c) Assess the reasons why the plan was rejected. (12)

Appendix 1: Answers to Rivers Fieldwork: Prior Knowledge Quiz

Q.1. Fieldwork in geography is all about following an enquiry. Number these stages (1-4) to show the correct order in which they are completed.			
Data collection *stage* **2**	Conclusion and Evaluation *stage* **4**	Hypothesis or enquiry question *stage* **1**	Data presentation and analysis *stage* **3**
Q.2. Which one of the following measurements of a river has to be to be part of your fieldwork?			
A channel characteristic e.g. its width or depth		The type of rock that the river flows on	
The gradient of the channel		The size of the floodplain	
Q.3. Identify the correct definition for data collected by 'systematic sampling'.			
Data that is collected by chance		Data that is collected from each significant section of a river	
Data that is collected at sites positioned at equal intervals from each other		Data that is only collected from one specific section of a river	
Q.4. Suggest one potential risk of undertaking fieldwork in a river location.			
Danger – risk to individuals from drowning and/or legal risks from trespassing.			
Q.5. Which type of erosion process involves river sediment dissolving in water?			
Attrition	Abrasion	**Solution**	Hydraulic action
Q.6. What is the difference between 'primary' and 'secondary' data sources?			
Primary = data collected first-hand; Secondary = data already collected / published			
Q.7. Name one type of 'hard engineering' that is used to manage rivers			
Dams, weirs, channel/bank reinforcement (canalisation), levees			
Q.8. Name the three measurements you need to make to calculate river discharge			
Width (average) Depth (average) and Velocity (average)			
Q.9. Name one type of qualitative fieldwork method that could be used to investigate a river			
Interviews of residents of flood threatened properties and/or field sketches to identify significant landforms			
Q.10. How might an Environmental Agency flood map help you with a river investigation?			
It would help identify areas that we needed to concentrate on with our primary data collection			

Appendix 2: Answers to Question 1 – 4

Question 1:

A – different in what way – of course they'll be different but what differences are you going to concentrate on?

B- any difference to what – 'does geology affect gradient' would be great

C- The answer is obvious! It does, so what exactly are you setting up as something to test?

D- Important for what, a shame – there are three things in this resource – slope angle, site and geology so the impact on slope is what this student probably has in mind, but they don't explain that.

Question 2:

(a) The gradient doesn't change much downstream. It varies by three degrees between Sites 1 and 6. Site 4 is the same gradient as Site 1

(b) The use of bar graphs is misleading – a line graph would show the results more clearly.

(c) The differences in gradient between the sites is very small – 3^o between Site 1 and Site 6:

- the student described the clinometer as very difficult to use and the results 'greatly inaccurate'.
- 'taking averages' will not avoid the problem of inaccuracy
- because different students took the measurements, the results may not be accurate/consistent because of operator error/variation

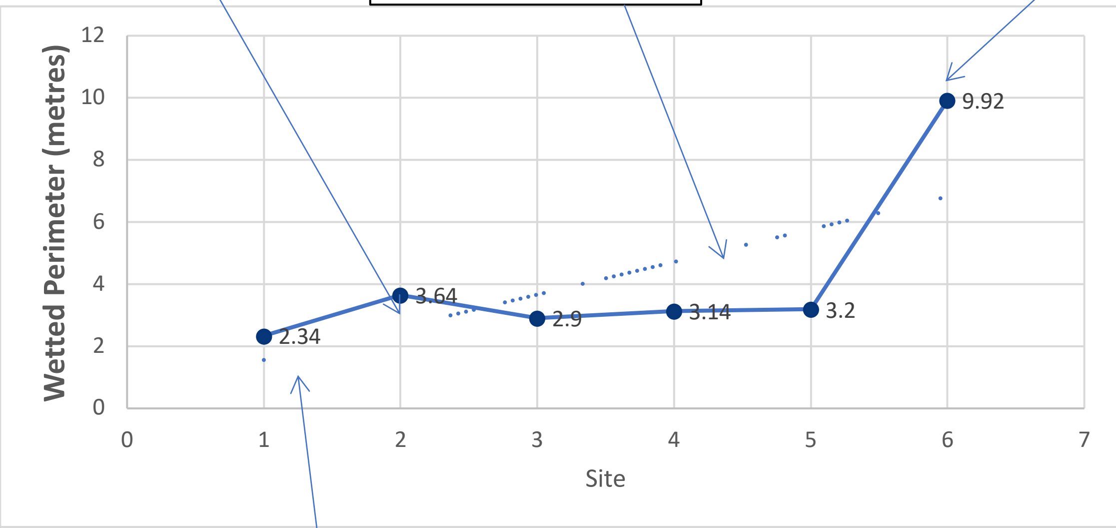
Question 3:

(b) 4.8 + (2x2.56) = 9.92
(c) & (d) See below

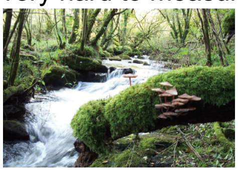
Site 6 is on the floodplain – there was a bridge here that ponded up the water making it much deeper and wider – depth was measured by dangling the tape from a bridge with a weight on it!

Increase here largely due to large increase in in depth in width

Best fit line is misleading because Sites 1-5 have little variation



Site 1 was difficult to get to and very hard to measure accurately



(e) There are many unknowns about this study especially where the students were staying and how they were travelling. They had quite a lot of walking to do so might have been tight for time. The practical issue of getting to the sites carrying all their equipment might well be a problem. Not all the sites seemed easy to get to using paths; Site 4 isn't close to a road or a footpath so there might be legal problems if students had to trespass. It is also quite a steep valley and there might be safety issues associated with reaching these sites. Site 6 is certainly 'risky' the channel is wide and deep (2.56 metres!). The basic idea of measuring the wetted perimeter is OK but it would have been more useful to find out how much water the channel could hold before it flooded (bankfull) and discharge can't be calculated without knowing velocity.

Question 4:

Just a reminder that you might need some help with the interpretation of this MS.

4 a Suggest a hypothesis that the students could investigate	**2**
That channel width and depth both increase (1) in a downstream direction. (1) That bankfull capacity (1) increases downstream (1) Accept any other appropriate hypothesis that is clearly appropriate given the information on the resource	(1+1)

Question Number	**Indicative content**
4b	**(b) Explain the methods that the students should use to measure the width and depth of the rivers at these six sites (6)**
	• Width is measured using a tape holding it tautly to prevent sagging and result in a mismeasurement of width • This should be done across the channel, ideally using ranging poles so that the tape is horizontal and also at 90 degrees to the bank – or as nearly so as possible again to avoid mismeasurement. • Depending on the hypothesis being studied this should be done at both the current water level but also at bankfull level so that channel capacity (bankfull wetted perimeter) can be estimated • The choice of precise position of the measurement should be determined by accessibility and safety as well as making an attempt to ensure that it is representative of the channel both upstream and downstream of the site • Depth also requires the tape to be set up across the river and a decision needs to be made as to how many depth measurements are needed – perhaps three, should be taken at equal intervals across the channel using a metre rule – this is to ensure that an accurate record of the channel shape measured rather than a possibly anomalous non-representative single measurement.

		• All measurements should be recorded by the group to ensure accuracy with, if possible, a field sketch of the location and cross-sectional profile of the channel at that site.
Level	**Mark**	**Descriptor**
Level 0	0	No acceptable response.
Level 1	1-2	Some simple description of the methods used. Techniques not clearly described and lacks balance between depth and width. Lacks explanation. Very basic use of geographical terminology, spelling, punctuation and grammar.
Level 2	3-4	Describes some aspects of the methodology but lacks clarity. Likely to be unbalanced in coverage. Some limited explanation. Generally, clearly communicated, but with limited use of geographical terminology. Candidates spell, punctuate and use the rules of grammar with considerable accuracy.
Level 3	5-6	Clearly outlined, workable fieldwork programme for collecting data on both width and depth. Explanation of methods clear and appropriate. Well communicated with good use of geographical terminology, spelling, punctuation and grammar.

Question	**Indicative content**
4 c	**(c) Assess the reasons why the plan was rejected. (12)** **AO3 (6 marks) / AO4 (6 marks)**
	• There are clear reasons for rejection that cover the practical aspects of planning involving timings, logistics of travel and parking etc. these include • Is the journey to and from the school unnecessarily long – a 70-mile round trip might be two hours in a minibus – are there closer locations? • Parking doesn't look easy at the chosen location of Alport Bridge and it may not be safe to leave the minibus unattended at that spot. • Safety considerations are also important – there are very few photographs of the river(s) and one of them (Figure 3) is obviously

	dangerous – although it is a 'winter' photo there is no guarantee that the weather conditions would be dry in May. • There is no evidence provided about how safe the river is at other locations – it appears quite wide on both Google image and photograph, even in drier conditions, and not easy to see whether it is safe to cross to make measurement of width and depth especially if only equipped with metre-rulers to measure depth and a 5/10 metre tape for the width measurements – this needs checking – the map does indicate a weir at Site 6 (153890) which is worrying on several grounds! • There are no signs of footpath access to the chosen sites or what the nature of the terrain to be crossed might be – this raises both accessibility and legality issues – might fields have livestock in them (likely given that it is obviously pasture land) would the group be trespassing? • It is also suggested that the bus be parked and sites visited from that point, presumably carrying the equipment – it isn't clear if all students visit all sites – if that is the case and they start at Site 1 progressing on foot to Site 6 they have a 1km+ walk to the first site and then a minimum of 2kms to Site 6 – there are practical timing issues with that plan. If they are obliged to walk on the road there are also health and safety considerations. • There are significant issues with the 'match' between the data to be collected and the aim of investigation which includes '…and the flood risk posed' (line 2 in the preamble) – there is no clarity as to how flood risk is going to be assessed and the map and photographs show very little evidence of the existence of a floodplain casting doubt on the choice of this location. • Site selection is also questionable – by choosing sites above and below the confluence of the two rivers: the most obvious significant change will come between Sites 3 and 4. In general the sites are quite close together (especially Site 4 and 5) so channel changes are unlikely to be notable and small errors in measurement are more likely to lead to misleading conclusions given the small variation between sites. • Overall there are multiple reasons to revisit this plan which (potentially) fails on all three counts of practicality, safety and legality – its fitness for purpose is also doubtful.

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–4	• Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3) • Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4)
Level 2	5-8	• Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3) • Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4)
Level 3	9-12	• Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently leading to judgements that are supported by evidence throughout. (AO3) • Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4)

Appendix 3: Useful Links

Specifications, Sample Assessment Materials (SAMS) and Past Exam Papers:

- Specification A: click here
- Specification B: click here

Fieldwork Guides:

- Specification A: click here
- Specification B: click here

Key terms pack:

- Specification A: click here
- Specification B: click here