# GCSE Geography

# Fieldwork Pack

# Coasts

# Contents

# Introduction

This pack is designed for you to work through if your school has chosen to opt for a fieldwork study of a coast 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 along the spit, sediment size decreases.'
2. That you have carried out fieldwork and research as part of your investigation of an area of coastline.
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 coastal processes through landscape evidence |
| **Fieldwork Methods** | Fieldwork data collection must include at least:<br>• one quantitative fieldwork method to measure beach morphology and sediment characteristics.<br>• one qualitative fieldwork method to record landforms that make up the coastal landscape.<br>**Human interaction**: students must develop their understanding of the implications of coastal processes for people living in the coastal environment. |
| **Secondary data sources** | • A geology map e.g. BGS Geology of Britain viewer.<br>• One other source |

## Specification B

| | |
|---|---|
| **Task** | Investigate the impact of coastal management on coastal processes and communities |
| **Fieldwork Methods** | Fieldwork data collection must include at least:<br>• one quantitative fieldwork method to measure how coastal management has affected beach morphology and sediment characteristics<br>• one qualitative fieldwork method to collect data on coastal management measures and their success. |
| **Secondary data sources** | • A geology map e.g. BGS Geology of Britain viewer.<br>• One other source |

# Coastal 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 | Conclusion and Evaluation | Hypothesis of enquiry question | Data presentation and analysis |
|---|---|---|---|
| *stage ……* | *stage ……* | *stage ……* | *stage ……* |

**Q.2. Measuring 'beach morphology' will always include measurements of:**

| | |
|---|---|
| The amount of sea defences on a beach | The type of rock that is found on a beach |
| The shape (gradient) of the beach | The sizes of the waves breaking on a beach |

**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 beach |
| Data that is collected at sites positioned at equal intervals from each other | Data that is only collected from one specific section of a beach |

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

**Q.5. Which type of erosion process involves beach 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 coastlines:**

**Q.8. Name one type of quantitative fieldwork method that could be used to measure sediment characteristics.**

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

**Q.10. How might a geology map help you with a coastal investigation?**

# Background information: Coastal Processes and Management

## 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 coastal processes here.
- The YouTube here also provides a useful introduction to coastal landscapes.
- 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 coasts.
- To find out more about how your chosen stretch of coastline is managed, have a look at the relevant Shoreline Management Plan – they are all available here.

## 2. Coastal Processes

- **Erosion** is the wearing away of the land. There are four key processes of erosion that act on coastal landscapes.

| Hydraulic action | Abrasion | Solution | Attrition |
|---|---|---|---|
| The impact of the force of the wave crashing against the cliff, wears away the rock. | Fragments of rock grind against the rock, causing it to wear away. | Rocks that are more susceptible to the weak acidity of the seawater are dissolved and carried away. | Rock fragments and pebbles collide into each other, causing them to become smaller and rounder. |

- Sediment is **transported** by the process of longshore drift, with the direction of movement determined by the prevailing wind. The swash carries sediment onto the beach at an angle, and then transports it back to the sea at a right angle due to gravity. This process repeats, causing sediment to be transported along the coast.

- **Weathering** is the breakdown of rocks in situ. There are three key processes of weathering that act on coastal landscapes.

| Mechanical | Chemical | Biological |
|---|---|---|
| Water falls into the cracks of rock and repeatedly freezes and thaws; this puts pressure on the surrounding rock, causing it to break apart. | This happens when the slight acidity of rainwater reacts with rocks such as limestones, causing it to break down. | This happens when the roots of plants grow into the rocks and force them to widen and crack. |

## 3. Coastal management

- **Hard engineering** management involves building artificial structures which try to reduce the impact of natural processes that cause coastal erosion (e.g. sea wall, groynes and rip-rap).
- **Soft engineering** management does not involve building artificial structures but takes a more sustainable and natural approach to managing the coast (e.g. managed retreat and beach nourishment).

Each engineering strategy has its advantages and disadvantages, and can affect coastal 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 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? |

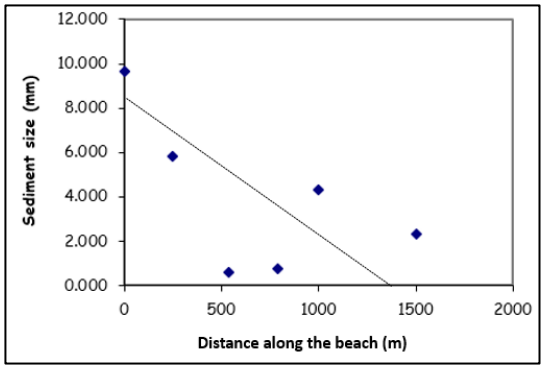
Now see how far you can get in answering the questions below. You will not be able to answer all of these until the end of the learning period, but they can be answered as you go along.

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

| | | |
|---|---|---|
| **3** | Explain how you presented one set of results of your data collection.<br><br>Draw an annotated diagram/graph to show how you presented/explained some of your fieldwork data.<br><br>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 at Dawlish Warren (a spit on the south coast of England).

| Stage in the enquiry process | Possible questions | Responses for Dawlish Warren 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 beach was safe to measure (i.e. times of high and low tides) and previous years had visited the sites without any incidents.* |
| | Explain why the enquiry question that you chose was appropriate to investigate | *Enquiry questions*<br>*1. 'Do sediment characteristics change with distance along the spit at Dawlish Warren?'*<br>*2. ''Does the beach gradient change with distance along the spit at Dawlish Warren?'*<br><br>*These enquiry questions meant that we could measure the gradient of the beach profile, and the size and shape of beach sediment along our stretch of coast. This was appropriate as we wanted to find out if the process of longshore drift and presence of wooden groynes were affecting the spit. We suggested that the sediment size would be the largest in the west because the prevailing wind was coming from this direction.* |
| 2 | Explain how you selected the sites/location for your data collection. | *We wanted to ensure that our data collection included the whole stretch of beach, so we used a systematic sampling approach. We did this by collecting data at every other groyne along the spit.* |
| | Explain one **quantitative** method that you chose for your data collection | *We measured the profile of the beach by recording the length of the beach (from land to sea) and gradient using tape measures and clinometers at six sampling sites along the beach. We measured the gradient by recording the reading on the clinometer when there was a change in the angle of the slope as we walked up in the beach from the water mark.* |
| | Explain two reasons why your data collection may not always have been accurate/reliable. | *1.It was quite windy when we were measuring the length of the beach, and it was difficult to keep the tape measure taught; this means that the data for length of the beach in some places was inaccurate as it might appear longer than it really was.*<br><br>*2. The sites that we chose were chosen because of positioning of the groynes. Some of these sites did not seem typical of the beach at the place we made the measurements because there appeared to build up of sand right next to the groyne, possibly due to groyne trapping sand as it was being transported by* |

| | | |
|---|---|---|
| | | *longshore drift. This made the profile appear higher than the surrounding area of beach. So, although our measurements were as accurate as we could make them, they may not have been reliable as the sampling sites were not representative of the rest of the beach in that area.* |
| | Explain one **qualitative** method of data collection that you used | *At each sampling site, we used an iPad to take a photo – paying close attention to evidence of coastal management and the beach profile in general. We then used 'Skitch' to annotate each photo as they were going to be used to help compare each site back in school* |
| | Explain the role of secondary data in your enquiry. | *Firstly, we used a geology map of the area: https://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html*<br><br>*This showed us that the geology in the area is made up of sedimentary rocks (sandstone and mudstone), which are more susceptible to erosion and weathering processes compared to igneous and metamorphic rocks.*<br><br>*Google Maps were then used to investigate the area before our visit and find out a bit more about land use. This area looked like it might attract many tourists, and therefore coastal management would be important.*<br><br>*Finally, the Shoreline Management Plan for this stretch of coastline was studied; this provided a useful insight to the types of management that exist in the area – and the intentions in terms of maintaining these defences in the future.* |
| **3** | Explain how you presented one set of results of your data collection. | *We chose to show the relationship between distance along the beach and sediment size through a scatter graph with each site showing the sediment size on the y-axis in millimetres and distance along the beach in metres, shown on the x-axis. After plotting the scatter graph, a line of best-fit was drawn.* |
| | 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. | *The scatter graph shows a clear but not consistent trend of decreasing sediment size the further east we travelled along the beach. After plotting the scatter graph, a line of best-fit was drawn to show a negative relationship between these two variables.*<br>*We used GIS to add a layer to the Digimap to show the changing beach gradient at the six data collection sites which we marked* |

| | | |
|---|---|---|
| | | *on the map showing the beach profile graphs that we had constructed for each site.* |
| **4** | Explain how case studies/theories helped you explain your results | *There are different physical processes that interact to shape coastal landscapes. Sediment that has been eroded further down the coast is transported by the process of longshore drift. This involves the motion of the waves' swash and backwash transporting sediment in a zigzag pattern. Sediment and pebbles that move with the waves become smaller and rounder as they collide into each other by the process of attrition.* |
| **5** | Explain the methods you used to analyse your data | *We entered our data on the data sheets provided by our teachers for beach gradient, beach length, sediment size and sediment shape measurements at each sampling site. We recorded any issues with the data collection on those sheets.*<br>*I printed out my annotated photographs that we had taken on my iPad, and compared this with some of the annotated photographs taken by last year's students to see if the landscape had changed much.*<br>*Once we returned to school, we compared our results with the other groups and discussed possible reasons for differences; these would have to be something to do with the timings of when a particular sampling site was visited (as some groups started in the east, and moved westwards). It was also useful to compare our results with last year's data, as this meant we could look at differences which may affect the reliability of our results.* |
| **6** | Explain how you would improve your enquiry. | *Obviously, accuracy could be improved by better equipment especially for the measurement of gradient. There were many issues when deciding where there was a change in the slope and reading the angle on the clinometer as we moved up the beach. This could have led to inaccuracies in the readings recorded, creating a beach profile that wasn't an accurate representation of the beach at Dawlish Warren. It might have been better to have used ranging poles rather than using a reference point on someone within our group. Visiting only six sites in total did not allow us to get a full accurate profile of the beach. It may have been better to have completed our surveys at each of the ten groynes however, due to time constraints and changes in the low and high tides this was not practical for our investigation.* |

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 gradient of the beach at Site 1 – but handy to remember what happens as you moved along the beach – did it get steeper?

# 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 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 data collected by one group of students studying beach gradient changes in two different locations – one sandy beach and one shingle beach.

- The students measured beach gradient on two different beaches at locations chosen using a geology map.
- The students measured beach gradient at eight sites at each location using ranging poles, measuring tape and a clinometer.
- The sites were about 200 metres apart, with Site 1 furthest north (where the prevailing wind was coming from), and Site 8 furthest south.

| Location 1 – sandy beach | Beach gradient (°) | Location 2 – shingle beach | Beach gradient (°) |
|---|---|---|---|
| Site 1 | 5 | Site 1 | 14 |
| Site 2 | 4 | Site 2 | 13 |
| Site 3 | 5 | Site 3 | 14 |
| Site 4 | 3 | Site 4 | 11 |
| Site 5 | 4 | Site 5 | 10 |
| Site 6 | 3 | Site 6 | 10 |
| Site 7 | 5 | Site 7 | 14 |
| Site 8 | 3 | Site 8 | 10 |
| **Mean gradient** | **4** | **Mean gradient** | **12** |

**Figure 1**

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

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**Now look at the following answers;**
Answer A: Are the beaches different?
Answer B: Does geology make any difference?
Answer C: Does gradient change as you go along the coast?
Answer D: What's more important – geology or site number?

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

**A.**
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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 beach gradient at their six sites with Site 1 nearest the direction of where the prevailing wind was blowing from.

An extract from the student's methodology table is shown in Figure 2a:

| What was measured? | How was it measured? | What were the problems? |
|---|---|---|
| Gradient | We recorded the gradient of the beach profile from the water's edge to the cliff. This was done by pointing a clinometer at the eye level of another person standing 10 metres away. This was repeated at five more sites chosen randomly along the beach as the tide came in. | People of different heights were used to record the gradient.<br><br>It was very windy, so it was difficult to hold the clinometer steady. |

**Figure 2a**

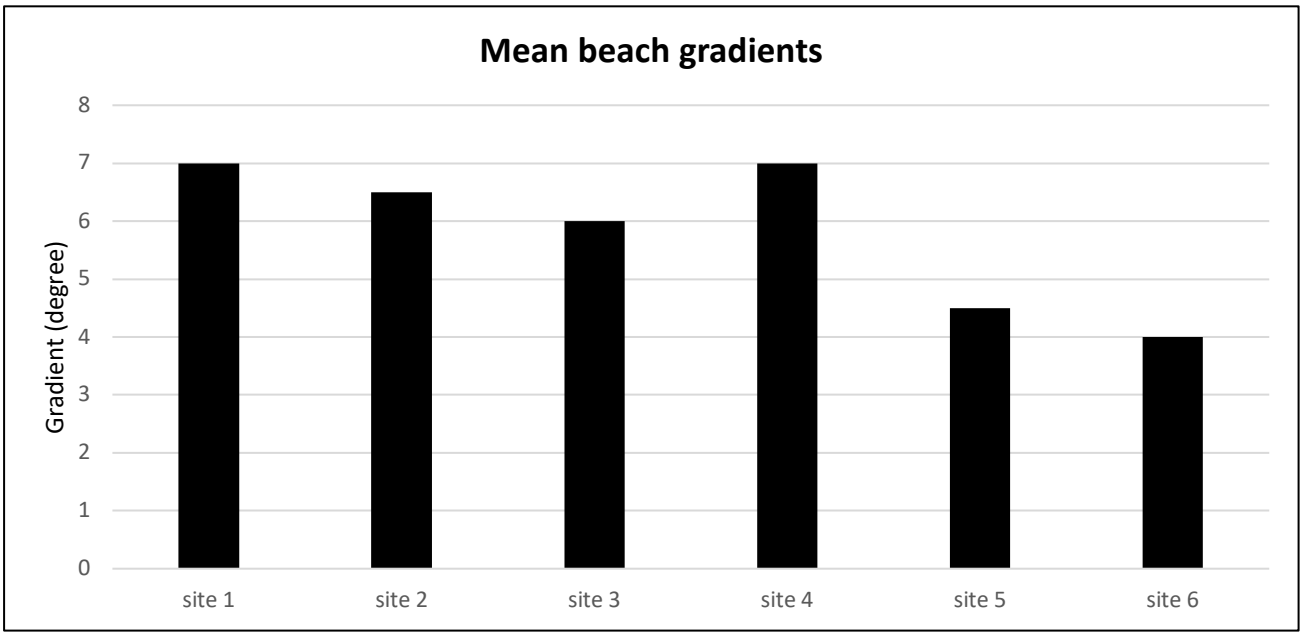


**Figure 2b**

**(a) Suggest how these students could have improved their data collection method.**

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**(b) Describe the differences in the gradient of the beach.**

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**(c) Explain one weakness of this method of showing the results, Figure 2.**

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**(d) The student concluded that the gradient of the beach declines along the coast.**

**Explain two possible problems with this conclusion.**

1……

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2……

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## Question 3:

A group of students visited Flamborough Head to collect their data – they used the photograph (Figure 3a) to help them select their sites (1-5) along the coastline.

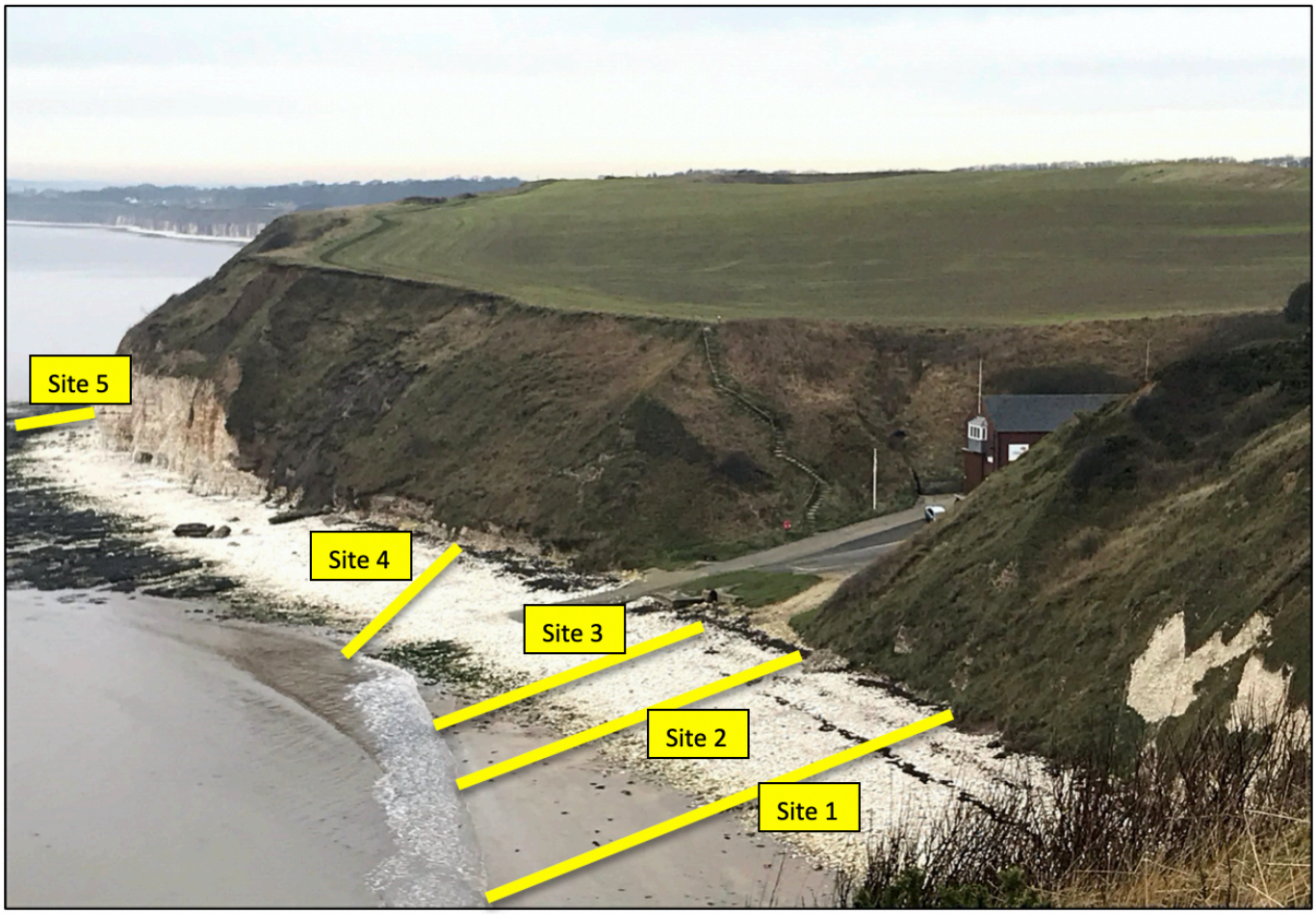


**Figure 3a**

The students looked at the photograph, and decided to carry out their data collection at places where the beach looked different; for example, Sites 1-3 had pebbles and sand, site 4 was mainly pebbles, and site 5 was pebbles and a wave-cut platform.

**(a) What type of sampling strategy did the students use?**

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**(b) Suggest one different way the students could have used to select their sites.**

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The students had planned to use a tape measure to measure the distance from cliff to the sea at each site, but the weather was very windy and the tide was coming in quickly.

**(c) Suggest one way they could have adapted their technique.**

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**(d) Give one piece of equipment, other than a tape measure, they would need to use to investigate beach gradient.**

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**Study Figure 3b below. It shows the beach data collected by the students at the five sites along the beach.**

| Sediment characteristic | Units | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 |
|---|---|---|---|---|---|---|
| Long axis | mm | 46 | 56 | 50 | 60 | 62 |
| Roundness score | 1-6 | 3 | 3 | 4 | 5 | 4 |
| Beach gradient | | 6 | 8 | 10 | 12 | 15 |

**Figure 3b**

**(e) Which of the following are the correct units used for beach gradient in Figure 3b?**

- ☐ **A** m
- ☐ **B** °
- ☐ **C** $cm^2$
- ☐ **D** $m^3$

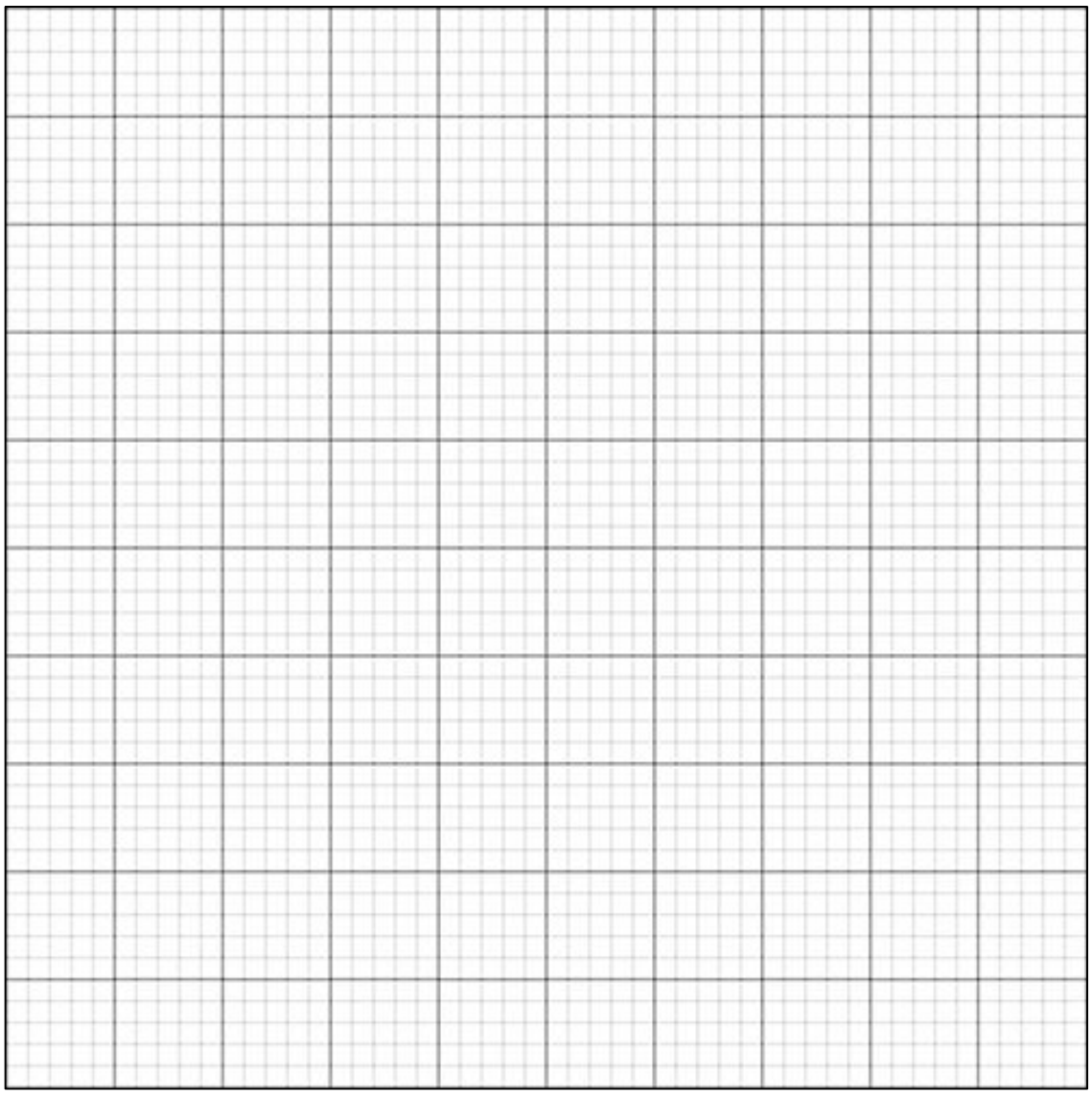
**(f) Calculate the mean and median gradient of the beach.**

Mean gradient = …… °

Median gradient = …… °

**(g) Now draw a scatter graph to show the relationship between the long axis (mm) and beach gradient (°).**

**Add a best-fit line to show the relationship – and don't forget to label both axes.**



**(h) Describe the relationship between sediment size and beach gradient.**

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## Question 4:

### Introduction to question 4

This four-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.

### Question 4

A group of students were asked to help plan their forthcoming fieldwork day investigating the relationship between coastal management and coastal processes shown on Figure 4a. 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 5 possible sites for data collection and
3. decide the methods to be used in gathering data about coastal management, beach morphology (gradient) and sediment characteristics.

They chose a location 35 miles from the school shown below

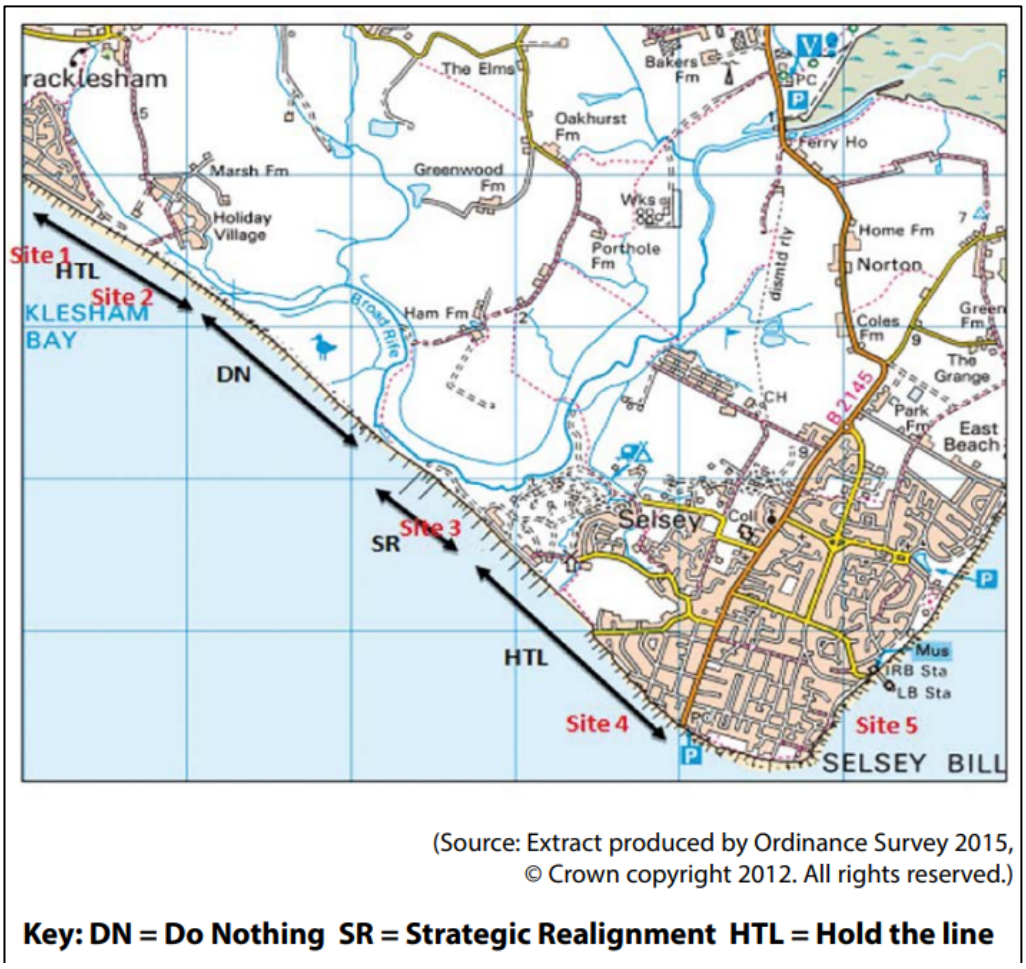


**Figure 4a**

The five sites on Figure 4a were chosen because they cover all three approaches of managing the coastline. It was suggested that the minibus should be parked at the car park closest to site 4.

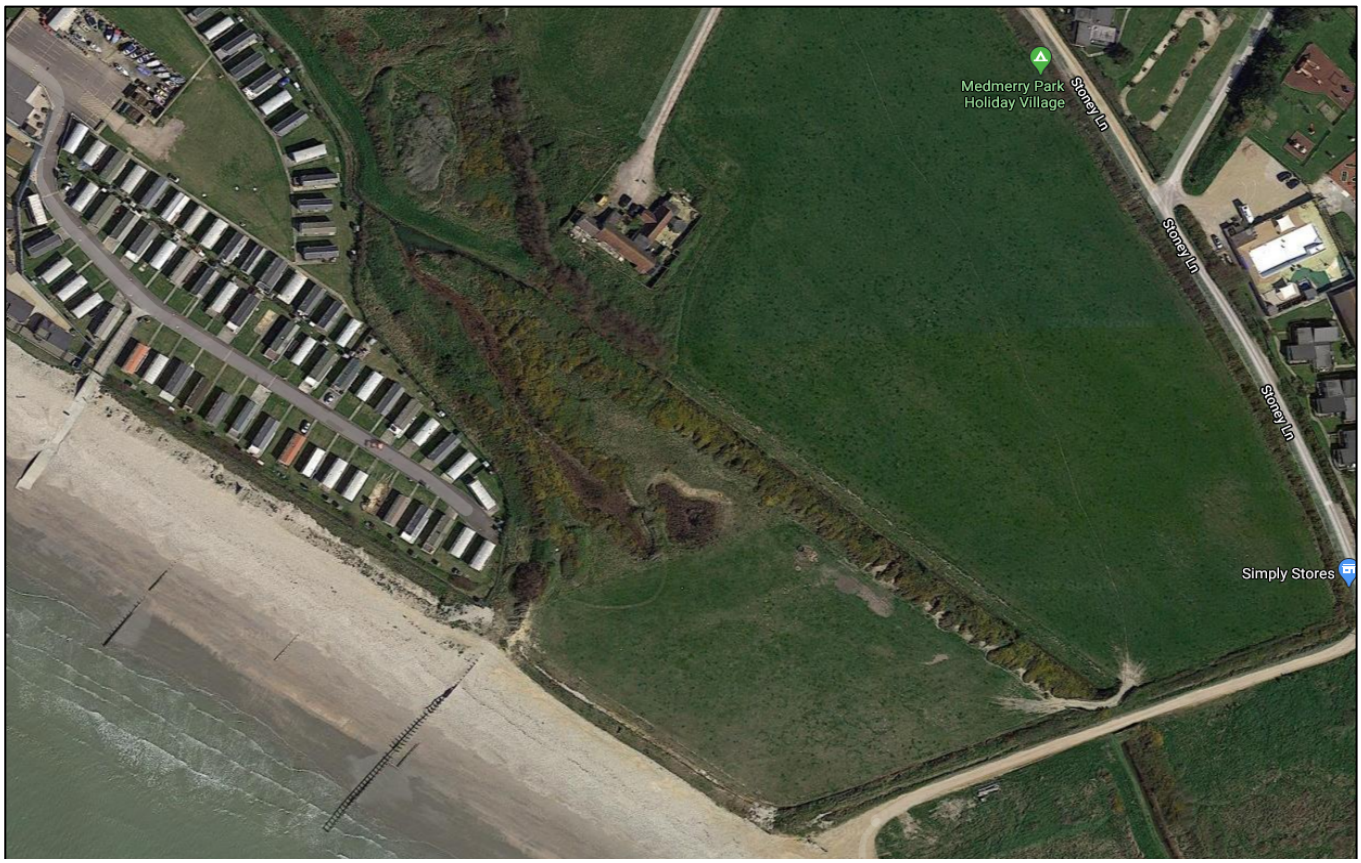


**Figure 4b**

**A Google Maps image of the coastline at Site 2. There are wooden groynes positioned along the beach here to 'hold the line' (prevent further erosion).**

**Figure 4c**

**An aerial photograph of the coastline at Site 3 where a strategic alignment project was completed in 2013.**
**Strategic realignment is an environmental management approach that involves altering the location of the line of defence, working to provide a more sustainable position from which to manage flood and erosion risks.**

**(a) State one possible hypothesis/enquiry question that the students could investigate. (1)**

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**(b) Suggest one way the students could measure beach gradient at these sites. (4)**

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**(c) Explain one qualitative method of collecting data about coastal management at these five sites. (2)**

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**Remember:**

- **Qualitative** = Data without numbers based on people's opinions or ideas, for example an interview or field sketch.
- **Quantitative** = Data which contains numbers and figures, for example measuring the angle of the beach or a wave count.

**(d) Assess the suitability of the choice of sampling sites to investigate the relationship between coastal management and coastal processes. (8)**

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# Appendix 1: Answers to Coastal 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<br>*stage* **2** | Conclusion and Evaluation<br>*stage* **4** | Hypothesis of enquiry question<br>*stage* **1** | Data presentation and analysis<br>*stage* **3** |
| **Q.2. Measuring 'beach morphology' will always include measurements of:** | | | |
| The amount of sea defences on a beach | | The type of rock that is found on a beach | |
| **The shape (gradient) of the beach** | | The sizes of the waves breaking on a beach | |
| **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 beach | |
| **Data that is collected at sites positioned at equal intervals from each other** | | Data that is only collected from one specific section of a beach | |
| **Q.4. Suggest one potential risk of undertaking fieldwork in a coastal location.** | | | |
| **e.g. Rockfalls / slumping from cliffs; Drowning; Stranded by the rising tide; slipping/falling** | | | |
| **Q.5. Which type of erosion process involves beach 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 coastlines:** | | | |
| **Sea wall; groynes; off-shore reef; gabions; rip-rap / rock armour; revetments** | | | |
| **Q.8. Name one type of quantitative fieldwork method that could be used to measure sediment characteristics.** | | | |
| **e.g. using a ruler or callipers to measure the long axis of a pebble** | | | |
| **Q.9. Name one type of qualitative fieldwork method that could be used to investigate a coastal area.** | | | |
| **e.g. field sketch / digital photo to show examples of coastal management at different sites** | | | |
| **Q.10. How might a geology map help you with a coastal investigation?** | | | |
| **e.g. it could help explain why there are different rates of erosion / approaches to coast management along the coastline** | | | |

# 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 – beach gradient angle, site along the beach and geology so the impact on gradient is what this student probably has in mind, but they don't explain that.

## Question 2:

(a) Tide times- these could have been checked in advance or groups could have been split across the beach to conduct the data collection simultaneously; use of ranging poles rather than relying on eye level would have provided a more reliable reference point for the recording of the bearing; the sites could have been pre-selected using systematic sampling – this would ensure the full length of the coast would be investigated.

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

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

(d) The differences in gradient between the sites is very small – $3^{o}$ between Site 1 and Site 6. 'Taking averages' will not avoid the problem of inaccuracy and because different students took the measurements the results may not be accurate.

## Question 3:

(a) Stratified sampling

(b) The students could have chosen a different method i.e. random or systematic sampling; the students could have used a map / GIS resource instead / in addition to the photograph so that they had more accurate information about the study location before selecting their sampling sites.

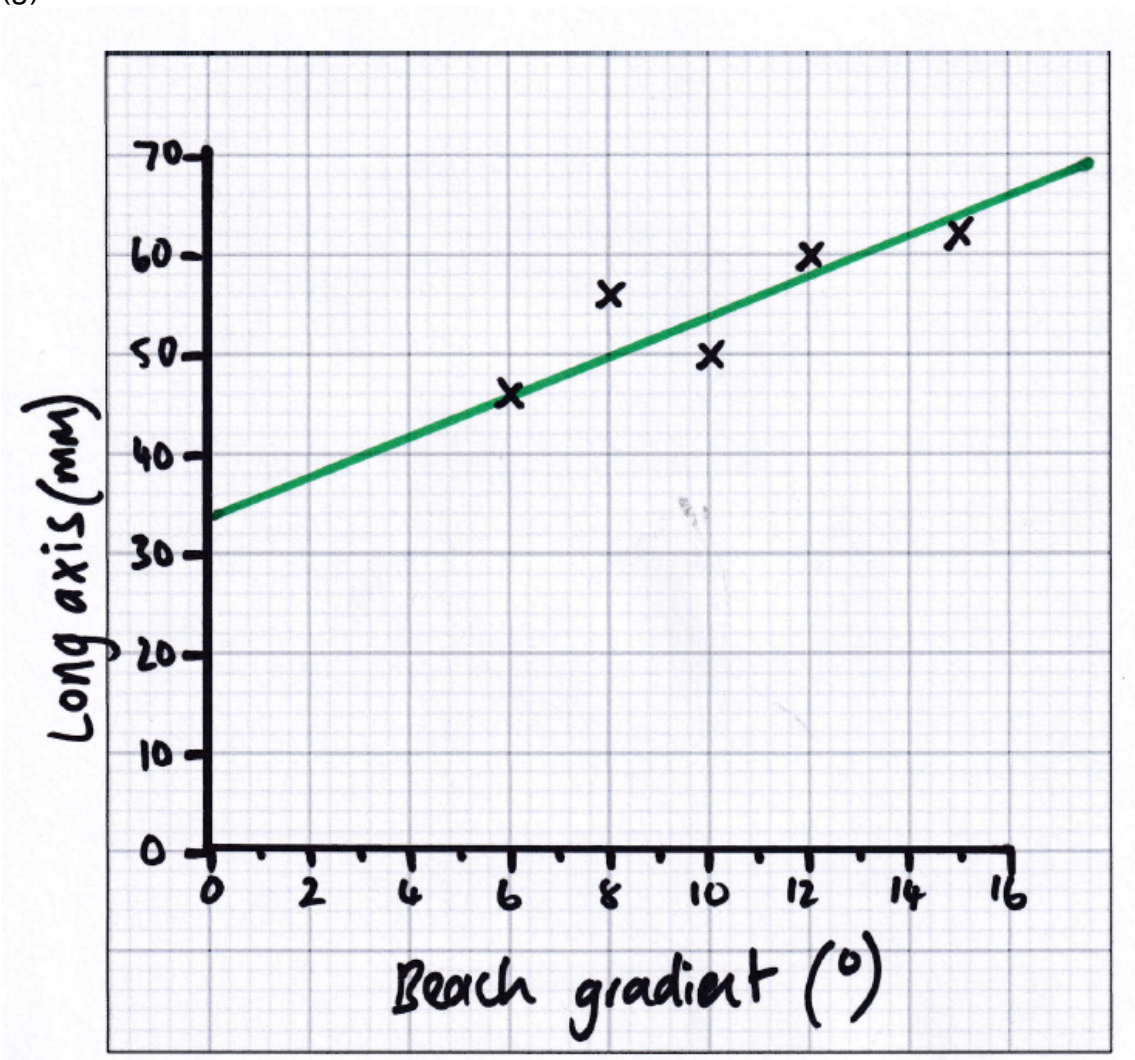
(c) They could use other students to help hold down the tape; place stones on the tape; use of a ruler/chain; measure and pace the distance.

(d) clinometer; smartphone app; pantometer

(e) **B** ◦

(f) Mean = 10.2; Median = 10

(g)




(h) Positive relationship: sediment size increases as the beach gradient increases (becomes steeper).

## Question 4:

(a) possible examples of a hypothesis / enquiry question include:

- The beach gradient increases as sediment size increases (1)
- Sediment size decreases as sediment shape becomes more rounded (1)
- The beach profile will be longer where there is more evidence of hard engineering (1)
- Areas of coastline with a greater economic value will have more evidence of coastal management (1)
- The beach gradient will increase / become steeper from west to east (1)

(b) This is a 4-mark 'suggest **one**…' question which means that you need to sustain a chain / sequence of statements. For example:

- One student stands at a safe distance from the edge of the sea holding a ranging pole and another student holds a second ranging pole further up the beach where there is a break of slope (1) the distance between the two ranging poles is measured using a tape measure (1) the angle between matching markers on each ranging pole is measured using a clinometer (1) and this process is repeated at each break of slope until the top of the beach is reached (1).

(c) **Remember:**

- **Qualitative** = Data without numbers based on people's opinions or ideas, for example an interview or field sketch.
- **Quantitative** = Data which contains numbers and figures, for example a pedestrian count.

Therefore, possible answers for this question could be:

- Students could take a digital photo of the coastal management at each site (1) and the use an app (e.g. Twitch) to annotate it to show how management varies between each site / how effective the management appears to be (1).
- Students could interview different stakeholders (1) and ask them questions about how effective they think the coastal defences have been and why (1).
- Students could draw a field sketch at each sampling site (1) and add labels or annotations to identify types of coastal management – and whether it looks like it is effective or not (1).

(d) **AO3 (4 marks)/AO4 (4 marks)**

**AO3**

- Sites 1, 4 and 3 are appropriate because they cover stretches of coastline where the coastal management policy is different so students will be able to compare the relational between coastal management and coastal processes.
- The findings and conclusions of the investigation may be incomplete or inaccurate because all sites are located along stretches of coastline that are being managed by hold the line/strategic realignment/construction of groynes.
- Students will not be able to compare stretches of coastline that are being managed with stretches that are not being managed, e.g. the nature reserve where the policy is to do nothing.
- There is no evidence of a sampling strategy so findings and conclusions may be inaccurate or invalid.
- Site 5 is not appropriate because it is on the other side of the headland/located where the coastline changes direction, which means the conditions may be different, e.g. prevailing wind and wave direction and this may result in inaccurate findings.

**AO4**

- Sites 1–4 cover stretches of coastline where the policy is to hold the line and strategic realignment.
- Sites are predominantly located in built-up areas such as Selsey that are used for tourism, e.g. caravan site, camping, and holiday village.
- Sites 1–4 cover stretches of coastline where groynes have been constructed.
- Sites 1 and 2 are located close together.
- The sites do not cover a large area south of the holiday village, it has a different land use and is used as a nature reserve.
- Sites do not cover the full range of coastal management policies, e.g. do nothing.
- Site 5 is located on the other side of the headland.

**NB: The generic level descriptors for all 'assess' questions is shown on the next page:**

| Level | Mark | Descriptor |
|---|---|---|
| | 0 | No acceptable response. |
| Level 1 | 1–3 | • 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 are supported by limited evidence. (AO3)<br>• Few aspects of the enquiry process are supported by the use of geographical skills to obtain information, which has limited relevance and accuracy. Communicates generic fieldwork findings and uses limited relevant geographical terminology. (AO4) |
| Level 2 | 4–6 | • 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)<br>• Some aspects of the enquiry process are supported by the use of geographical skills. Communicates fieldwork findings with some clarity, using relevant geographical terminology occasionally. (AO4) |
| Level 3 | 7–8 | • 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)<br>• All aspects of the enquiry process are supported by the use of geographical skills. Communicates enquiry-specific fieldwork findings with clarity and uses relevant geographical terminology consistently. (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