

GEOGRAPHICAL SKILLS AND FIELDWORK

OCR GCSE (9–1)

GEOGRAPHY A AND B



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★ Learning objective

- To study choropleth maps.

★ Learning outcomes

- To be able to draw choropleth maps.
- To be able to describe and explain the patterns that choropleth maps show.
- To be able to suggest appropriate uses of choropleth maps.

Choropleth maps

What is a choropleth map?

A choropleth map is a map that is shaded according to a prearranged key, each shading or colour representing a range of values. The colours should become darker as the numbers increase. There are some inaccuracies in using this technique; one of these is that variations within units are concealed. It also gives a false impression of abrupt changes at boundaries. However, choropleth maps are easy to complete and show a good visual impression of change over space.

How to draw a choropleth map for average precipitation in the UK

- Obtain a base map of the UK.
- Find the range of your values and devise a shading scale.
- You should try to have no fewer than four shading bands and no more than eight.
- The shading should get darker as the value gets higher.
- Complete the map by shading in the areas.
- Draw a key for the map.
- Don't forget to put a title on your map.

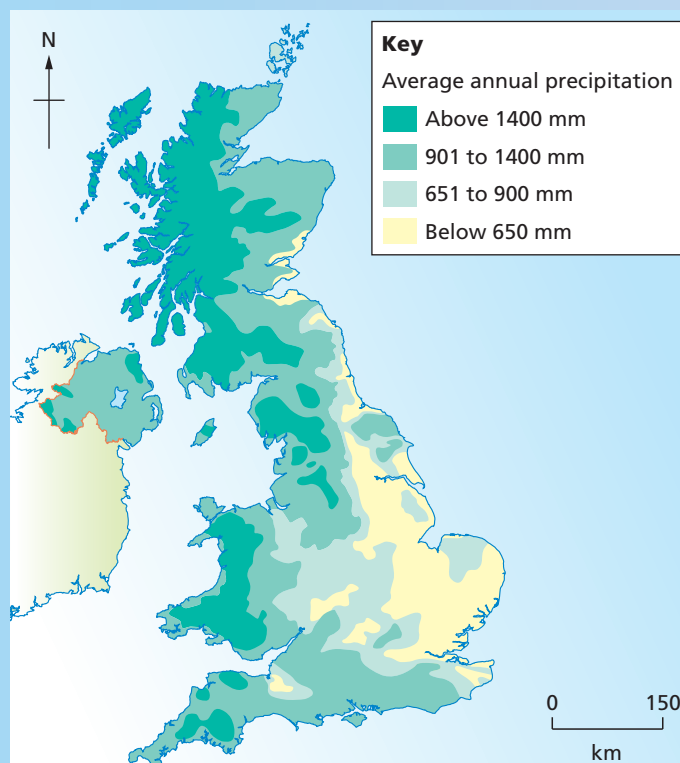


Figure 29 UK rainfall

ACTIVITIES



- 1 Draw a choropleth map for the information on the top ten tourist destinations in 2009, shown in the table. Use the 'how to' box on page 32 to help you.

Destination	Tourist arrivals (millions)
France	81.9
Spain	59.2
USA	56.0
China	54.7
Italy	43.7
UK	30.7
Germany	24.4
Ukraine	23.1
Turkey	22.2
Mexico	21.4

- 2 Describe the pattern shown by the map.
- 3 A choropleth map is one way that this data could be displayed. Suggest two advantages and two disadvantages of using a choropleth map for this data.
- 4 Suggest and complete another sophisticated data presentation technique that could have been used to display the data.
- 5 State one way that this technique is more appropriate than a choropleth map and one way that it is less appropriate than a choropleth map.
- 6 A technique for displaying this data would be a histogram. Why would a histogram be drawn rather than a bar chart?

STRETCH AND CHALLENGE



Use the data in the table below to draw a choropleth map of the source countries of migrants to the UK from Eastern European countries between 2004 and 2006.

Country	Number of migrants (thousands)
Czech Republic	25
Estonia	10
Hungary	20
Latvia	28
Lithuania	55
Poland	260
Slovakia	40
Slovenia	5



Exam Tip

Questions could be set on completing a choropleth map and a key. Therefore, be sure that you understand the rules for a successful choropleth map.

REVIEW

By the end of this section you should be able to:

- ✓ draw choropleth maps
- ✓ describe and explain the patterns that choropleth maps show
- ✓ use choropleth maps appropriately.

Scatter graphs

What is a scatter graph?

A scatter graph can be used to show whether there is a relationship (link) between two sets of data. The pattern of the points describes the relationship. After plotting the points, a line known as a best-fit line should be drawn on the graph. This line will indicate the strength of the relationship (correlation) between the two variables (data sets). The pattern will show a positive or negative correlation or no correlation at all. Study the graphs in Figure 16, which show scatter graphs with different correlations.

★ Learning objective

– To study scatter graphs.

★ Learning outcomes

- To be able to construct a scatter graph.
- To be able to explain the patterns shown on a scatter graph.
- To be able to suggest appropriate uses of scatter graphs.

How to draw a scatter graph to show whether there is a graphical correlation between the width and depth of a river as it moves from its source (site 1) towards its mouth (site 10)

- Decide which is the independent variable and which is the dependent variable. For these two sets of data, there are no independent or dependent variables. However, if you were plotting how depth changes with distance from the source, the distance from the source would be the independent variable and the depth would be the dependent variable.
- Decide on an appropriate scale on the x-axis for the width measurements. Remember, the scale should be spaced out evenly and allow for the highest value in the data set. In this case, ten squares on the graph paper equals 1 metre.
- Decide on an appropriate scale on the y-axis for the depth measurements. Remember, the scale should be spaced out evenly and allow for the highest value in the data set. In this case, five squares on the graph paper equals 10 cm.
- Plot the measurements for each of the sites onto the graph, labelling each site with the correct number.
- Draw a line of best-fit. This is a straight line through the middle of the points that you have plotted.
- Compare the pattern with the standard patterns for the different types of correlations shown in Figure 15.
- What type of correlation have you plotted?
- Explain what this means.

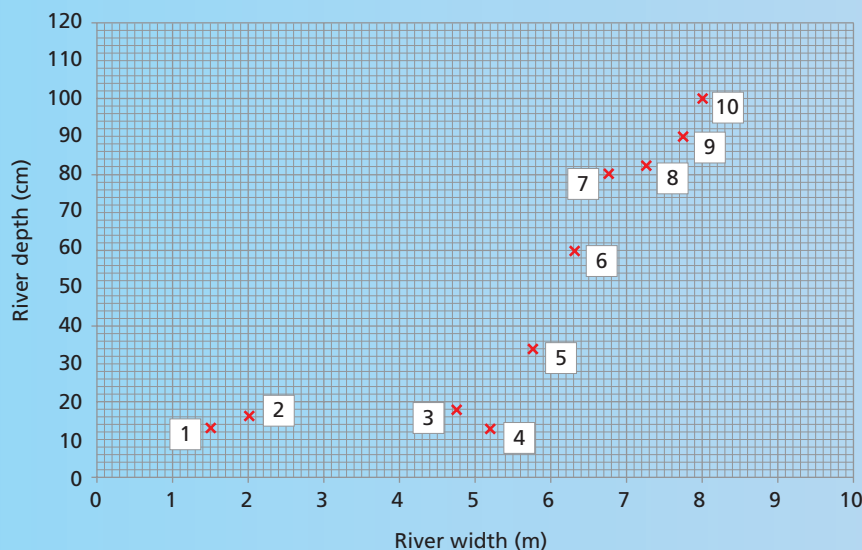


Figure 14 A scatter graph of river width and river depth

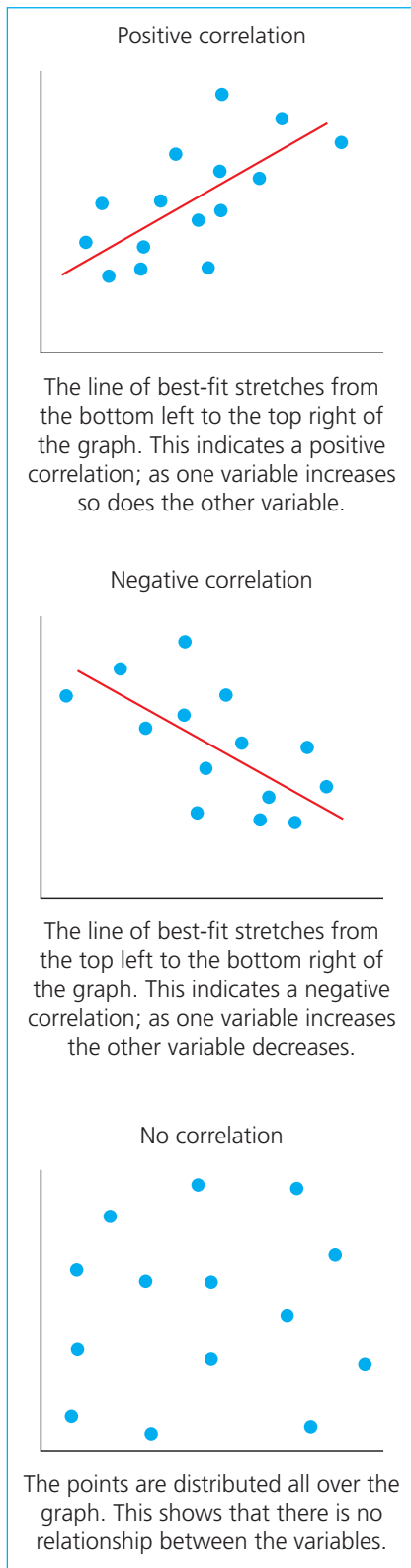


Figure 15 Scatter graphs with different correlations

ACTIVITIES

- 1 Draw a scatter graph for the data below. Use the 'how to' box opposite to help you.

Country	Domestic water usage (%)	GDP (\$)
China	12	5,000
Australia	15	29,000
Japan	20	30,000
Thailand	9	7,400
Korea	14	17,700
India	6	2,900
Indonesia	8	3,200
Russia	19	9,000
Turkey	15	6,700
New Zealand	48	21,600
Uzbekistan	5	1,700
Malaysia	17	8,500
Sri Lanka	4	3,700
Algeria	25	5,900
Aghanistan	3	700
Sierra Leone	2	500
USA	17	37,800

- 2 Is there a correlation? What is its nature?
- 3 Points that are well away from the line of best-fit are known as residuals or anomalies. Are there any residuals or anomalies? If so, circle them on your graph.
- 4 Describe and give reasons for the pattern that is shown by the graph.

STRETCH AND CHALLENGE

Another way to test for a relationship between sets of data is to use a statistical technique such as Spearman's rank correlation coefficient. Test the statistical correlation between the data given in question 1 using Spearman's test. Information on how to complete this statistical technique can be found in the Stretch and Challenge section in Chapter 3 on page 65.

REVIEW

By the end of this section you should be able to:

- ✓ construct a scatter graph
- ✓ explain the patterns shown on a scatter graph
- ✓ suggest appropriate uses of scatter graphs.

Exam Tip

Remember to always state the type of correlation and explain what it means.

4 Geographical enquiry skills

★ Learning objective

– to study geographical fieldwork skills.

★ Learning outcomes

- To be able to identify questions and sequences of enquiry.
- To be able to design fieldwork data-collection sheets and collect data with an understanding of accuracy, sample size and procedures, control groups and reliability.
- To understand the range of techniques and methods used in fieldwork including observation and different types of measurement.
- To understand how to process and present fieldwork data in various ways.
- To be able to analyse and explain data using knowledge of relevant geographical case studies and theories.
- To be able to write evidenced conclusions from fieldwork notes and data.
- To be able to reflect critically on fieldwork data, methods used, conclusion drawn and knowledge gained.

Geographical enquiry, literacy and ICT skills

Geographical enquiry and ICT skills will be examined on Paper 3 of the examination but they could also appear in either of the other two papers. You will need to be able to show your understanding of the processes involved in carrying out a geographical enquiry. You will not be expected to have access to a computer in the exam, but may have to show your understanding of the principles and use of ICT in geographical enquiries. Questions could be asked on how to extract information from the internet or how to use databases such as the census.

Identify questions

All geography students should be able to identify geographical questions. For example, if you look at a particular location, the questions you should be asking yourself are:

- What is the landscape like?
- What are the features that stand out?
- Where is this place – grid references?
- What is the area around it like?
- Why is it like it is?
- What is happening to certain variables?

From asking geographical questions, you should be able to form hypotheses on which a piece of work could be focused. A hypothesis is a statement that can be tested. In an exam question, you might be asked to formulate hypotheses or questions from a sample of information.

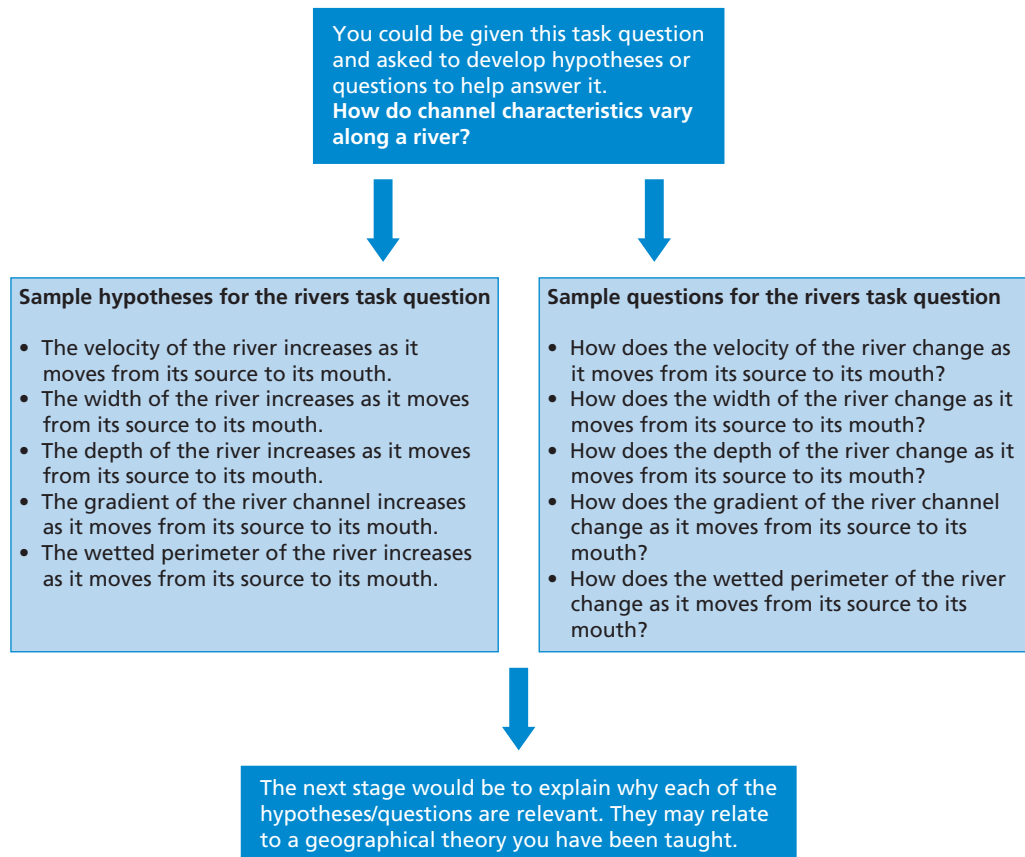
A geographical issue is a debatable point. For example, should a wind farm be located in a particular place? Questions such as the following could then be asked:

- What will be the impact on the environment?
- What will be the impact on local people?
- Are the climatic conditions correct?

Hypotheses could be set up and tested, or questions could be set and answered, but it is unlikely that a clear answer will be determined because so many different viewpoints are involved. Issues usually require candidates to make judgements from inconclusive data or evidence.

Whether you are studying a geographical question, hypothesis or issue, you should be able to explain why you are studying it and the results you expect to find out.

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Establish sequences of enquiry

Exam Tip

It is a good idea to use hypotheses rather than questions because often hypotheses are easier to answer.

All geographers should be able to establish a sequence of enquiry. This is sometimes called a road map. What it means is planning out how you will complete your investigation. You must establish what you need to do to answer your task question and the techniques you will need to complete to derive the data you require. You also need to plan when you will be doing each stage of the enquiry and set yourself deadlines. When you write up your study, it should be in the same sequence with each section in a different chapter. There should be good linkage between the chapters, which shows the sequence of the enquiry.

You could be asked to plan the sequence of a geographical enquiry.

A brief sample road map for a river study

Planning stage:	location and hypotheses/questions
Data collection:	when should I go on my field trip? what techniques should I use?
Data presentation:	what techniques shall I use?
Analysis:	explaining my results
Conclusions:	answering my questions
Evaluation:	what was the value of my study? how successful were my techniques?