GradeMax

Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

7690031369

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet.
The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.2, 1.3 and Table 1.1 for Question 1, and Figs. 2.1, 2.2, 2.3, 2.4 and 2.6 and Tables 2.2 and 2.3 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **17** printed pages, **3** blank pages and **1** Insert.

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1 A class of students did fieldwork in their town. They wanted to find out where the boundary of the CBD was located. They had learned in class that this is known as 'delimiting' the CBD. They discussed with their teacher several fieldwork methods they could use to delimit the CBD. One group of students also investigated the quality of shops in and around the CBD.

(a) What does CBD stand for?

C ..... B ..... D ..... [1]

The students decided to test the following hypotheses.

Hypothesis 1: *Different methods of delimiting the CBD produce the same result.*

Hypothesis 2: *The shopping environment in and around the CBD varies.*

(b) The students used the following methods to test **Hypothesis 1**:

- pedestrian counts
- survey of building heights
- survey of traffic restrictions (controls)

(i) The students did pedestrian counts at 30 sites around the town centre.
In the space below, draw a recording sheet the students could have used at each site.

[3]

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(ii) Describe an appropriate method to ensure the students obtained reliable results from the pedestrian count.

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..... [4]

The results of the pedestrian count are shown in Fig. 1.1 below. Isolines have been drawn on the map to show the variation in the number of pedestrians.

(iii) On Fig. 1.1, **complete the isoline** that shows 200 pedestrians. [2]

Results of pedestrian count

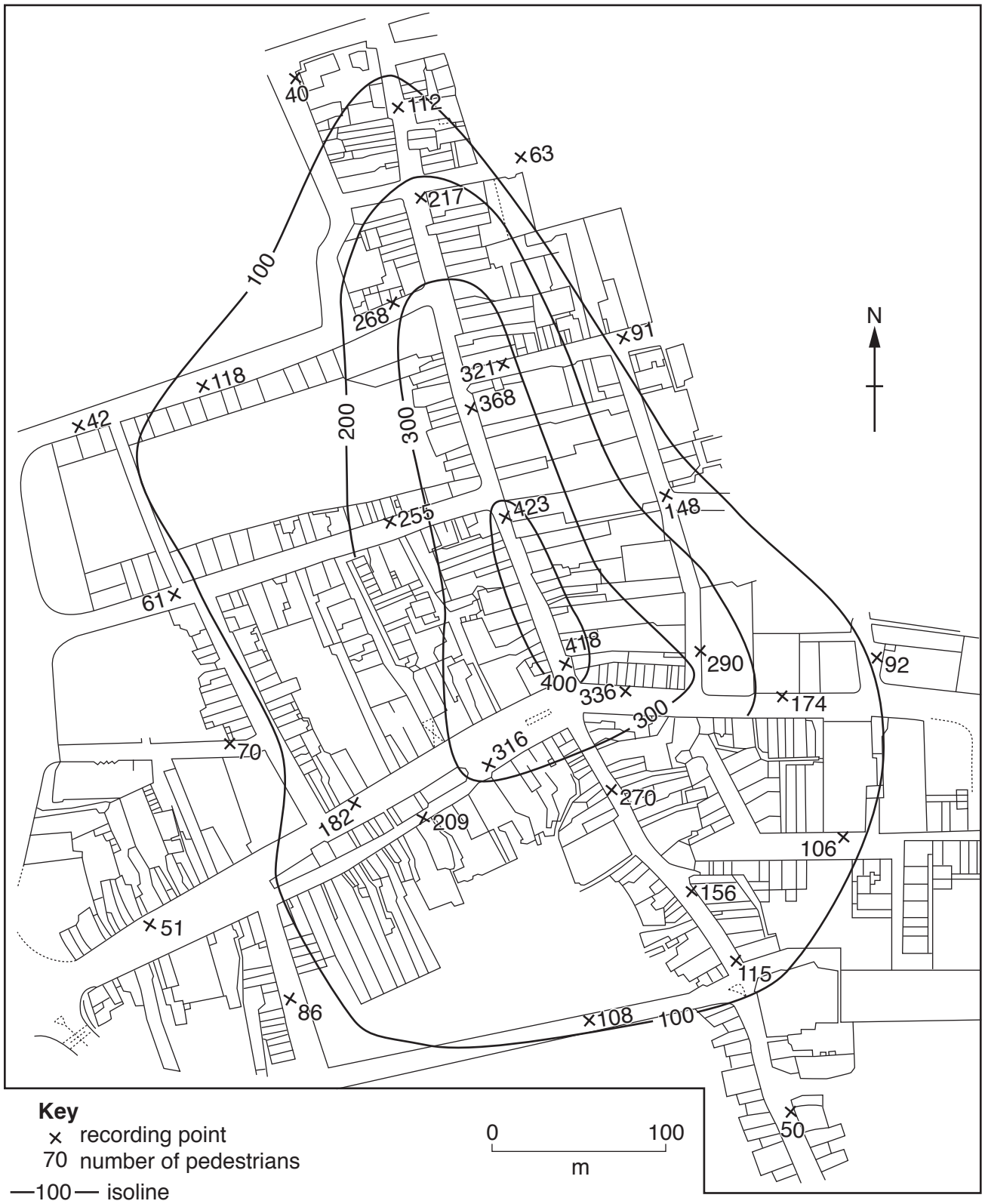


Fig. 1.1

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(c) To collect data about the height of buildings the students selected five buildings at each of the pedestrian count sites. They then counted the number of storeys of each building and calculated an average.
Give **one** advantage and **one** disadvantage of this method of working out the height of buildings.

Advantage

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Disadvantage

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..... [2]

(d) The students marked on a map of the town two examples of traffic restrictions (controls) which they saw. These were a pedestrianised area and an area where there was restricted vehicle access. Give **three** other examples of traffic restrictions they could have recorded.

1 .....

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2 .....

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3 .....

..... [3]

(e) Having completed their data collection for **Hypothesis 1** the students decided to use the following criteria to delimit the area of the CBD:

- more than 300 pedestrians
- buildings which are 3 or more storeys high
- any traffic restrictions

Using these criteria, the students located possible boundaries of the CBD. These are shown on Fig. 1.2 (Insert).
The students decided that **Hypothesis 1:** *Different methods of delimiting the CBD produce the same result*, was **false**.
Give **two** pieces of evidence from Fig. 1.2 (Insert) to support this decision.

1 .....

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2 .....

..... [2]

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(f) Another group of students chose a different fieldwork method to delimit the CBD. They drew a land use map of the town centre and using this map they decided where the boundary of the CBD was.
Describe how they would carry out these tasks.

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..... [3]

(g) To investigate **Hypothesis 2:** *The shopping environment in and around the CBD varies*, the students did a survey using the shopping environment index shown in Fig. 1.3 (Insert).

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(i) The results of the survey are shown in Table 1.1 (Insert). **Draw the bar** to show the shopping index score at site 12 in Fig. 1.4 below. [1]

Results of shopping environment survey

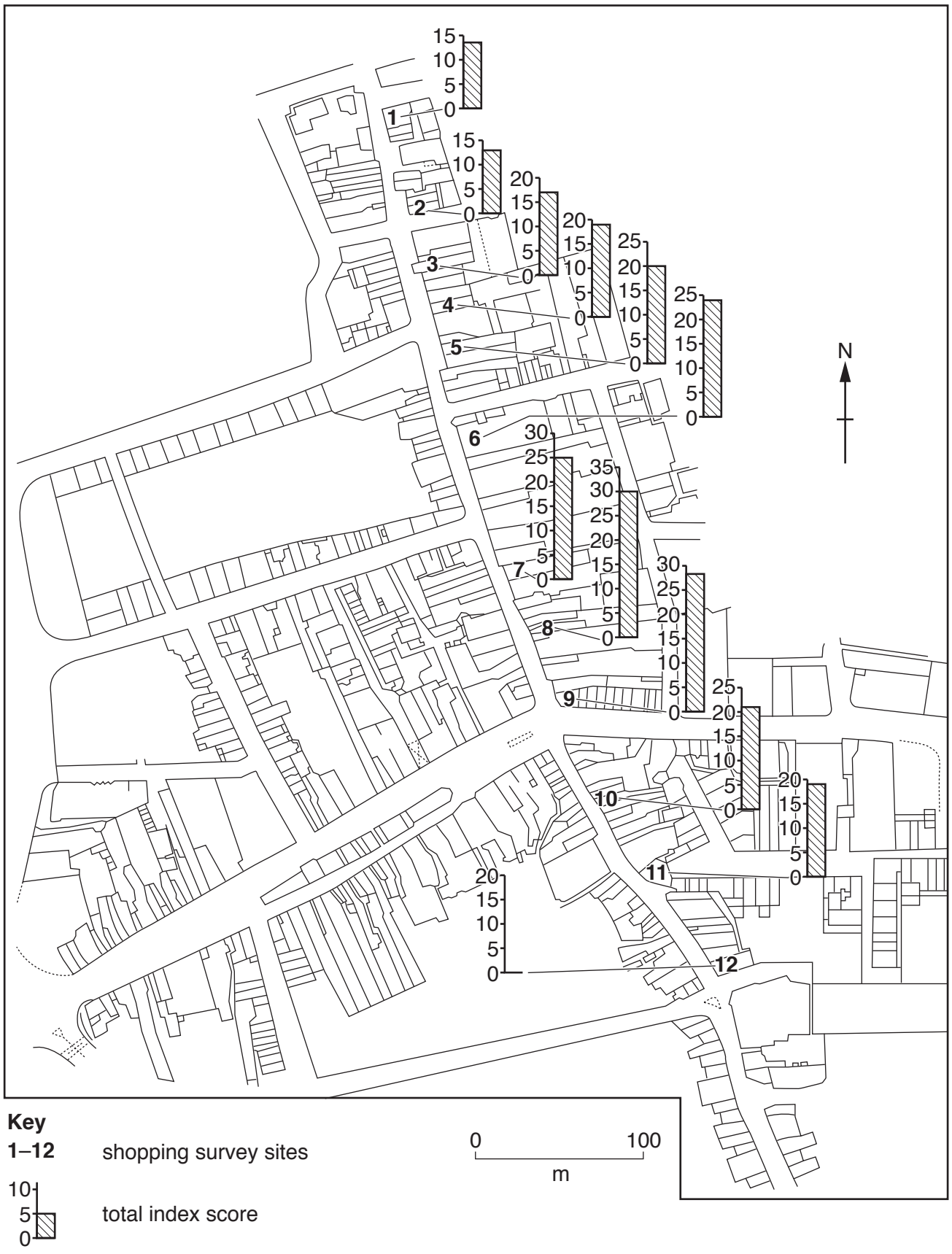


Fig. 1.4

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(ii) What conclusion would the students make about **Hypothesis 2:** *The shopping environment in and around the CBD varies*? Support your decision with evidence from Fig. 1.4 and Table 1.1 (Insert).

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(iii) Suggest **two** ways that the students could have improved the reliability of their shopping environment survey.

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2 .....

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(h) After they completed their fieldwork the students discussed with their teacher how the CBD of a town changes over time. Suggest **three** ways that a CBD might change.

1 .....

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2 .....

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3 .....

..... [3]

[Total: 30]

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2 Students carried out fieldwork at a popular tourist beach in south east England. The cliffs behind the beach are being eroded by the sea, especially where they are unprotected. The area is shown in Fig. 2.1 (Insert).

(a) Before they began their fieldwork, the students assessed the possible hazards they may come across and how to manage them. Their decisions are shown in Table 2.1 below.

Table 2.1

Risk assessment

Hazard	Likelihood	Severity	Risk	Management
Slipping, tripping or falling	4	2	8	Wear suitable footwear and avoid slippery surfaces
Cliff collapse	2	5	10	
Drowning in the sea	1	5	5	Beware of sea currents and do not go into the sea when it is rough
Hypothermia from getting cold and wet	4	3	12	
Sharp pebbles or objects	3	3	9	Be careful when handling objects and do not throw pebbles
Getting lost or isolated	2	3	6	

Likelihood of encountering hazard: 1 (little chance) to 5 (greatest chance)
Severity of hazard: 1 (not likely to be dangerous) to 5 (very dangerous)
Risk = likelihood of encountering hazard × severity of hazard

(i) Which **one** of the possible hazards did the students think was the greatest risk?

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(ii) Suggest different ways to reduce the risk of each of the following hazards during fieldwork:

Cliff collapse

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Hypothermia from getting cold and wet

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Getting lost or isolated

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..... [3]

(b) The cliffs at **X** shown in Fig. 2.1 are being eroded by the sea at a rate of two metres per year.

(i) Use arrows to match the processes of sea erosion with the correct definitions in the table below. One has been completed for you.

Process	Definition
Attrition	Particles carried by the waves are thrown at the cliffs and erode them
Corrasion (abrasion)	Acids in the sea water dissolve chalk and limestone cliffs
Hydraulic action	Waves trap and compress air in cracks in the cliff which causes the rocks to break apart
Solution (corrosion)	Particles carried by the waves crash against each other and are broken up

[2]

(ii) Explain why erosion is taking place at **X** but not at **Y** (shown in Fig. 2.1).

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..... [3]

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The students tested the following hypotheses through fieldwork at two areas of the coast shown in Fig. 2.1:

Hypothesis 1: *The beach profile is steeper than the wave-cut platform profile.*

Hypothesis 2: *Infiltration is faster on the beach than on the wave-cut platform.*

(c) To investigate **Hypothesis 1**, the students measured the profile of the beach and the profile of the wave-cut platform. Fig. 2.2 (Insert) shows a student doing this task.

(i) Describe how the students would measure the profile.

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(ii) The students used the results to draw the two profiles shown in Fig. 2.3 (Insert).

What conclusion would the students make about **Hypothesis 1:** *The beach profile is steeper than the wave-cut platform profile*? Use evidence from Fig. 2.3 to support your decision.

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..... [3]

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(d) To investigate **Hypothesis 2:** *Infiltration is faster on the beach than on the wave-cut platform*, the students measured the rate at which water infiltrated (soaked into) the ground. Their method is described in Fig. 2.4 (Insert).

(i) The students made their measurements at four points (A–D) along each profile from the sea to the cliff. To make their results reliable they measured infiltration three times at each point. Their results are shown in Table 2.2 (Insert).
On Fig. 2.5 below **plot the results** of measurement 3 at points A and B along the beach profile. [2]

Results of infiltration measurements

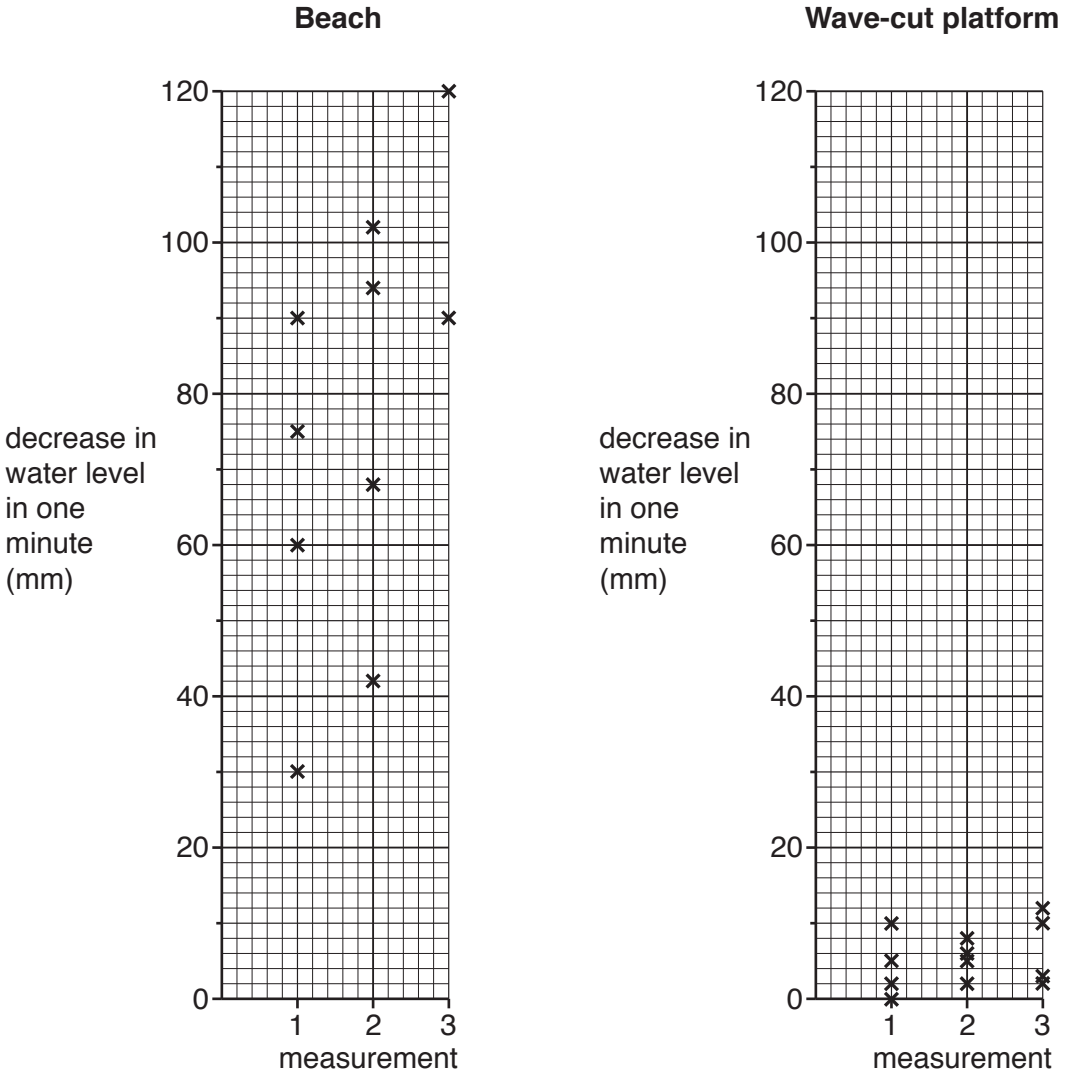


Fig. 2.5

(ii) What conclusion would the students make about **Hypothesis 2:** *Infiltration is faster on the beach than on the wave-cut platform*? Tick your decision below

Conclusion	Tick (✓)
Hypothesis 2 is correct	
Hypothesis 2 is partially correct	
Hypothesis 2 is incorrect	

[1]

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(iii) Use evidence from Fig. 2.5 and Table 2.2 to support your conclusion to **(d)(ii)**.

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..... [2]

(iv) Which **one** of the following pairs correctly explains the difference between the infiltration times on the beach and the wave-cut platform? Look at Fig. 2.1 (Insert) to help you to answer.

		Tick (✓) your choice
Groynes prevent longshore drift so sand and shingle build up a beach which water infiltrates through quickly.	The wave-cut platform made of clay is at the surface due to the removal of beach material, and water infiltrates slowly.	
The beach material is clay which slows water infiltration through the wave-cut platform.	The sand and shingle beach material forms a steep slope which increases infiltration.	
The wave-cut platform is uncovered and water quickly infiltrates into the ground.	The beach builds up behind groynes and prevents infiltration.	

[1]

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(e) The students wanted to find out what people thought about coastal protection in the area. They produced a questionnaire which is shown in Fig. 2.6 (Insert).

The results of the questionnaire are shown in Table 2.3 (Insert).

(i) Use the results of Question 4 to **complete the divided bar graph** in Fig. 2.7 below. [2]

Answers to Question 4: Which one of these protection methods would you prefer to be used?

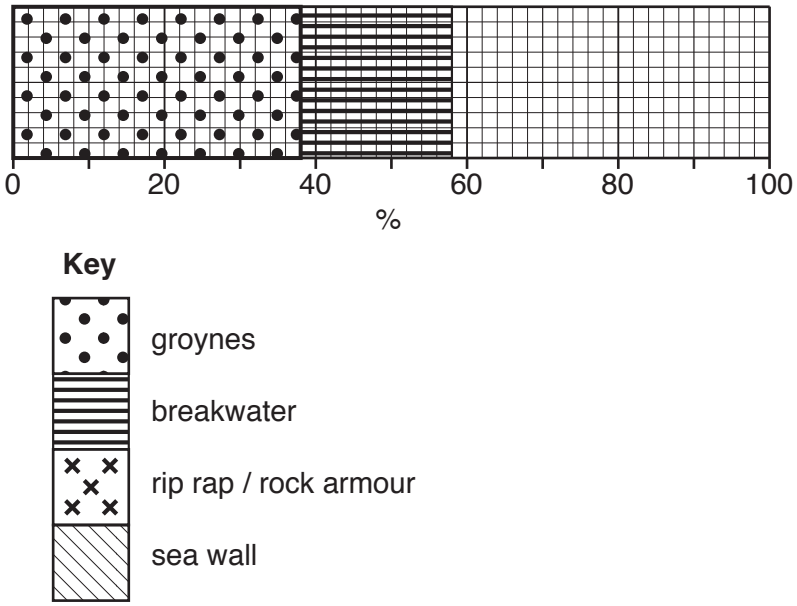


Fig. 2.7

(ii) Use the results of Question 5 to **complete the pie graph** in Fig. 2.8 below. [2]

Answers to Question 5: Who do you think should pay for the protection work?

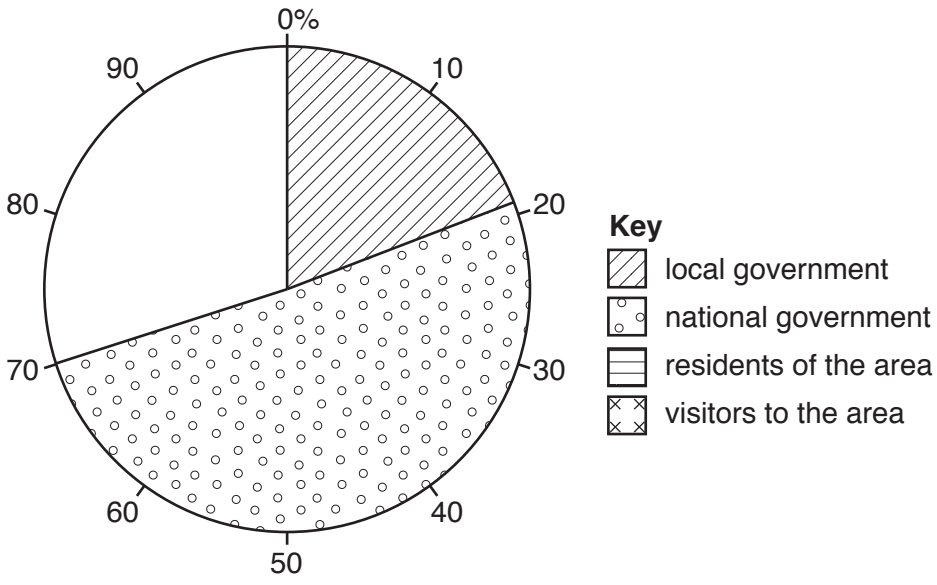


Fig. 2.8

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(iii) Write a report about coastal protection based on what the students found out from their questionnaire.
Refer to the results in Table 2.3 but do **not** copy them out.

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[Total: 30]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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