Cambridge Assessment International Education

Cambridge O Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

6633439132

GEOGRAPHY **2217/32**

Paper 3 Geographical Investigations **October/November 2022**

1 hour 30 minutes

You must answer on the question paper.

You will need: Insert (enclosed)
Calculator
Protractor
Ruler

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined pages at the end of this booklet; the question number or numbers must be clearly shown.

INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].
- The insert contains additional resources referred to in the questions.

This document has **16** pages. Any blank pages are indicated.

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1 Students in Nairobi, the capital city of Kenya, Africa, were studying population migration. They did a fieldwork investigation about international migration **into** their country.

(a) **(i)** Define *international migration*.

.....

..... [1]

(ii) The students wanted to find out about **pull** factors that affect migration. Explain what is meant by **pull** factors.

.....

..... [1]

(b) The students did a questionnaire survey with 100 migrants to Kenya.

(i) The students used a sampling method where they asked every tenth person who walked past them to complete their questionnaire. What is this method of sampling called?

..... [1]

(ii) The students realised that not every person they selected would answer their questionnaire. Suggest **three** reasons why this might happen.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(c) The students' questionnaire is shown in Fig. 1.1 (Insert).
Suggest **two** answers migrants gave to question 1 in the questionnaire (*Why did you migrate to Kenya?*).

1 .....

.....

2 .....

..... [2]

The students decided to investigate different hypotheses using their questionnaire. One student chose to test the following hypotheses:

Hypothesis 1: *Most migrants to Kenya came from countries in Africa.*

Hypothesis 2: *The main problems faced by migrants to Kenya vary in importance between different groups of migrants.*

(d) The answers to question 2 in the questionnaire (*Which country did you migrate from when you came to Kenya?*) are shown in Table 1.1 (Insert).

(i) Use the results to **plot the number of people migrating from Ethiopia and India** in Fig. 1.2. [2]

Countries which migrants to Kenya came from

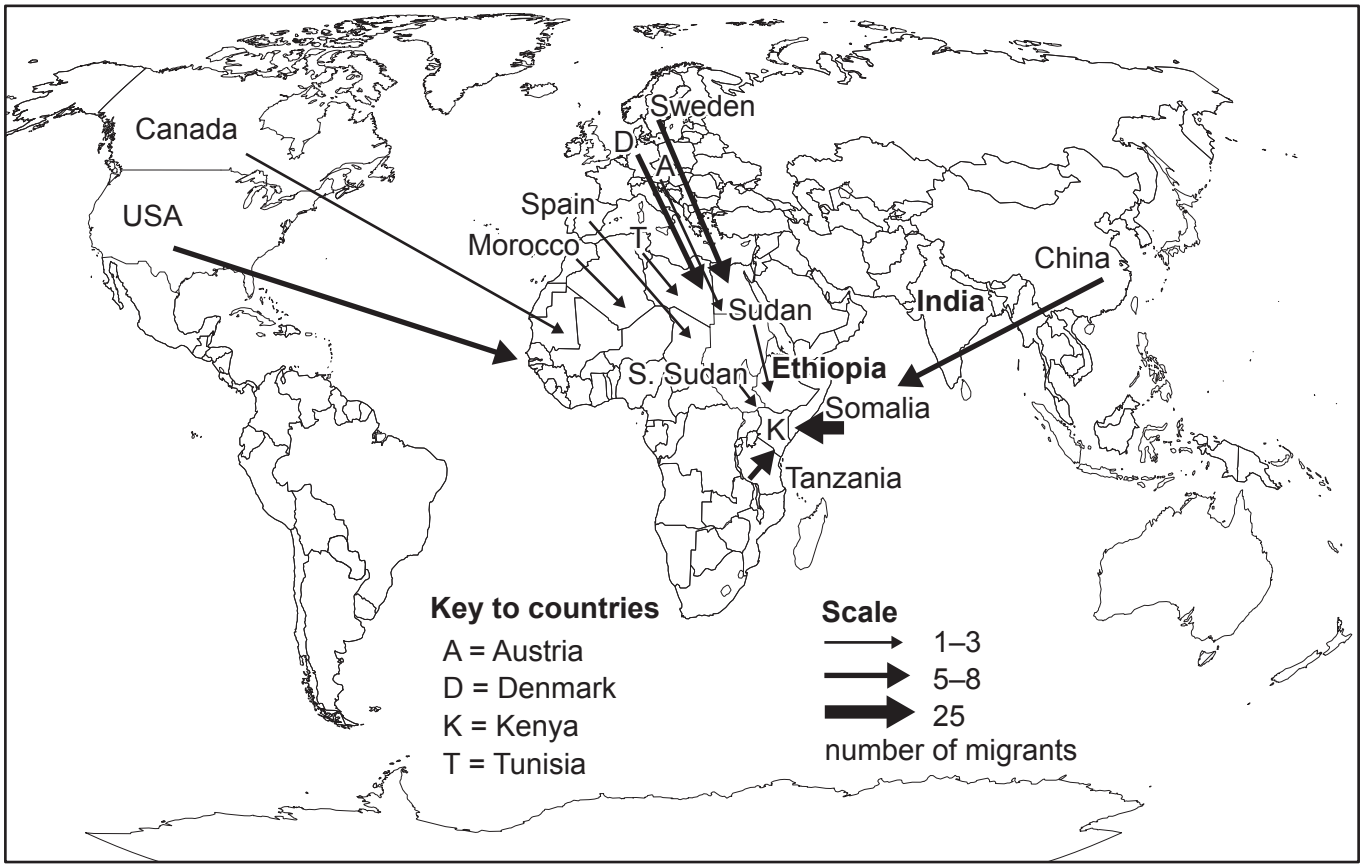

Fig. 1.2

(ii) Why is the flow line map an appropriate method to show the results to question 2 in the questionnaire?

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..... [2]

(iii) What conclusion would the student make about **Hypothesis 1:** *Most migrants to Kenya came from countries in Africa*? Support your answer with evidence from Fig. 1.2 and Table 1.1.

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..... [2]

(e) To investigate **Hypothesis 2:** *The main problems faced by migrants to Kenya vary in importance between different groups of migrants*, the student divided the migrants into four groups based on the countries they migrated from.

(i) Table 1.2 (Insert) shows the results of question 3 in the questionnaire (*What is the main problem of living in Nairobi?*).
Under which problem shown in Table 1.2 would the following answers be included?

1. Robberies and attacks seem to happen every day.

   Problem .....

   .....

2. I am often delayed on my way to work.

   Problem .....

   .....

3. It is difficult having different religious beliefs to most people.

   Problem .....

   ..... [3]

(ii) Use the results from Table 1.2 to **complete the pie graph** in Fig. 1.3 for migrants coming from India. [3]

Main problems of living in Nairobi

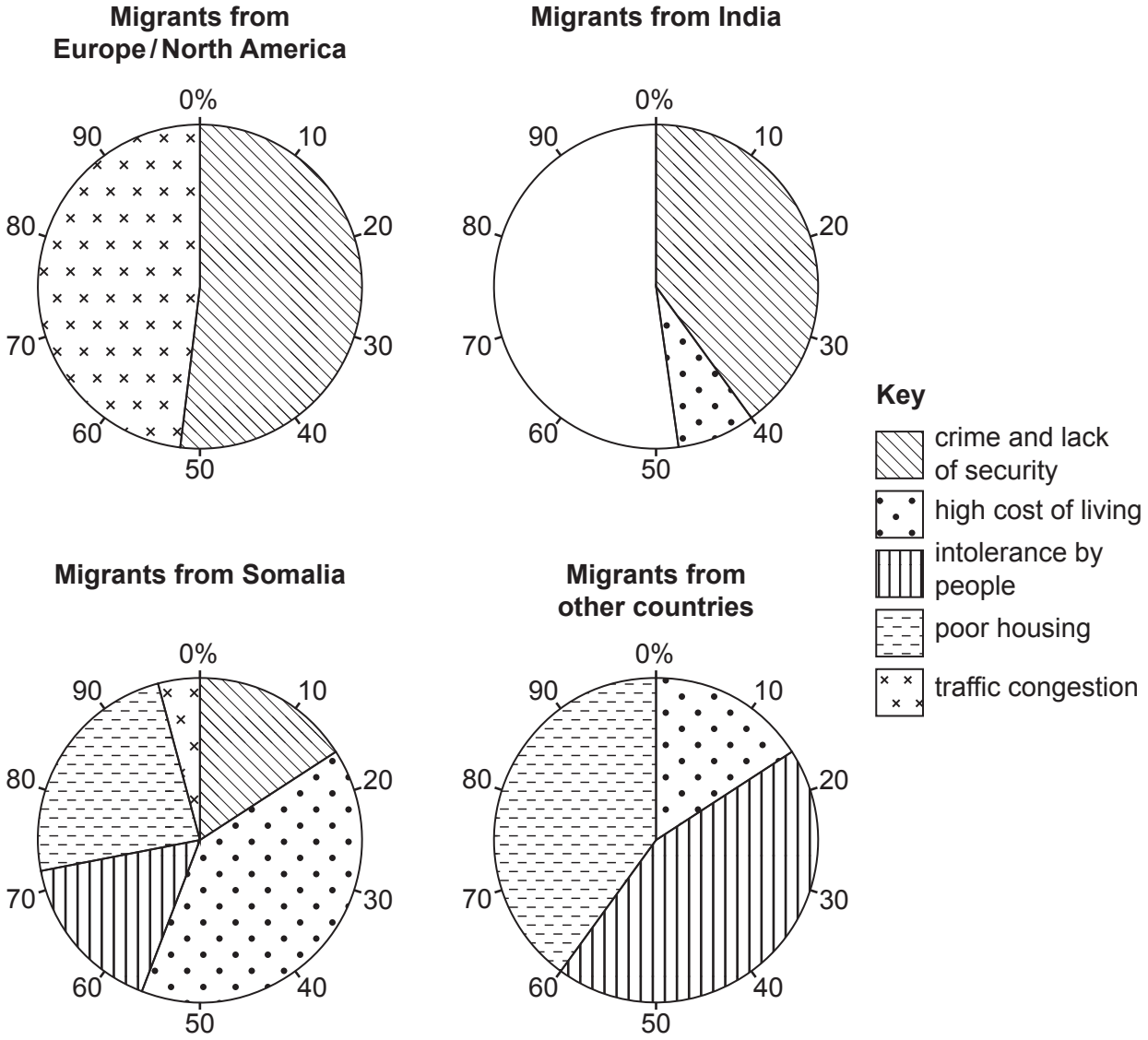

Fig. 1.3

(iii) Do you agree with **Hypothesis 2:** *The main problems faced by migrants to Kenya vary in importance between different groups of migrants*? Use evidence from Fig. 1.3 and Table 1.2 to support your decision.

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..... [4]

(f) Another student used the results to question 2 (*Which country did you migrate from when you came to Kenya?*) and question 4 (*What is your job in Nairobi?*) to investigate if there is a difference in the jobs of migrants from different parts of the world.

(i) She studied the jobs of migrants from Somalia and Europe/North America. Her results are shown in Table 1.3 (Insert).
In which employment sectors are the two jobs below included? **Circle your answers.**
[2]

job	employment sector			
market trader	primary	secondary	tertiary	quaternary
IT consultant	primary	secondary	tertiary	quaternary

(ii) Use Table 1.3 to describe differences between employment of migrants from Somalia and Europe/North America. Do **not** compare individual jobs.

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..... [4]

[Total: 30]

2 A class of students in South Africa studied the Bradshaw model. This model describes how the characteristics of a river change downstream. The model is shown in Fig. 2.1 (Insert).

(a) The table below shows some of the characteristics of the Bradshaw model. Add the following characteristics to the correct column in the table. [1]

discharge

load quantity (amount of load carried by the river)

slope angle (gradient)

increase further downstream	decrease further downstream
channel depth	roughness of the channel bed

The students decided to investigate two other river characteristics included in the Bradshaw model by testing the following hypotheses on the Dawidskraal River:

Hypothesis 1: *River velocity increases between sites downstream.*

Hypothesis 2: *Load particle size decreases downstream.*

(b) Before they went to the river to do their fieldwork the students considered possible risks they might need to be aware of.
Match each risk with a reason in the following table. One has been completed for you. [2]

risk	reason
hypothermia	slippery rocks on the river bed and banks
cuts and wounds	spiders, snakes and mosquitoes live around the river
animal bites	people throw rubbish into the river and pollute it
waterborne diseases	river water becomes very cold in winter

(c) The students selected three sites along the river to do their fieldwork. Details of the sites are given below.

site 1	located 940 m downstream from the source
site 2	located 1920 m downstream from the source
site 3	located 2900 m downstream from the source

Suggest **three** factors the students should have considered in choosing their fieldwork sites.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(d) **(i)** To investigate **Hypothesis 1:** *River velocity increases between sites downstream*, the students decided to use the following equipment:

orange stopwatch

tape measure two bamboo poles

Describe how the students used this equipment to measure river velocity by putting the following statements into the correct order in the table below. The first action has been completed for you. [2]

- Put an orange in the river at the first pole and start the stopwatch.
- Record in a fieldwork notebook the time taken for the orange to travel 10 m.
- Stop the stopwatch when the orange reaches the second pole.
- Mark the beginning and end of the measured section with a bamboo pole.
- Use the tape measure to measure a 10 m section of the river.

1st	Use the tape measure to measure a 10 m section of the river.
2nd	
3rd	
4th	
5th	

(ii) The students repeated their method ten times at each site. Their measurements at site 1 are shown in Table 2.1 (Insert). Which **one** measurement did the students reject? Explain why they rejected the measurement and replaced it with another one.

Rejected measurement number .....

Reason .....

..... [2]

(iii) The average results for each site are shown in Table 2.2 (Insert). **Complete Fig. 2.2** to show the average velocity at site 2. [1]

Average velocity at three sites

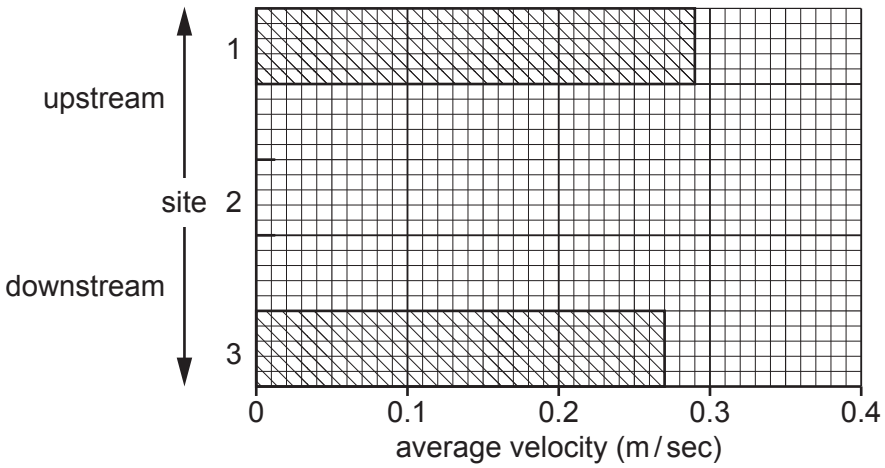

Fig. 2.2

(iv) To what extent is the conclusion to **Hypothesis 1:** *River velocity increases between sites downstream* **true**? Put a tick (✓) in the box to show your decision and support it with evidence from Fig. 2.2 and Table 2.2.

	tick (✓)
it is true between all three sites	
it is true between two sites	
it is false	

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.....

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..... [3]

(v) Which **one** of the following is the **best** way for the students to improve their fieldwork in order to make a reliable conclusion? Tick (✓) your answer. [1]

	tick (✓)
measure a 20 m section of river at each site	
measure velocity once at each site	
do their fieldwork at six sites along the river	

(e) To test **Hypothesis 2:** *Load particle size decreases downstream*, the students used a ruler to measure the longest side of 12 pebbles which they selected randomly from the river at each site. Their method is shown in Fig. 2.3 (Insert).

(i) Name **one** different measuring tool the students could use to improve the accuracy of their measuring.

..... [1]

(ii) Suggest **two** weaknesses of selecting pebbles randomly from the river.

1 .....

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2 .....

..... [2]

(iii) The measurements of the pebbles collected by the students at site 3 are shown in Table 2.3 (Insert).
Plot on Fig. 2.4 the length of pebble number 11 and the average length of the pebbles at site 3. [2]

Length of sampled pebbles at each site

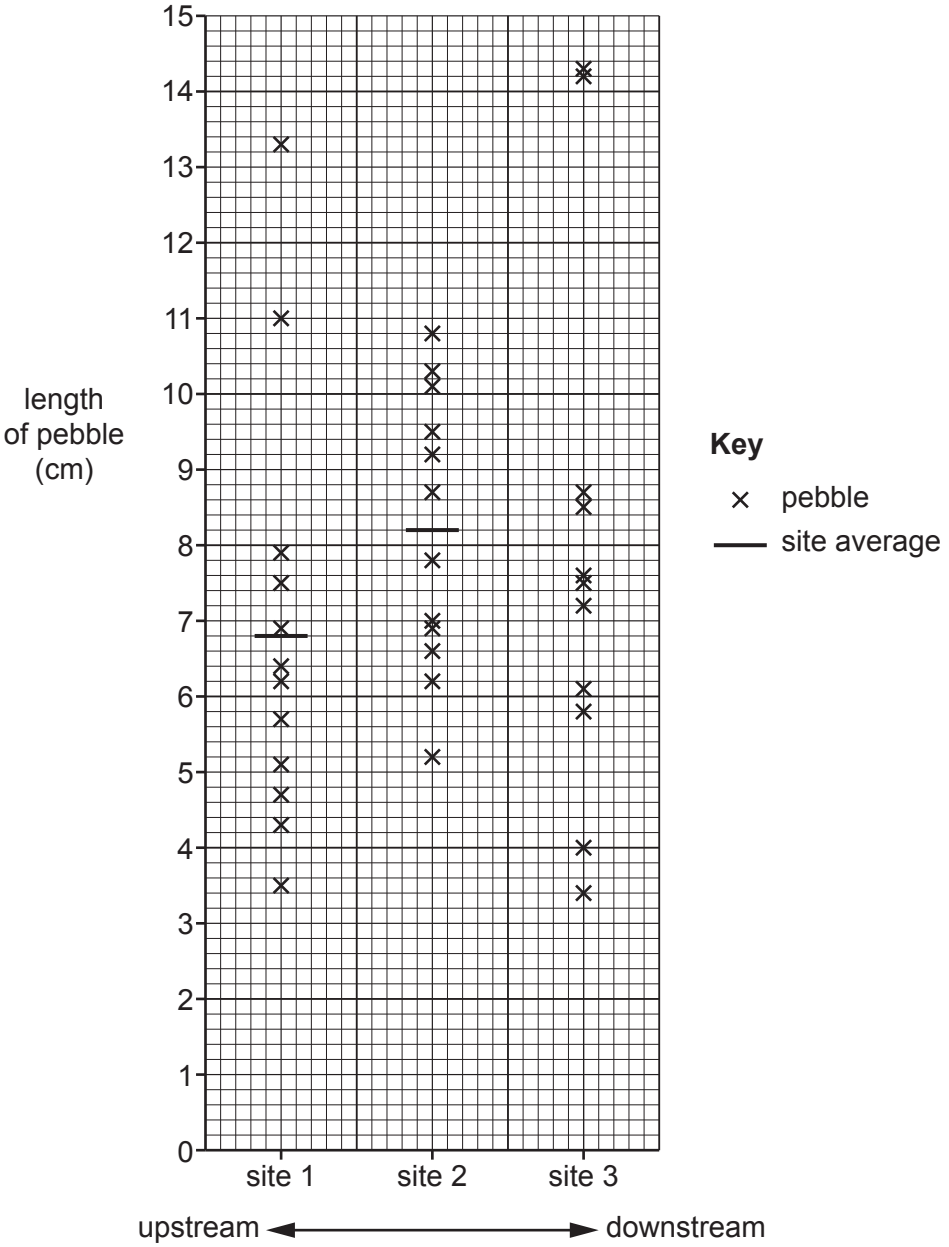

Fig. 2.4

(iv) Do the students' results support **Hypothesis 2:** *Load particle size decreases downstream*? Support your decision with evidence from Fig. 2.4.

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..... [3]

(f) To extend his fieldwork one student estimated the roundness of each pebble by comparing it with the Powers' Scale of Roundness which is shown in Fig. 2.5 (Insert).

(i) Suggest **one** problem of this method and how the problem could be solved.

Problem

.....

.....

Solution

.....

..... [2]

(ii) The student's results are shown in Table 2.4 (Insert). Use these results to **complete the divided bar graph** for site 1 in Fig. 2.6. [2]

Student's results of measuring pebble roundness

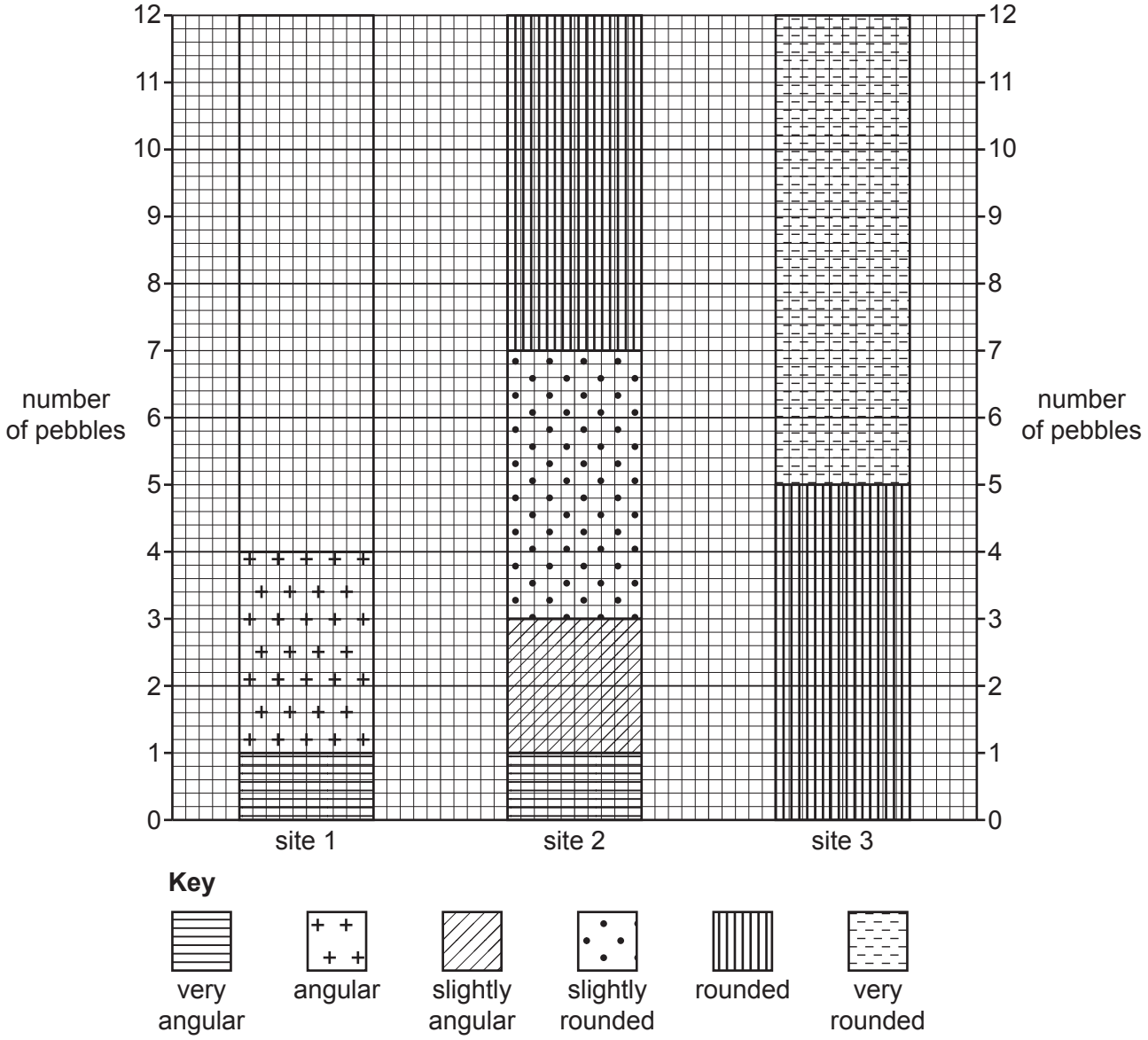

Fig. 2.6

(iii) Use the results in Fig. 2.6 and Table 2.4 to describe the change in pebble roundness downstream.

.....

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.....

.....

.....

..... [3]

[Total: 30]

Additional pages

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

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