



Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Key words

1. measurement
2. time
3. length
4. square meter
5. volume
6. conclusion

K • 3

Each carries 0.5 mark.

2 Label the diagram

- | | | |
|---------|------------|-------|
| 1. pan | 3. pillar | K • 2 |
| 2. beam | 4. pointer | |

Each carries 0.5 mark.

3 Match the following

1. length → e. meter
2. mass → c. kilogram
3. time → g. second
4. temperature → a. kelvin
5. area → f. square meter
6. volume → b. cubic meter

K • 3

Each carries 0.5 mark.

4 Multiple choice

- i. a. 3600 s K • 1
1 hour = 60 minutes, and each minute is 60 seconds: $60 \times 60 = 3600$ s.
- ii. c. kilogram K • 1
The kilogram is the SI unit of mass. The pound is an old English unit and the dharni a local Nepali unit. The tonne (1000 kg) is a bigger unit of mass, but it is not the SI unit.
- iii. d. ampere K • 1
Electric current is measured in amperes (A). The volt, ohm and watt are units of other electrical quantities (the watt is the unit of power).
- iv. b. guessing the probable answer U • 1
Her idea is a **guess**, a possible answer. Her next step is to **test** it: drop a big and a small stone together and watch. (Try it! In water, the big stone does usually reach the bottom a little sooner.)
- v. c. how beautiful a flower is U • 1
A physical quantity can be measured and written as a number with a unit: a pencil 15 cm long, tea at 70 °C, a walk of 20 minutes. Beauty can't be measured with a unit: people would each give a different answer.

5 Very short answers

- a. MARKING SCHEME K • 1
✓ Testing.



- b. MARKING SCHEME K · 1
✓ About 37 °C.
- c. MARKING SCHEME K · 1
✓ Any two of mana, pathi, muri.

6 Short answers

- a. MARKING SCHEME K · 2
✓ Comparing an unknown quantity with a standard, known quantity of the same kind.
✓ A correct example, e.g. the volume of water in a glass compared with the marks on a measuring cylinder.
- b. MARKING SCHEME U · 2
✓ Local units (haat, bitta, mana, pathi) are not the same for every person or place, so measurements made with them don't agree.
✓ This caused problems in trade and science, so units that are the same all over the world were needed.
- c. MARKING SCHEME U · 2
✓ Any one difference, e.g. a local unit is not reliable or exact; an SI unit is reliable and exact.
✓ Any second difference, e.g. a local unit is used only in a local area; an SI unit is used all over the world.

7 Long answer

ANSWER

U · 4

Study of surrounding objects or events → Questioning → Guessing the probable answer → Testing → Accumulating the data → Concluding after analyzing the data → Presenting a report. For example, testing checks the guess by a suitable method and is the most important step; presenting a report shares the conclusion with others by speaking or in writing.

MARKING SCHEME

- ✓ The first three steps in order: study of objects or events, questioning, guessing the probable answer.
- ✓ The last four steps in order: testing, accumulating the data, concluding after analyzing the data, presenting a report.
- ✓ A correct feature of one step, e.g. testing checks the guess and is the most important step.
- ✓ A correct feature of a second step, e.g. a report shares the conclusion so others can check it.

8 Numerical problem

ANSWER

A · 4

- i. 1 hour = 60 × 60 s = 3600 s, so 2 hours = 2 × 3600 = 7200 s.
- ii. 1 kg = 1000 g, so 15 kg = 15 × 1000 = 15,000 g.
- iii. 1 m² = 100 cm × 100 cm = 10,000 cm², so 2 m² = 20,000 cm².
- iv. 3 km = 3 × 1000 m = 3000 m, so 3 km 250 m = 3250 m.

MARKING SCHEME

- ✓ i. 7200 s.
- ✓ ii. 15,000 g.
- ✓ iii. 20,000 cm².
- ✓ iv. 3250 m.



9 Think

ANSWER

HA · 2

Cause: the clothes were bought **without measuring** the son's body. The father guessed the size just by looking, or by an unreliable measure, and a guess made by looking is often wrong.

Solution: measure the son's chest, the length of the vest needed, his waist and the length of his legs with a tailor's tape in a standard unit (cm or inch), and buy clothes of that size. Better still, take the son along and let him try the clothes on before buying, or have them sewn to his measurements.

MARKING SCHEME

- ✓ Cause: the clothes were bought without measuring the son's body (the size was guessed by looking).
- ✓ Solution: measure his chest, waist and lengths with a tape in a standard unit (cm or inch) and buy that size, or let him try them on first.

10 Activity: Will it sink or float? (Activity 1.2)

(not marked)

WHAT STUDENTS SHOULD FIND

The stone, iron nail, eraser and steel spoon sink; the wood, leaf and ice float. A thing sinks if it is heavier than the same amount of water, and floats if it is lighter. Guesses are checked by testing, which is why testing is the most important step.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	16	10	4	2	32

