



Attempt questions first; check the separate key afterward. Show all working. Draw accurate figures where required.

A. Very short answers - 1 mark each

1. What is an observation in science?
2. Distinguish an observation from an explanation.
3. Which instrument measures temperature?
4. Which instrument measures mass?
5. Convert 1.5 m into centimetres.
6. Convert 750 mL into litres.
7. Should only one main factor be changed in a simple fair test?
8. Explain why other relevant conditions are kept unchanged.

B. Short answers / practice - 2 marks each

9. A seedling grows from 4 cm to 11 cm. Find increase in height.
10. If this takes 7 days, find average daily increase.
11. What is a prediction?
12. Write a testable prediction about water temperature and sugar dissolving.
13. Can a failed prediction still help scientific learning?
14. Explain how evidence can lead to revising an idea.
15. Three readings of length are 8, 9, 10 cm. Find mean.
16. Why should an experiment be repeated?
17. Name the factor measured as a result in a test.
18. In a plant-light test, identify an outcome you could measure.
19. Is tasting an unknown laboratory substance safe?
20. List three rules for handling laboratory materials safely.

C. Application / reasoning - 3 marks each

21. A beaker contains 40 mL water before a stone is immersed and 55 mL after. Find stone volume.

22. Why must the stone be fully submerged without trapped air?

23. Why are units necessary in a measurement?

24. Explain why "the table is 120 long" is incomplete.

25. Draw a table to record daily plant height for one week.

26. Suggest a suitable graph for those measurements.

27. A thermometer shows 22°C before heating and 37°C afterward. Find temperature rise.

28. Why should a measuring cylinder be read at eye level?

29. A pupil tests seed growth with different water amounts but also uses different soils. Is this a fair test? Explain.

30. Four measurements are 14, 15, 15, 16 cm. Find their mean.

31. Distinguish a measurement from a scientific conclusion using one example.

D. Extended practice - 5 marks per pair

32. Does one observation establish a universal scientific law?
33. Explain why scientists share methods as well as conclusions.
34. An experiment compares paper towel absorbency. What should be kept the same?
35. Design the full comparison with question, prediction, method, records and conclusion.

ANSWER KEY - Numerical / closed questions

- 3) Thermometer. 4) Balance. 5) 150 cm. 6) 0.75 L. 7) Yes. 9) 7 cm. 10) 1 cm/day. 13) Yes. 15) 9 cm. 17) Dependent variable. 18) Example: height increase over a fixed time. 19) No. 21) 15 cm³. 26) Line graph with day on horizontal axis. 27) 15°C. 29) No; soil is an uncontrolled factor. 30) 15 cm. 32) No. 34) Example: sheet area, water volume, soaking and draining times.