

PRINCIPAL SAAB
Periodic Assessment 1 (PA-1) — Answer Key
Class IX | Science (086) | Periodic Assessment 1 | Session 2026-27

Time: 40 minutes | Maximum Marks: 25 | Answer Key

This is a fresh, 100% original Periodic Assessment 1 practice paper for Class 9 Science, written for the 2026-27 session and the new NCERT Exploration textbook. Every question is followed by a fully worked answer in the answer key at the end of the page, and both the question paper and the answer key can be downloaded as PDFs.

Before You Start

- Time: 40 minutes
- Maximum marks: 25
- Chapter coverage: NCERT Exploration Chapters 1 to 4 — Entering the World of Secondary Science, Cell – The Building Block of Life, Tissues in Action, and Describing Motion Around Us.
- Every question carries a chapter tag such as [Ch 3]. If your school has covered fewer chapters, simply skip the questions tagged beyond your syllabus and adjust your total accordingly.
- All questions are compulsory. There is no overall choice.
- Show all steps in numerical answers. Marks are given for correct working, not just the final number.

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Marking Scheme

Award marks only for a correct and complete answer to the part being marked. Where a question says "any two" or "any three", a student needs only that many correct points; the extra points below are given so that a range of correct answers can be marked fairly.

Section A - Objective Type (5 × 1 = 5 marks)

- Q1. (a) 0.084 m $1 \text{ cm} = 0.01 \text{ m}$, so $8.4 \text{ cm} = 8.4 \times 0.01 \text{ m} = 0.084 \text{ m}$. The SI base unit of length is the metre, so the value must be divided by 100, not multiplied.
- Q2. (c) Plastid, Ribosomes, mitochondria and the Golgi apparatus are present in both plant and animal cells. Plastids (including chloroplasts) are found only in plant cells. The cell wall and a large central vacuole are the other two plant-only features.
- Q3. (b) Apical meristem. Apical meristem sits at the tips of roots and shoots and adds length to the plant. Lateral meristem adds girth (thickness). Sclerenchyma and parenchyma are permanent tissues and have stopped dividing.
- Q4. (b) 400 m and 0. Distance is the total length of the path actually covered, which is one full round = 400 m. Displacement is the shortest straight line from the starting point to the finishing point. Since the athlete finishes exactly where she started, the displacement is zero.
- Q5. (c) Bacterial cell. A prokaryotic cell has no nucleus bound by a membrane and no membrane-bound organelles. Bacteria are prokaryotic. Onion peel cells, human cheek cells and Amoeba all have a true nucleus, so they are eukaryotic.

Section B - Very Short Answer (4 × 2 = 8 marks)

- Q6. Any two of the following (1 mark each):
 1. The cell wall is present only in plant cells, fungi and bacteria; the plasma membrane is present in every living cell.
 2. The cell wall is made mainly of cellulose in plants; the plasma membrane is made of lipids and proteins.
 3. The cell wall is rigid and gives shape and mechanical support; the plasma membrane is thin and flexible.
 4. The cell wall is fully permeable; the plasma membrane is selectively permeable and controls what enters and leaves the cell.
- Q7. (a) Tendon, a type of dense connective tissue. Feature: it is made of tightly packed collagen fibres, so it has great strength with very limited flexibility. (1 mark)
 (b) Epithelial tissue, specifically stratified squamous epithelium in the skin. Feature: its cells are arranged in tightly packed layers with almost no material between them, which stops germs and water loss. (1 mark)
- Q8. Total distance = $300 \text{ m} + 200 \text{ m} = 500 \text{ m}$ ($\frac{1}{2}$ mark)
 Total time = $40 \text{ s} + 60 \text{ s} = 100 \text{ s}$ ($\frac{1}{2}$ mark)
 Average speed = total distance ÷ total time = $500 \div 100 = 5 \text{ m/s}$ (1 mark)
 Common error to avoid: averaging the two separate speeds (7.5 m/s and about 3.33 m/s) gives about 5.42 m/s , which is wrong. Average speed must always be total distance divided by total time.
- Q9. Time period = total time ÷ number of oscillations = $32.0 \div 20 = 1.6 \text{ s}$ (1 mark)
 Timing 20 oscillations spreads the small human reaction-time error of starting and stopping the stopwatch across 20 swings instead of one. When the total is divided by 20, that error is also divided by 20, so the value of the time period is far more reliable. (1 mark)

Section C - Short Answer (3 × 3 = 9 marks)

- Q10. Any three of the following (1 mark each):
 1. A plant cell has a rigid cell wall outside the plasma membrane; an animal

cell has only the plasma membrane. 2. A plant cell contains plastids, including chloroplasts for photosynthesis; an animal cell has no plastids. 3. A plant cell usually has one large central vacuole that fills most of the cell; an animal cell has small vacuoles or none at all. 4. Centrioles are normally absent in plant cells but present in animal cells. 5. A plant cell tends to have a fixed rectangular or polygonal shape; an animal cell has a flexible, often rounded shape.

Q11. Given: $u = 0$, $a = 2 \text{ m/s}^2$, $t = 8 \text{ s}$. (a) $v = u + at = 0 + (2 \times 8) = 16 \text{ m/s}$ (1 mark) (b) $s = ut + \frac{1}{2}at^2 = 0 + \frac{1}{2} \times 2 \times 8 \times 8 = 64 \text{ m}$ (1 mark) (c) Average velocity = total displacement $\div$ total time = $64 \div 8 = 8 \text{ m/s}$ (1 mark) Check: for uniform acceleration the average velocity is also $(u + v) \div 2 = (0 + 16) \div 2 = 8 \text{ m/s}$, which matches. A second check using $v^2 = u^2 + 2as$ gives $16^2 = 0 + 2 \times 2 \times 64$, that is $256 = 256$.

Q12. 1. Parenchyma – thin-walled living cells that store food and water; when they contain chloroplasts (chlorenchyma) they carry out photosynthesis. (1 mark) 2. Collenchyma – cells thickened at the corners that give flexible mechanical support, which is why a young stem or a leaf stalk can bend in the wind without breaking. (1 mark) 3. Sclerenchyma – dead cells with thick lignified walls that give hardness and rigidity, as in the husk of a coconut or the shell of a nut. (1 mark)

Section D – Case-Based Question (1 $\times$ 3 = 3 marks)

Q13. (a) The motion is uniform. In each 2 s interval the car covers the same distance of 5 m (0 to 5, 5 to 10, and 10 to 15). Equal distances in equal intervals of time means uniform motion. (1 mark) (b) Speed = distance $\div$ time = $5 \text{ m} \div 2 \text{ s} = 2.5 \text{ m/s}$. Using the whole run gives the same value: $15 \text{ m} \div 6 \text{ s} = 2.5 \text{ m/s}$. (1 mark) (c) At constant speed, distance = speed $\times$ time = $2.5 \times 10 = 25 \text{ m}$ from the start. (1 mark)

Apna Score Kaise Padhein

- 21–25: Chapters 1–4 are solid. Move on to Chapter 5 and keep revising motion numericals.
- 15–20: Good base. Re-read the two topics where you lost the most marks and re-attempt only those questions.
- Below 15: Go back to the chapter notes first, then attempt this paper again after two days. Repetition, not speed, fixes this.

More chapter tests and unit test papers are collected on the Unit Test Practice hub.

Kaizen note: One paper a day, honestly attempted and honestly checked, beats ten papers skimmed the night before the exam. Improve by a little, every day.