The Ever-Evolving World of Science

Standard difficulty · 20 questions · 40 marks · Time: 36 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. Science is best described as:
(a) a subject only for laboratories
(b) guessing without checking
(c) a fixed list of facts
(d) a process of asking questions and finding answers by observing and testing

2. A scientist studying why iron rusts mainly works in:
(a) earth and space science **(b)** physics
(c) chemistry **(d)** biology

3. Which of these is an OBSERVATION?
(a) the leaf may need light to make food
(b) the Sun may be highest at noon
(c) the gate may rust faster in the rainy season
(d) the lime water turned milky

4. Which of these is a possible EXPLANATION (hypothesis)?
(a) the leaf may need light to make food **(b)** the shadow is shortest at noon
(c) the bulb did not glow **(d)** the curd smells sour

5. Which question can be tested by an experiment?
(a) Which colour is the happiest? **(b)** Is summer better than winter?
(c) Do plants grow better in sunlight? **(d)** Which planet has the nicest name?

6. In a scientific investigation, what comes right after "suggest an explanation"?
(a) test it **(b)** observe
(c) hide the results **(d)** conclude and share

7. Four students timed the same ice cube melting: 33 s, 22 s, 32 s, 38 s. What is the total of their readings?
(a) 121 s **(b)** 135 s **(c)** 125 s **(d)** 152 s

8. In two tries, 26 and 29 out of 40 seeds sprouted. How many sprouted in all?
(a) 55 seeds **(b)** 3 seeds **(c)** 65 seeds **(d)** 25 seeds

Section B — Short answer — 8 × 2 = 16 marks

9. Why is science called a process and not just a set of facts?

10. Which branch of science (physics, chemistry, biology or earth and space science) studies (a) how a pendulum swings (b) why we have seasons?

11. Write "observation" or "hypothesis": (a) microbes may have made the curd sour (b) the lime water turned milky

12. Can it be tested by an experiment? Write "yes" or "no": (a) Does sugar dissolve faster in hot water? (b) Is science the best subject?

13. Write a question for each answer: (a) "42" (b) "Every 24 hours"

14. A pendulum took 20 s, 11 s, 19 s for 10 swings in three tries. What is the total time? Which try was quickest?

15. A plant was 11 cm tall on Monday and 29 cm tall a week later. How much did it grow?

16. In a class of 24, 12 students guessed a heavier ball would fall faster. How many did not?

Section C — Word problems — 4 × 4 = 16 marks

17. Explain with an example how a scientist investigates a question.

18. Sugar was dissolved in cold and in hot water three times each. Times in cold water: 39 s, 38 s, 52 s. In hot water: 27 s, 23 s, 40 s. (a) Find the total time for each. (b) What can you conclude? (c) What should be kept the same?

19. Write one question you could investigate about (a) how groundwater is stored and (b) how mirrors form images, and how you would test one of them.

20. A group measured the height a ball bounced from the same height 5 times: 75 cm, 65 cm, 82 cm, 59 cm, 75 cm. (a) What was the highest and lowest bounce? (b) What is their difference? (c) Why do scientists repeat measurements?

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Answer key

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Q	Answer	Working
1	**(d) a process of asking questions and finding answers by observing and testing**	—
2	**(c) chemistry**	—
3	**(d) the lime water turned milky**	—
4	**(a) the leaf may need light to make food**	—
5	**(c) Do plants grow better in sunlight?**	—
6	**(a) test it**	observe → ask a question → suggest an explanation → test it → conclude and share
7	**(c) 125 s**	33 + 22 + 32 + 38
8	**(a) 55 seeds**	26 + 29 = 55
9	**Because it is a way of asking questions, testing ideas and changing them with new evidence.**	—
10	**(a) physics (b) earth and space science**	—
11	**(a) hypothesis (b) observation**	—
12	**(a) yes (b) no**	—
13	**(a) for example: What is 6 × 7? (b) for example: How often does the Earth turn once?**	—
14	**50 s; the try that took 11 s**	20 + 11 + 19
15	**18 cm**	29 − 11 = 18
16	**12 students**	24 − 12 = 12
17	**For example, "Why does bread go mouldy?" They observe, guess that moisture helps mould grow, test by keeping one slice dry and one damp, record what happens and conclude. If the guess is wrong, they try a new one.**	—
18	**(a) Cold: 129 s; hot: 90 s (b) Sugar dissolves faster in hot water. (c) The amount of sugar and water, the stirring and the type of glass.**	—

Q	Answer	Working
19	(a) earth and space science (b) physics	—
20	(a) 82 cm and 59 cm (b) 23 cm (c) To check the result is reliable and find mistakes.	—