

GAC Science

Name: \_\_\_\_\_ Score: \_\_\_\_\_

1. What does it mean that scientific ideas are provisional?
  - ☐ They are unreliable
  - ☐ They stand until better evidence arrives
  - ☐ They are only opinions
  - ☐ They change every year
2. Which is a testable hypothesis?
  - ☐ Plants have feelings we cannot measure
  - ☐ Plants given fertiliser grow taller in four weeks
  - ☐ Nature is beautiful
  - ☐ Some plants are luckier than others
3. A balance reads 2.001, 2.002, 2.001 g for a mass known to be 1.500 g. What is it?
  - ☐ Accurate but imprecise
  - ☐ Precise but inaccurate
  - ☐ Both
  - ☐ Neither
4. What does peer review actually check?
  - ☐ That the experiment was repeated
  - ☐ That the method is sound and the claims match the evidence
  - ☐ That the raw data are correct
  - ☐ That the conclusion is true
5. Which statement is a value judgement rather than a measurement?
  - ☐ The vaccine reduces transmission by 40%
  - ☐ The vaccine should be mandatory
  - ☐ Uptake was 62% in this region
  - ☐ Side effects occurred in 1 in 10,000 cases
6. Assessing a risk properly needs which of these? Choose all that apply.
  - ☐ How likely the harm is
  - ☐ How serious it would be

☐ What the alternative is

☐ How dramatic it sounds

*Tick every correct option.*

7. It is correct to write that a scientific theory "has been proved".

☐ True      ☐ False

8. Changing the fertiliser and the light together saves time and gives the same information.

☐ True      ☐ False

9. How do you write a length of 12.4 cm with an uncertainty of 0.05 cm?

\_\_\_\_\_

10. A study funded by a company with an interest in the result should be dismissed.

☐ True      ☐ False

## GAC Science

1. **They stand until better evidence arrives**

A theory can be the best-supported explanation available and still be open to revision.

2. **Plants given fertiliser grow taller in four weeks**

A result could contradict it. If nothing could, it is not a hypothesis.

3. **Precise but inaccurate**

The repeats cluster tightly, and all of them are wrong by the same amount — a systematic error.

4. **That the method is sound and the claims match the evidence**

It rarely sees the raw data and never repeats the work. It filters; it does not guarantee.

5. **The vaccine should be mandatory**

Science can say what a policy would do. Whether it should be done is a different kind of question.

6. **How likely the harm is; How serious it would be; What the alternative is**

"Is X safe?" is unanswerable; "is X safer than Y?" can be answered.

7. **False**

Science accumulates support and eliminates alternatives. "Strongly supported" is the accurate phrase.

8. **False**

No result can then tell you which one mattered, and no later analysis can rescue it.

9.  **$12.4 \pm 0.05$  cm**

Value, uncertainty, unit. Stating the range is part of the claim, not an admission of weakness.

10. **False**

It is a reason to check the method more carefully, not to discard it. Funding shapes questions more than answers.