

The Scientific Method in Practice

Chapter 1: The Ever-Evolving World of Science · Topic 2

Key Concept

For example, to test whether sunlight affects plant growth, a scientist would grow two identical plants under identical conditions except for light exposure — one in sunlight, one in darkness — keeping water, soil, and temperature the same. This is called a controlled experiment. Reliable experiments should also be repeatable, meaning other scientists can perform the same experiment and get similar results, which helps confirm the finding is accurate and not just a coincidence.

Quick Revision Notes

- The scientific method uses observation, hypothesis, controlled experiments, and conclusions.
- A controlled experiment changes only one variable while keeping others constant.
- Reliable results should be repeatable by other scientists.
- Repeatability helps confirm a finding is accurate, not coincidental.

Practice Questions

- 1 Design a simple experiment to test if plants need sunlight to grow, describing the controlled variable.
- 2 Why is it important for an experiment to be repeatable?
- 3 Identify the variable being tested in an experiment comparing plant growth in sunlight versus darkness.