

**Multiple Choice Questions**

- Science begins with**
 - Guesswork
 - Curiosity
 - Confusion
 - Arguments
- A good scientific investigation always starts with**
 - A conclusion
 - A prediction
 - A question
 - A diagram
- The puri-puffing activity helps students understand the importance of**
 - Memorising theories
 - Making observations
 - Drawing models
 - Taking fast decisions
- Variable that is changed during an investigation is called**
 - Constant
 - Control
 - Independent variable
 - Random factor
- A conclusion in science must be based on**
 - Beliefs
 - Feelings
 - Evidence
 - Opinions
- The factor kept the same in an investigation is known as**
 - Constant
 - Variable
 - Result
 - Observation
- The ability to notice details using senses is called**
 - Comparison
 - Observation
 - Hypothesis
 - Communication
- Recording results in tables or charts helps in**
 - Making experiments longer
 - Confusing the observer
 - Understanding patterns
 - Hiding data
- Science encourages students to**
 - Avoid mistakes
 - Ask questions
 - Follow blindly
 - Ignore evidence

10. A prediction made before an investigation is called

- (a) Observation
- (b) Inference
- (c) Hypothesis
- (d) Measurement

Fill in the blanks :

11. Science develops through careful _____ and questioning.
12. A factor that can change in an experiment is called a _____.

True / False

13. Scientific investigations always give the same results every time.
14. A hypothesis is an educated guess based on prior knowledge.

Very Short Type Questions

15. What is an investigation in science?
16. What is meant by observation?

Short Type Questions

17. Why is curiosity important in scientific investigations?
18. What is the role of variables in an investigation?

Essay Type Questions

19. Describe the steps of a scientific investigation with an example.
20. Explain the importance of observations, data collection, and evidence in reaching scientific conclusions.

HOTS

21. **Assertion (A):** A conclusion must always match the evidence collected.
Reason (R): Evidence in an investigation helps in supporting or rejecting the hypothesis.
Choose the correct option:
- a) Both A and R are true and R is the correct explanation of A
 - b) Both A and R are true but R is not the correct explanation
 - c) A is true but R is false
 - d) A is false but R is true

JINENDER SONI
Founder, MISSION GYANChapter-1 | EXPLORING THE
INVESTIGATIVE WORLD OF SCIENCE

Worksheet-1

Answer & Solution

1. (b) Curiosity
2. (c) A question
3. (b) Making observations
4. (c) Independent variable
5. (c) Evidence
6. (a) Constant
7. (b) Observation
8. (c) Understanding patterns
9. (b) Ask questions
10. (c) Hypothesis
11. Observation
12. Variable
13. False
14. TRUE
15. An investigation in science is a planned process used to explore a question or test an idea through observation and evidence.
16. Observation means using the senses to notice details and gather information carefully.
17. Curiosity is important because it makes students ask questions and explore how and why things happen. This questioning attitude leads to investigations that help develop scientific understanding.
18. Variables allow scientists to test how changing one factor affects the results, while keeping other factors constant ensures accuracy. This helps identify the real cause of changes observed.
19. A scientific investigation follows a series of systematic steps to solve a problem or answer a question.
 1. **Observation:** It begins with observing a phenomenon carefully. For example, a student notices that a plant kept in sunlight grows faster than one kept in shade.
 2. **Question:** Based on the observation, a question is formed, such as, "Does sunlight affect plant growth?"
 3. **Hypothesis:** A possible explanation or prediction is made. For example, "Plants grow faster when they receive more sunlight."
 4. **Experiment:** An experiment is designed to test the hypothesis. Two similar plants are taken; one is placed in sunlight and the other in shade. Both are given equal water and soil conditions.
 5. **Data Collection:** Measurements of plant height are recorded daily.
 6. **Analysis:** The collected data is compared to see if there is a difference in growth.
 7. **Conclusion:** If the plant in sunlight grows taller, the hypothesis is supported.
 8. **Reporting:** Finally, the results are shared with others. Thus, scientific investigation helps us find accurate and reliable answers through logical steps

20. Scientific conclusions are reliable only when they are supported by observations, data, and evidence. These form the backbone of scientific thinking.

1. Importance of Observations

- Observations help scientists notice changes and understand what is happening.
- They can be qualitative (colour, shape, behaviour) or quantitative (numbers, measurements).
- Good observations prevent errors and help identify patterns.

2. Importance of Data Collection

- Data includes measurements, readings, or facts gathered during an experiment.
- Without data, scientists cannot compare or analyze results.
- Data helps to test whether the hypothesis is correct.

Example: Recording the temperature of water every minute while heating helps understand how heat affects it.

3. Importance of Evidence

- Evidence is the information that supports or disproves a scientific idea.
- It comes from analysed data and verified observations.
- Evidence makes scientific conclusions trustworthy and free from personal opinions.

Example: If repeated experiments show the same result, it becomes strong evidence.

21. Correct Answer: (A)

Explanation:

Evidence is necessary to support conclusions, and it also helps decide whether the hypothesis is correct. Therefore, the reason correctly explains the assertion.