

CHAPTE 1 - SCIENTIFIC FOUNDATIONS AND LAB PRACTICES

1. Science stems from a Greek word meaning truth.

- a. True
- b. False

ANSWER: False

2. The Age of Enlightenment spans from the late eighteenth century to today.

- a. True
- b. False

ANSWER: False

3. Scientific theories are based on natural and physical phenomena.

- a. True
- b. False

ANSWER: True

4. The scientific method was created in the late 18th century.

- a. True
- b. False

ANSWER: False

5. Safety is the number one priority for all individuals working in a laboratory setting.

- a. True
- b. False

ANSWER: True

6. Biased research has a positive effect on society.

- a. True
- b. False

ANSWER: False

7. No legitimate concerns have been raised regarding the environmental impact from research and experimentation.

- a. True
- b. False

ANSWER: False

8. Safety Data Sheets (SDS) must be available for all chemicals present in a laboratory setting.

- a. True
- b. False

ANSWER: True

9. Experimental investigations are also called observational testing.

- a. True
- b. False

ANSWER: False

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10. Researchers use empirical evidence to prove that a hypothesis is true.

- a. True
- b. False

ANSWER:

True

11. The Scientific Revolution began _____.

- a. toward the end of the Renaissance period
- b. during Plato's lifetime
- c. in the late eighteenth century
- d. around 15,000 BCE

ANSWER:

a

12. Science in the Age of Enlightenment spans from _____ until the late eighteenth century.

- a. early Greek philosophers
- b. the discovery of the science of agriculture
- c. the end of the Scientific Revolution
- d. when tools were first made

ANSWER:

c

13. In the _____, science became a known profession rather than just an interest.

- a. Age of Reason
- b. time of the Greek philosophers
- c. Renaissance period
- d. nineteenth century

ANSWER:

d

14. A hypothesis is described as _____.

- a. observational evidence
- b. an educated guess
- c. a scientific theory
- d. empirical evidence

ANSWER:

b

15. _____ are well-established explanations.

- a. Hypotheses
- b. Scientific theories
- c. Educated guesses
- d. Observational evidences

ANSWER:

b

16. The _____ step in the scientific method is observation.

- a. first
- b. third
- c. second
- d. fourth

ANSWER:

a

17. The scientific method has _____ steps.

- a. four
- b. seven
- c. three
- d. five

ANSWER:

d

18. In the fourth step of the scientific method, _____.

- a. experiments are conducted
- b. an "if...then" statement is made
- c. a conclusion is made

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ANSWER: a

19. _____ data can be observed or recorded through direct observations.
- a. Quantitative
 - b. Logical
 - c. Qualitative
 - d. Inductive

ANSWER: c

20. Logical reasoning is evaluated by _____ reasoning.
- a. deductive and inductive
 - b. qualitative and quantitative
 - c. proactive and conductive

ANSWER: a

21. A _____ investigation is one that is used to answer the questions of “what,” “how,” “where,” and “why.”

ANSWER: descriptive

22. _____ reasoning begins with a specific observation to reach a broad conclusion.

ANSWER: Inductive

23. A _____ investigation enlists collecting data on two or more groups for comparison under different conditions with a focus on patterns or trends.

ANSWER: comparative

24. _____ investigations are conducted to support, refute, or validate a hypothesis.

ANSWER: Experimental

25. _____ investigations are also called observational testing.

ANSWER: Observational

26. _____ investigation is used for cause-and-effect relationships.

ANSWER: Observational

27. SDS must be available for all _____ present in a laboratory setting.

ANSWER: chemicals

28. _____ hazards are those created and experienced by the researcher and their team, and they may simply be accidents.

ANSWER: Human

29. _____ communication is what is expressed in words.

ANSWER: Verbal

30. _____ communication is conveyed though body language or physical behavior.

ANSWER: Non-verbal

31. Empathy is the ability to recognize the _____ and actions of others.

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ANSWER: emotions

32. Scientific _____ are used to represent concepts, objects, and phenomena in a way that makes it easier to understand.

ANSWER: models

33. There are three types of scientific models: physical, conceptual, and _____.

ANSWER: mathematical

34. An email is a form of _____ communication.

ANSWER: written

35. Negative feedback should be _____ in nature, not disparaging or demeaning.

ANSWER: corrective

Match the communication form with its descriptor.

- | | |
|---------------|--------------|
| a. Non-verbal | b. Written |
| c. Empathy | d. Listening |
| e. Feedback | f. Verbal |

36. understanding how someone feels in that moment

ANSWER: c

37. body language

ANSWER: a

38. receiver is affirming the communication

ANSWER: e

39. reports and memos

ANSWER: b

40. shows senders that what they are saying is important

ANSWER: d

41. expressed in words

ANSWER: f