1

Student: _____

1. If one group is given some medicine that may cure a disease and the other group is given a sugar pill, the group who got the medicine is the
   A. Hypothetical group.
   B. Scientific group.
   C. Control group.
   D. Experimental group.

2. Which is not a characteristic of all life?
   A. responsiveness
   B. evolution
   C. reproduction
   D. random cell structure

3. In an experiment that has a control and experimental group, the dependent variable is
   A. observed in the experimental group.
   B. not observed in the control group.
   C. the result of the independent variable.
   D. All of these statements are true.

4. A good hypothesis must
   A. be a logical explanation of events.
   B. be testable.
   C. account for all current information related to the events being studied.
   D. All of these statements are true.

5. A characteristic of life is
   A. chemical bonds.
   B. the use of oxygen.
   C. the production of CO_2.
   D. cellular organization.

6. Which of the following is an example of adaptation, one of the characteristics of life?
   A. The evolutionary changes that occur to a species
   B. Sexual reproduction
   C. Organismal organization
   D. Metabolism

7. A control group differs from an experimental group
   A. in the number of test organisms used.
   B. by the independent variable.
   C. in several ways.
   D. in no way.

8. A reason an automobile engine is not considered to be living is that it is not able to
   A. utilize energy.
   B. change its activities.
   C. make copies of itself.
   D. utilize chemical reactions.

9. All of the chemical reactions that take place within your body are known as
   A. organismal structure.
   B. metabolism.
   C. irritability.
   D. adaptation.

10. A controlled experiment is one in which
   A. variables are allowed only in the control group.
   B. only one independent variable is allowed in the experimental group.
   C. all the variables are controlled.
   D. dependent variables are introduced in the control group.

11. Removal of herbal medicines from USDA regulation by the DSHEA in 1994 led to
   A. marketers proving that the medications work.
   B. marketers providing misinformation about the effectiveness of the herbal medicines.
   C. decreased use of herbal medicines.
   D. none of these.

12. One of the characteristics of life is
   A. the ability to diffuse materials.
   B. being able to adapt to new environmental conditions.
   C. being made up of inorganic material.
   D. All of these statements are true.

13. Science is
   A. an organized study of information.
   B. impossible to define.
   C. a process for collecting and organizing knowledge.
   D. the study of life.

14. If you want to set up a controlled experiment to determine the effects of caffeine on sleeping behavior in mice, you take a group of mice and divide it into two groups. Both are fed the same food, both are watered, both have 12 hours daylight, and 12 hours dark. Group one is given caffeine. What is appropriate to give to group two?
   A. 2 × amount of caffeine
   B. 1/2 × amount of caffeine
   C. No caffeine
   D. Caffeine in different form

15. Science is
   A. able to supply solutions to most human problems.
   B. always correct.
   C. distinguished from nonscientific areas of study by the way information is gathered.
   D. a body of information gathered about nature in the last 2,000 years.

16. The scientific method involves each of the following EXCEPT
   A. systematic search for information.
   B. observation and experimentation.
   C. forming and testing possible solutions.
   D. formulation of laws and principles that control the observed facts.

17. When a scientist sees patterns among a number of isolated facts,
   A. laws or principles can be developed.
   B. the patterns are assumed to have meaning.
   C. elaborate tests must be developed to see if a cause-and-effect relationship exists.
   D. as a rule, the pattern must be published.

18. Information from experiments is considered valid if
    A. the same results are obtained each time the experiment is performed.
    B. the results were predicted by the hypothesis.
    C. the same results are obtained by several scientists.
    D. All of these statements are true.

19. In science, reliable results are obtained when
    A. experiments give the same results repeatedly.
    B. a careful scientist sees a clear pattern.
    C. additional testing is required.
    D. most experiments give the same results.

20. Which of the following is not a science?
    A. economics
    B. astronomy
    C. engineering
    D. biology

21. Art, theology, and philosophy are nonsciences because they
    A. are not worthwhile fields of study.
    B. are basically untrue.
    C. deal with things that cannot be tested by the scientific method.
    D. are bodies of knowledge too small to qualify as science.

22. When using the scientific method, scientists make several fundamental assumptions. Which of these does not make sense, based on your knowledge of the scientific method?
    A. There are specific causes for events observed in the natural world.
    B. The causes for events can be identified.
    C. There are general rules or patterns that can be used to describe what happens in nature.
    D. An event that occurs repeatedly probably has different causes.

23. Empirical evidence is
    A. gained from observation of an event.
    B. derived from literature.
    C. developed from conclusions.
    D. formulated from empirical rules.

24. Of the following, the area that is least likely to be a science is
    A. agriculture.
    B. music.
    C. medicine.
    D. aircraft design.

25. Astronomy and astrology are different in that
    A. astrology does not use facts.
    B. astronomy does not make predictions.
    C. astrology does not test its rules.
    D. astronomy does not form rules.

26. Pseudoscience and nonscience differ in that
    A. nonscience is not valuable and pseudoscience is valuable.
    B. pseudoscience deceives, misleads, or misinforms and this is not a primary characteristic of nonscience.
    C. nonscience forms hypotheses and pseudoscience does not.
    D. pseudoscience has led to major changes in intellectual thought and nonscience has not.

27. Biological study brought about
    A. the development of rockets.
    B. the atom bomb.
    C. vaccinations for diseases.
    D. Tay-Sachs disease.

28. Which of the following statements is MOST correct?
    A. Science is always right.
    B. Nonscientific study has little value.
    C. Science has all the answers.
    D. Science seeks to explain natural occurrences.

29. Which of the following would be LEAST likely to use the results of scientific research in his or her daily profession?
    A. farmer
    B. doctor
    C. baseball player
    D. violin maker

30. Metabolism refers to
    A. chemical reactions such as photosynthesis.
    B. the process of reproduction.
    C. the formation of heterotrophs.
    D. a collection of hypotheses.

31. Controls are necessary in scientific experiments because they
    A. serve as a basis for comparison with the experimental results.
    B. enable the investigator to control the results.
    C. always confirm your observation.
    D. allow the investigator to develop experience in science.

32. Which one of the following is a description of a controlled experiment?
    A. Group I, 50 mice provided with food (mouse pellets) and a water bottle Group II, 25 mice provide with food (corn) and provided with water in a tray.
    B. Group I, 25 mice provided with food (mouse pellets) and a water bottle Group II, 50 mice but only half the mice are provide with food (mouse pellets) and a water bottle.
    C. Group A, 50 mice provided with food (mouse pellets) and a water bottle Group B, 50 mice provided with food (corn) and provided with water in a tray.
    D. Group A, 50 mice provided with food (mouse pellets) and a water bottle Group B, 50 mice provided with food (corn) and water in a water bottle.

33. Which one of the following steps of the scientific method should come only after a hypothesis has been formed?
    A. question formulation
    B. resource exploration
    C. experimentation
    D. observation

34. Information gained by observation is
    A. always accurate.
    B. empirical evidence.
    C. called a variable.
    D. the control.

35. Which of the following has the LEAST general acceptance?
    A. Theory.
    B. Law.
    C. Hypothesis.
    D. Theory, law, and hypothesis have equal acceptance.

36. Science
    A. answers questions concerning values and morals.
    B. creates theories and laws that are always true.
    C. is a process used to arrive at a solution to a problem.
    D. has all of the answers to the problems that plague mankind.

37. A hypothesis is best described as
    A. a general principle.
    B. a logical explanation that can be tested.
    C. a theory.
    D. a generally accepted concept.

38. An experimental group
    A. is the same as the control group.
    B. differs from the control group by one variable.
    C. differs from the control group by several variables.
    D. is not necessary if an experiment contains a control group.

39. When a concept has been tested repeatedly and appears to be a uniform or constant fact of nature, it is called
    A. empirical evidence.
    B. a hypothesis.
    C. a deduction.
    D. a law.

40. Growth is an example of a ____ process.
    A. metabolic
    B. generative
    C. responsive
    D. control

41. ____ is a responsive process.
    A. Waste elimination
    B. Adaptation
    C. Reproduction
    D. Coordination

42. In an experiment, the group used as a basis of comparison is the
    A. control group.
    B. experimental group.
    C. empirical group.
    D. variable group.

43. Nutrient processing is a ____ process.
    A. metabolic
    B. generative
    C. responsive
    D. control

44. A person eats an apple and is sick within two hours. This person suspects that there was some kind of contaminant on the skin of the apple. This person has
    A. performed an experiment.
    B. made a correlation.
    C. established a theory.
    D. tested a hypothesis.

45. Pseudoscience
    A. uses science to solve practical problems.
    B. is the purest form of science.
    C. has no factual basis.
    D. may interpret scientific facts to deceive.

46. Which one of the following statements is contrary to basic scientific thought?
    A. There are specific causes for events observed in the natural world, and the causes can be identified.
    B. There are general rules or patterns that can be used to describe what happens in nature.
    C. What one person perceives will often be difficult for others to perceive.
    D. The same fundamental rules of nature apply regardless of where and when they occur.

47. _____ are the fundamental structural units of all living things.
    A. Molecules
    B. Atoms
    C. Cells
    D. Protons

48. Which sequence correctly lists levels of organization from simple to more complex?
    A. Biosphere, ecosystem, community, population
    B. Atoms, cell, molecules, tissue, organism
    C. Organ system, organ, organisms, cell
    D. Cell, tissue, organ, organ system

49. A person hears a sound coming from a hole in the ground. Sometime later a groundhog is seen emerging from the hole in the ground. The person suspects that the sounds were made by the groundhog since they have witnessed this behavior before. The underlined portion of this story is best described as a(n)
    A. experiment.
    B. hypothesis.
    C. observation.
    D. test of a hypothesis.

50. Which one of the following BEST distinguishes scientific areas of study from those that are not science?

    A. Nonscientific areas of study have few facts.
    B. Scientific areas of study publish their findings and ideas.
    C. Scientific areas of study rarely make mistakes.
    D. Scientific areas of study always test their assumptions and ideas.

51. A person hears a sound coming from a hole in the ground. Sometime later a groundhog is seen emerging from the hole in the ground. The person suspects that the sounds were made by the groundhog. The underlined portion of this story is best described as a(n)
    A. experiment.
    B. hypothesis.
    C. observation.
    D. test of a hypothesis.

52. Which term BEST describes populations of trees, insects, mammals, fungi, bacteria, and many other organisms that interact in any location?
    A. biosphere
    B. ecosystem
    C. bioregion
    D. community

53. Edward Jenner noticed that the milkmaids who milked cows by hand often were infected with cowpox and that their infections were mild. He also noticed that these same milkmaids did not contract smallpox, which was a much more serious disease. He presumed that the cowpox infections prevented the milkmaids from contracting the much more serious disease of smallpox. Subsequently he began vaccinating people with the pus-like material from cowpox lesions to determine if his thinking was correct. In the story above, the underlined portion is a(n)
    A. hypothesis.
    B. observation.
    C. theory.
    D. experiment.

54. A theory and a hypothesis are different in that
    A. you must have a theory before you can form a hypothesis.
    B. a theory is developed as a result of broad agreement among scientists and a hypothesis is a much less substantiated idea.
    C. a theory is much easier to disprove than a hypothesis.
    D. a theory can never be disproved while a hypothesis can.

55. Francesco Redi performed the following experiment. He had two different sets of containers with meat in them. One set of containers was covered with a material that let air pass through and the other set was left uncovered. The uncovered containers developed maggots and the covered ones did not. Which one of the following hypotheses could not be tested by this experiment?
    A. Maggots come from within the meat.
    B. Maggots are introduced to the meat from some outside source.
    C. Only living things can give rise to other living things.
    D. Air is necessary for living things to be produced.

56. Changes in the human species since the time of the first humans is an example of
    A. evolution.
    B. hydrolysis.
    C. life.
    D. metabolism.

57. Which is not characteristic of all life?
    A. responsiveness
    B. evolution
    C. reproduction
    D. random cell structure

58. Although scientific fraud does occur, it is usually discovered because
    A. scientists try to repeat the experiments of others.
    B. scientists publish their results.
    C. scientists are skeptical unless they have very strong evidence.
    D. All of these statements are true.

59. "I've gotten the same result over and over again!" This statement best demonstrates
    A. reliability.
    B. validity.
    C. the placebo effect.
    D. All of these statements are true.

60. Which of the following terms BEST describes the scientific method?
    A. process
    B. event
    C. communication
    D. sequential

61. Data that are meaningful and fit into the framework of scientific knowledge are
    A. reliable.
    B. valid.
    C. fact.
    D. a scientific law.

62. A good experimental design should
    A. be designed to prove a hypothesis is correct.
    B. be able to be repeated.
    C. not have an independent variable.
    D. All of these statements are true.

63. "All adult women in the experiment responded favorably to the medication. However, young girls did not." In this situation
    A. age was the dependent variable.
    B. the way adult women responded was the dependent variable.
    C. age was the independent variable.
    D. girls were the dependent variable.

64. Which of the following statements provides the best statement of a hypothesis?
    A. I suspect that most people have the ability to identify cabbage by its smell.
    B. I know there is life on Mars.
    C. I think that there will be inventions that will allow greater amounts of food to be produced.
    D. I can sing better than you.

65. Increased heart rate associated with running is an example of a _____ process.
    A. metabolic
    B. generative
    C. responsive
    D. control

66. The process of maintaining a constant internal environment is called
    A. homeostasis.
    B. metabolism.
    C. induction.
    D. deduction.

67. Populations of different kinds of organisms that interact with one another in a particular place are known as
    A. ecosystems.
    B. communities.
    C. a biosphere.
    D. a commune.

68. Evolution is the
    A. slow change in the genetic makeup of a population of organisms over many generations.
    B. fast change in the genetic makeup of a population of organisms over many generations.
    C. slow change in the genetic makeup of an individual over a lifetime.
    D. fast change in the genetic makeup of an individual over a lifetime.

69. Which properties recognized as a cell only become evident when the component parts are correctly assembled?
    A. Miracles
    B. Emergent properties
    C. Wondrous
    D. Notorious properties

70. Which is a basic assumption made by scientists?
    A. There are specific causes for naturally occurring events observed in the natural world.
    B. The causes for events in nature cannot be identified.
    C. There is one general rule or principle that can be used to describe all of nature.
    D. An event that occurs only once can be studied using the scientific method.

71. Which is not a component of the scientific method?
    A. Careful observation.
    B. The construction and testing of hypotheses.
    C. Openness to new information and ideas.
    D. Submitting the result of your work for review by others only when you have won the Nobel Prize.

72. The purpose of the scientific method is to
    A. help scientists avoid making faulty assumptions and false claims.
    B. win a Nobel Prize.
    C. control nature.
    D. prove the existence of God.

73. Which term would be the best synonym for the word nutrient?
    A. Minerals
    B. To love
    C. Food
    D. Genetic trait

74. Which of the following takes generations to occur?
    A. An irritability response
    B. Metabolism
    C. Evolution
    D. Adaptation

1 Key

1. If one group is given some medicine that may cure a disease and the other group is given a sugar pill, the group who got the medicine is the
   A. Hypothetical group.
   B. Scientific group.
   C. Control group.
   D. Experimental group.

Blooms Level: 2. Understand
Enger - Chapter 01 #1
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

2. Which is not a characteristic of all life?
   A. responsiveness
   B. evolution
   C. reproduction
   D. random cell structure

Blooms Level: 1. Remember
Enger - Chapter 01 #2
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

3. In an experiment that has a control and experimental group, the dependent variable is
   A. observed in the experimental group.
   B. not observed in the control group.
   C. the result of the independent variable.
   D. All of these statements are true.

Blooms Level: 2. Understand
Enger - Chapter 01 #3
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

4. A good hypothesis must
   A. be a logical explanation of events.
   B. be testable.
   C. account for all current information related to the events being studied.
   D. All of these statements are true.

Blooms Level: 2. Understand
Enger - Chapter 01 #4
Learning Outcome: State two characteristics of a good hypothesis.
Section: 01.02
Topic: General

5. A characteristic of life is
   A. chemical bonds.
   B. the use of oxygen.
   C. the production of CO_2.
   D. cellular organization.

Blooms Level: 1. Remember
Enger - Chapter 01 #5
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

6. Which of the following is an example of adaptation, one of the characteristics of life?
A. The evolutionary changes that occur to a species
B. Sexual reproduction
C. Organismal organization
D. Metabolism

Blooms Level: 1. Remember
Enger - Chapter 01 #6
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

7. A control group differs from an experimental group
A. in the number of test organisms used.
B. by the independent variable.
C. in several ways.
D. in no way.

Blooms Level: 2. Understand
Enger - Chapter 01 #7
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

8. A reason an automobile engine is not considered to be living is that it is not able to
A. utilize energy.
B. change its activities.
C. make copies of itself.
D. utilize chemical reactions.

Blooms Level: 2. Understand
Enger - Chapter 01 #8
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

9. All of the chemical reactions that take place within your body are known as
A. organismal structure.
B. metabolism.
C. irritability.
D. adaptation.

Blooms Level: 2. Understand
Enger - Chapter 01 #9
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

10. A controlled experiment is one in which
A. variables are allowed only in the control group.
B. only one independent variable is allowed in the experimental group.
C. all the variables are controlled.
D. dependent variables are introduced in the control group.

Blooms Level: 2. Understand
Enger - Chapter 01 #10
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

11. Removal of herbal medicines from USDA regulation by the DSHEA in 1994 led to
A. marketers proving that the medications work.
B. marketers providing misinformation about the effectiveness of the herbal medicines.
C. decreased use of herbal medicines.
D. none of these.

Blooms Level: 3. Apply
Enger - Chapter 01 #11
Learning Outcome: Define and give an example of pseudoscience.
Section: 01.03
Topic: General

12. One of the characteristics of life is
A. the ability to diffuse materials.
B. being able to adapt to new environmental conditions.
C. being made up of inorganic material.
D. All of these statements are true.

Blooms Level: 1. Remember
Enger - Chapter 01 #12
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

13. Science is
A. an organized study of information.
B. impossible to define.
C. a process for collecting and organizing knowledge.
D. the study of life.

Blooms Level: 1. Remember
Enger - Chapter 01 #13
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.02
Topic: General

14. If you want to set up a controlled experiment to determine the effects of caffeine on sleeping behavior in mice, you take a group of mice and divide it into two groups. Both are fed the same food, both are watered, both have 12 hours daylight, and 12 hours dark. Group one is given caffeine. What is appropriate to give to group two?
A. 2 × amount of caffeine
B. 1/2 × amount of caffeine
C. No caffeine
D. Caffeine in different form

Blooms Level: 3. Apply
Enger - Chapter 01 #14
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

15. Science is
A. able to supply solutions to most human problems.
B. always correct.
C. distinguished from nonscientific areas of study by the way information is gathered.
D. a body of information gathered about nature in the last 2,000 years.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #15
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.02
Topic: General

16. The scientific method involves each of the following EXCEPT
A. systematic search for information.
B. observation and experimentation.
C. forming and testing possible solutions.
D. formulation of laws and principles that control the observed facts.

Blooms Level: 1. Remember
Enger - Chapter 01 #16
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

17. When a scientist sees patterns among a number of isolated facts,
A. laws or principles can be developed.
B. the patterns are assumed to have meaning.
C. elaborate tests must be developed to see if a cause-and-effect relationship exists.
D. as a rule, the pattern must be published.

Blooms Level: 3. Apply
Enger - Chapter 01 #17
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.02
Topic: General

18. Information from experiments is considered valid if
A. the same results are obtained each time the experiment is performed.
B. the results were predicted by the hypothesis.
C. the same results are obtained by several scientists.
D. All of these statements are true.

Blooms Level: 2. Understand
Enger - Chapter 01 #18
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

19. In science, reliable results are obtained when
A. experiments give the same results repeatedly.
B. a careful scientist sees a clear pattern.
C. additional testing is required.
D. most experiments give the same results.

Blooms Level: 1. Remember
Enger - Chapter 01 #19
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

20. Which of the following is not a science?
A. economics
B. astronomy
C. engineering
D. biology

Blooms Level: 1. Remember
Enger - Chapter 01 #20
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.03
Topic: General

21. Art, theology, and philosophy are nonsciences because they
A. are not worthwhile fields of study.
B. are basically untrue.
C. deal with things that cannot be tested by the scientific method.
D. are bodies of knowledge too small to qualify as science.

Blooms Level: 2. Understand
Enger - Chapter 01 #21
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.03
Topic: General

22. When using the scientific method, scientists make several fundamental assumptions. Which of these does not make sense, based on your knowledge of the scientific method?
A. There are specific causes for events observed in the natural world.
B. The causes for events can be identified.
C. There are general rules or patterns that can be used to describe what happens in nature.
D. An event that occurs repeatedly probably has different causes.

Blooms Level: 2. Understand
Enger - Chapter 01 #22
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

23. Empirical evidence is
A. gained from observation of an event.
B. derived from literature.
C. developed from conclusions.
D. formulated from empirical rules.

Blooms Level: 2. Understand
Enger - Chapter 01 #23
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

24. Of the following, the area that is least likely to be a science is
A. agriculture.
B. music.
C. medicine.
D. aircraft design.

Blooms Level: 3. Apply
Enger - Chapter 01 #24
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.03
Topic: General

25. Astronomy and astrology are different in that
A. astrology does not use facts.
B. astronomy does not make predictions.
C. astrology does not test its rules.
D. astronomy does not form rules.

Blooms Level: 2. Understand
Enger - Chapter 01 #25
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.03
Topic: General

26. Pseudoscience and nonscience differ in that
A. nonscience is not valuable and pseudoscience is valuable.
B. pseudoscience deceives, misleads, or misinforms and this is not a primary characteristic of nonscience.
C. nonscience forms hypotheses and pseudoscience does not.
D. pseudoscience has led to major changes in intellectual thought and nonscience has not.

Blooms Level: 2. Understand
Enger - Chapter 01 #26
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.03
Topic: General

27. Biological study brought about
A. the development of rockets.
B. the atom bomb.
C. vaccinations for diseases.
D. Tay-Sachs disease.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #27
Learning Outcome: List three ways in which the science of biology has improved your quality of life.
Section: 01.01
Topic: General

28. Which of the following statements is MOST correct?
A. Science is always right.
B. Nonscientific study has little value.
C. Science has all the answers.
D. Science seeks to explain natural occurrences.

Blooms Level: 2. Understand
Enger - Chapter 01 #28
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.02
Topic: General

29. Which of the following would be LEAST likely to use the results of scientific research in his or her daily profession?
A. farmer
B. doctor
C. baseball player
D. violin maker

Blooms Level: 5. Evaluate
Enger - Chapter 01 #29
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.03
Topic: General

30. Metabolism refers to
A. chemical reactions such as photosynthesis.
B. the process of reproduction.
C. the formation of heterotrophs.
D. a collection of hypotheses.

Blooms Level: 1. Remember
Enger - Chapter 01 #30
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

31. Controls are necessary in scientific experiments because they
A. serve as a basis for comparison with the experimental results.
B. enable the investigator to control the results.
C. always confirm your observation.
D. allow the investigator to develop experience in science.

Blooms Level: 2. Understand
Enger - Chapter 01 #31
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

32. Which one of the following is a description of a controlled experiment?
A. Group I, 50 mice provided with food (mouse pellets) and a water bottle Group II, 25 mice provide with food (corn) and provided with water in a tray.
B. Group I, 25 mice provided with food (mouse pellets) and a water bottle Group II, 50 mice but only half the mice are provide with food (mouse pellets) and a water bottle.
C. Group A, 50 mice provided with food (mouse pellets) and a water bottle Group B, 50 mice provided with food (corn) and provided with water in a tray.
D. Group A, 50 mice provided with food (mouse pellets) and a water bottle Group B, 50 mice provided with food (corn) and water in a water bottle.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #32
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

33. Which one of the following steps of the scientific method should come only after a hypothesis has been formed?
A. question formulation
B. resource exploration
C. experimentation
D. observation

Blooms Level: 1. Remember
Enger - Chapter 01 #33
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

34. Information gained by observation is
A. always accurate.
B. empirical evidence.
C. called a variable.
D. the control.

Blooms Level: 1. Remember
Enger - Chapter 01 #34
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

35. Which of the following has the LEAST general acceptance?
A. Theory.
B. Law.
C. Hypothesis.
D. Theory, law, and hypothesis have equal acceptance.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #35
Learning Outcome: Differentiate among a hypothesis, a theory, and a scientific law.
Section: 01.02
Topic: General

36. Science
A. answers questions concerning values and morals.
B. creates theories and laws that are always true.
C. is a process used to arrive at a solution to a problem.
D. has all of the answers to the problems that plague mankind.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #36
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

37. A hypothesis is best described as
A. a general principle.
B. a logical explanation that can be tested.
C. a theory.
D. a generally accepted concept.

Blooms Level: 1. Remember
Enger - Chapter 01 #37
Learning Outcome: State two characteristics of a good hypothesis.
Section: 01.02
Topic: General

38. An experimental group
A. is the same as the control group.
B. differs from the control group by one variable.
C. differs from the control group by several variables.
D. is not necessary if an experiment contains a control group.

Blooms Level: 2. Understand
Enger - Chapter 01 #38
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

39. When a concept has been tested repeatedly and appears to be a uniform or constant fact of nature, it is called
A. empirical evidence.
B. a hypothesis.
C. a deduction.
D. a law.

Blooms Level: 1. Remember
Enger - Chapter 01 #39
Learning Outcome: Differentiate among a hypothesis, a theory, and a scientific law.
Section: 01.02
Topic: General

40. Growth is an example of a ____ process.
A. metabolic
B. generative
C. responsive
D. control

Blooms Level: 1. Remember
Enger - Chapter 01 #40
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

41. ____ is a responsive process.
A. Waste elimination
B. Adaptation
C. Reproduction
D. Coordination

Blooms Level: 2. Understand
Enger - Chapter 01 #41
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

42. In an experiment, the group used as a basis of comparison is the
A. control group.
B. experimental group.
C. empirical group.
D. variable group.

Blooms Level: 2. Understand
Enger - Chapter 01 #42
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

43. Nutrient processing is a ____ process.
A. metabolic
B. generative
C. responsive
D. control

Blooms Level: 1. Remember
Enger - Chapter 01 #43
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

44. A person eats an apple and is sick within two hours. This person suspects that there was some kind of contaminant on the skin of the apple. This person has
A. performed an experiment.
B. made a correlation.
C. established a theory.
D. tested a hypothesis.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #44
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

45. Pseudoscience
A. uses science to solve practical problems.
B. is the purest form of science.
C. has no factual basis.
D. may interpret scientific facts to deceive.

Blooms Level: 1. Remember
Enger - Chapter 01 #45
Learning Outcome: Define and give an example of pseudoscience.
Section: 01.03
Topic: General

46. Which one of the following statements is contrary to basic scientific thought?
A. There are specific causes for events observed in the natural world, and the causes can be identified.
B. There are general rules or patterns that can be used to describe what happens in nature.
C. What one person perceives will often be difficult for others to perceive.
D. The same fundamental rules of nature apply regardless of where and when they occur.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #46
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.02
Topic: General

47. _____ are the fundamental structural units of all living things.
A. Molecules
B. Atoms
C. Cells
D. Protons

Blooms Level: 1. Remember
Enger - Chapter 01 #47
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

48. Which sequence correctly lists levels of organization from simple to more complex?
A. Biosphere, ecosystem, community, population
B. Atoms, cell, molecules, tissue, organism
C. Organ system, organ, organisms, cell
D. Cell, tissue, organ, organ system

Blooms Level: 2. Understand
Enger - Chapter 01 #48
Learning Outcome: State the differences among a cell, an organ, and an organism.
Section: 01.04
Topic: General

49. A person hears a sound coming from a hole in the ground. Sometime later a groundhog is seen emerging from the hole in the ground. The person suspects that the sounds were made by the groundhog since they have witnessed this behavior before. The underlined portion of this story is best described as a(n)
A. experiment.
B. hypothesis.
C. observation.
D. test of a hypothesis.

Blooms Level: 3. Apply
Enger - Chapter 01 #49
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

50. Which one of the following BEST distinguishes scientific areas of study from those that are not science?
A. Nonscientific areas of study have few facts.
B. Scientific areas of study publish their findings and ideas.
C. Scientific areas of study rarely make mistakes.
D. Scientific areas of study always test their assumptions and ideas.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #50
Learning Outcome: List characteristics that differentiate science from nonscience.
Section: 01.03
Topic: General

51. A person hears a sound coming from a hole in the ground. Sometime later a groundhog is seen emerging from the hole in the ground. The person suspects that the sounds were made by the groundhog. The underlined portion of this story is best described as a(n)
A. experiment.
B. hypothesis.
C. observation.
D. test of a hypothesis.

Blooms Level: 3. Apply
Enger - Chapter 01 #51
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

52. Which term BEST describes populations of trees, insects, mammals, fungi, bacteria, and many other organisms that interact in any location?
A. biosphere
B. ecosystem
C. bioregion
D. community

Blooms Level: 2. Understand
Enger - Chapter 01 #52
Learning Outcome: State the differences among a cell, an organ, and an organism.
Section: 01.04
Topic: General

53. Edward Jenner noticed that the milkmaids who milked cows by hand often were infected with cowpox and that their infections were mild. He also noticed that these same milkmaids did not contract smallpox, which was a much more serious disease. He presumed that the cowpox infections prevented the milkmaids from contracting the much more serious disease of smallpox. Subsequently he began vaccinating people with the pus-like material from cowpox lesions to determine if his thinking was correct. In the story above, the underlined portion is a(n)
A. hypothesis.
B. observation.
C. theory.
D. experiment.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #53
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

54. A theory and a hypothesis are different in that
A. you must have a theory before you can form a hypothesis.
B. a theory is developed as a result of broad agreement among scientists and a hypothesis is a much less substantiated idea.
C. a theory is much easier to disprove than a hypothesis.
D. a theory can never be disproved while a hypothesis can.

Blooms Level: 2. Understand
Enger - Chapter 01 #54
Learning Outcome: Differentiate among a hypothesis, a theory, and a scientific law.
Section: 01.02
Topic: General

55. Francesco Redi performed the following experiment. He had two different sets of containers with meat in them. One set of containers was covered with a material that let air pass through and the other set was left uncovered. The uncovered containers developed maggots and the covered ones did not. Which one of the following hypotheses could not be tested by this experiment?
A. Maggots come from within the meat.
B. Maggots are introduced to the meat from some outside source.
C. Only living things can give rise to other living things.
D. Air is necessary for living things to be produced.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #55
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

56. Changes in the human species since the time of the first humans is an example of
A. evolution.
B. hydrolysis.
C. life.
D. metabolism.

Blooms Level: 2. Understand
Enger - Chapter 01 #56
Learning Outcome: List three ways in which the science of biology has improved your quality of life.
Section: 01.04
Topic: General

57. Which is not characteristic of all life?
A. responsiveness
B. evolution
C. reproduction
D. random cell structure

Blooms Level: 1. Remember
Enger - Chapter 01 #57
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

58. Although scientific fraud does occur, it is usually discovered because
A. scientists try to repeat the experiments of others.
B. scientists publish their results.
C. scientists are skeptical unless they have very strong evidence.
D. All of these statements are true.

Blooms Level: 2. Understand
Enger - Chapter 01 #58
Learning Outcome: Give examples of problems caused by unwise use of biological information.
Section: 01.02
Topic: General

59. "I've gotten the same result over and over again!" This statement best demonstrates
A. reliability.
B. validity.
C. the placebo effect.
D. All of these statements are true.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #59
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

60. Which of the following terms BEST describes the scientific method?
A. process
B. event
C. communication
D. sequential

Blooms Level: 1. Remember
Enger - Chapter 01 #60
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

61. Data that are meaningful and fit into the framework of scientific knowledge are
A. reliable.
B. valid.
C. fact.
D. a scientific law.

Blooms Level: 2. Understand
Enger - Chapter 01 #61
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Section: 01.03
Topic: General

62. A good experimental design should
A. be designed to prove a hypothesis is correct.
B. be able to be repeated.
C. not have an independent variable.
D. All of these statements are true.

Blooms Level: 2. Understand
Enger - Chapter 01 #62
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

63. "All adult women in the experiment responded favorably to the medication. However, young girls did not." In this situation
A. age was the dependent variable.
B. the way adult women responded was the dependent variable.
C. age was the independent variable.
D. girls were the dependent variable.

Blooms Level: 2. Understand
Enger - Chapter 01 #63
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

64. Which of the following statements provides the best statement of a hypothesis?
A. I suspect that most people have the ability to identify cabbage by its smell.
B. I know there is life on Mars.
C. I think that there will be inventions that will allow greater amounts of food to be produced.
D. I can sing better than you.

Blooms Level: 5. Evaluate
Enger - Chapter 01 #64
Learning Outcome: State two characteristics of a good hypothesis.
Section: 01.02
Topic: General

65. Increased heart rate associated with running is an example of a _____ process.
A. metabolic
B. generative
C. responsive
D. control

Blooms Level: 5. Evaluate
Enger - Chapter 01 #65
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

66. The process of maintaining a constant internal environment is called
A. homeostasis.
B. metabolism.
C. induction.
D. deduction.

Blooms Level: 1. Remember
Enger - Chapter 01 #66
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

67. Populations of different kinds of organisms that interact with one another in a particular place are known as
A. ecosystems.
B. communities.
C. a biosphere.
D. a commune.

Blooms Level: 2. Understand
Enger - Chapter 01 #67
Learning Outcome: List three ways in which the science of biology has improved your quality of life.
Section: 01.04
Topic: General

68. Evolution is the
A. slow change in the genetic makeup of a population of organisms over many generations.
B. fast change in the genetic makeup of a population of organisms over many generations.
C. slow change in the genetic makeup of an individual over a lifetime.
D. fast change in the genetic makeup of an individual over a lifetime.

Blooms Level: 2. Understand
Enger - Chapter 01 #68
Learning Outcome: List three ways in which the science of biology has improved your quality of life.
Section: 01.04
Topic: General

69. Which properties recognized as a cell only become evident when the component parts are correctly assembled?
A. Miracles
B. Emergent properties
C. Wondrous
D. Notorious properties

Blooms Level: 5. Evaluate
Enger - Chapter 01 #69
Learning Outcome: Explain why a cell can be an organism.
Section: 01.04
Topic: General

70. Which is a basic assumption made by scientists?
A. There are specific causes for naturally occurring events observed in the natural world.
B. The causes for events in nature cannot be identified.
C. There is one general rule or principle that can be used to describe all of nature.
D. An event that occurs only once can be studied using the scientific method.

Blooms Level: 2. Understand
Enger - Chapter 01 #70
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

71. Which is not a component of the scientific method?
A. Careful observation.
B. The construction and testing of hypotheses.
C. Openness to new information and ideas.
D. Submitting the result of your work for review by others only when you have won the Nobel Prize.

Blooms Level: 1. Remember
Enger - Chapter 01 #71
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

72. The purpose of the scientific method is to
A. help scientists avoid making faulty assumptions and false claims.
B. win a Nobel Prize.
C. control nature.
D. prove the existence of God.

Blooms Level: 2. Understand
Enger - Chapter 01 #72
Learning Outcome: List and describe five elements of the scientific method.
Section: 01.02
Topic: General

73. Which term would be the best synonym for the word nutrient?
A. Minerals
B. To love
C. Food
D. Genetic trait

Blooms Level: 2. Understand
Enger - Chapter 01 #73
Learning Outcome: List and give an example of five characteristics typical of living things.
Section: 01.04
Topic: General

74. Which of the following takes generations to occur?
A. An irritability response
B. Metabolism
C. Evolution
D. Adaptation

Blooms Level: 5. Evaluate
Enger - Chapter 01 #74
Learning Outcome: Describe two historical examples that illustrate how a lack of understanding of biology resulted in major problems.
Section: 01.04
Topic: General

1 Summary

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