

Student: _____

1. Which is the correct sequence for levels of biological organization within an organism?
 - A. Atom - molecule - organelle - cell - tissue
 - B. Molecule - atom - organelle - tissue - cell
 - C. Cell - organelle - atom - tissue - molecule
 - D. Organelle - molecule - atom - tissue - cell
 - E. Atom - organelle - molecule - cell - tissue
2. Which is the correct sequence for levels of biological organization occurring beyond the individual?
 - A. Population - ecosystem - community - biosphere
 - B. Community - population - ecosystem - biosphere
 - C. Community - population - biosphere - ecosystem
 - D. Population - community - ecosystem - biosphere
 - E. Ecosystem - population - biosphere - community
3. To be considered a living organism, the organism must consist of:
 - A. DNA and proteins
 - B. One or more cells
 - C. RNA and proteins
 - D. Atoms and molecules
 - E. DNA and RNA
4. Organisms that extract energy from nonliving environments are called:
 - A. Heterotrophs
 - B. Decomposers
 - C. Parasites
 - D. Endotherms
 - E. Autotrophs
5. Organisms that obtain energy by eating nutrients that make up other organisms are called:
 - A. Autotrophs
 - B. Plants
 - C. Heterotrophs
 - D. Producers
 - E. Chemotrophs
6. Which is not a required characteristic of life?
 - A. Homeostasis
 - B. Movement
 - C. Structural organization
 - D. Evolution
 - E. Energy use
7. The correct sequence of taxonomic categories beginning with domain in descending order are:
 - A. Kingdom - phylum - order - class - genus - family - species
 - B. Kingdom - class - phylum - order - family - genus - species
 - C. Kingdom - phylum - order - class - genus - family - species
 - D. Kingdom - phylum - class - order - family - genus - species
 - E. Kingdom - phylum - class - order - genus - family - species

8. "The most restrictive taxon" and "the ability to breed only among themselves" reference:
 - A. Members of the same species
 - B. Members of the same domain
 - C. Members of the same genus
 - D. Members of the same family
 - E. Members of the same kingdom
9. The four kingdoms included in the domain Eukarya are:
 - A. Bacteria, fungi, plantae, and animalia
 - B. Bacteria, protista, plantae, and animalia
 - C. Protista, fungi, plantae, and animalia
 - D. Archaea, bacteria, plantae, and animalia
 - E. Archaea, fungi, plantae, and animalia
10. A major difference between bacteria and other living organisms is that bacteria:
 - A. Have cell walls and other organisms do not
 - B. Do not have a nucleus in their cells and other organisms do
 - C. Have a nucleus in their cells and other organisms do not
 - D. Are autotrophs and other organisms are not
 - E. Do not have cell walls and other organisms do
11. Which of the following is not a true statement about the scientific method?
 - A. It is a general way of organizing an investigation
 - B. It is a framework to consider ideas in a repeatable way
 - C. It begins with observations
 - D. It does not apply to problems encountered in everyday life
 - E. It is a framework to consider evidence in a repeatable way
12. Which of the following is not true about a hypothesis?
 - A. It can be proven to be true
 - B. It can be proven to be false
 - C. It is a tentative explanation
 - D. It is based on previous knowledge
 - E. It must be testable to be useful
13. In an experimental procedure, what is manipulated by the investigator to determine whether it influences the phenomenon of interest is the:
 - A. Standardized variable
 - B. Control group
 - C. Dependent variable
 - D. Independent variable
 - E. Both control group and standardized variable are correct.
14. In an experimental procedure what is actually being measured by the investigator is the:
 - A. Independent variable
 - B. Dependent variable
 - C. Control group
 - D. Standardized variable
 - E. Both dependent variable and standardized variable are correct
15. Which of the following would not be a "control" in an experimental procedure?
 - A. A placebo
 - B. A known standard of comparison
 - C. A normal group
 - D. An experimental group
 - E. A "zero-value" group

16. A theory differs from a hypothesis in that a theory:
 - A. Has more supportive evidence than a hypothesis
 - B. Is broader in scope than a hypothesis
 - C. Has predictive power
 - D. Ties together many existing observations
 - E. All are correct

17. A structure consisting of tissues organized to carry out a specific function defines a(an):
 - A. Organ
 - B. Cell
 - C. Population
 - D. Atom
 - E. Molecule

18. An ecosystem would include all of the following except:
 - A. A community
 - B. A biosphere
 - C. Populations
 - D. Organisms
 - E. None of these are correct

19. Asexual reproduction differs from sexual reproduction in that:
 - A. Asexual reproduction produces genetically diverse offspring
 - B. Asexual reproduction uses DNA to code for traits in offspring
 - C. Asexual reproduction occurs only in bacteria
 - D. Asexual reproduction produces offspring that are virtually identical
 - E. Asexual reproduction does not occur in animals

20. Homeostasis means:
 - A. That a population changes over time
 - B. That conditions are held constant and do not change
 - C. That cells have enough water
 - D. That all organisms require an energy source
 - E. That conditions remain within a constant range

21. The correct sequence going from smallest to largest is:
 - A. Tissue - cell - organelle - molecule - atom
 - B. Molecule - atom - organelle - cell - tissue
 - C. Atom - molecule - organelle - cell - tissue
 - D. Cell - tissue - organelle - molecule - atom
 - E. Atom - molecule - cell - organelle - tissue

22. All ecosystems:
 - A. Need a continuous outside energy source
 - B. Once mature never change
 - C. Are entirely self-sufficient
 - D. Consist of only living organisms
 - E. None of the above are correct

23. Which taxonomic category would include the most closely related organisms?
 - A. Family
 - B. Class
 - C. Kingdom
 - D. Domain
 - E. Order

24. Which taxonomic category would include the least closely related organisms?
- A. Family
 - B. Genus
 - C. Order
 - D. Phylum
 - E. Class
25. Which class do humans belong to?
- A. Animalia
 - B. Mammalia
 - C. Primates
 - D. Eukarya
 - E. Hominidae
26. Which is a correct sequence of steps in the scientific method?
- A. Observation - form hypothesis - draw conclusions - design an experiment
 - B. Observation - draw conclusion - design an experiment - form hypothesis
 - C. Observation - form hypothesis - design an experiment - collect data
 - D. Form hypothesis - observation - design an experiment - collect data
 - E. Form hypothesis - observation - collect data - design an experiment
27. In an experiment designed to measure the distance a golf ball is hit by clubs made of different material, the dependent variable would be:
- A. The distance the golf ball traveled
 - B. The type of material the club is made of
 - C. The wind direction when the experiment took place
 - D. The material the golf ball was made of
 - E. The speed of the golf club prior to hitting the golf ball
28. In an experiment designed to measure the distance a golf ball is hit by clubs made of different material, the independent variable would be:
- A. The wind direction when the experiment took place
 - B. The distance the golf ball traveled
 - C. The material the golf ball was made of
 - D. The speed of the golf club prior to hitting the golf ball
 - E. The type of material the club is made of
29. In an experiment designed to measure the distance a golf ball is hit by clubs made of different material, all of the variables would be standardized except:
- A. The wind direction when the experiment took place
 - B. The force used to hit the ball
 - C. The material the golf ball was made of
 - D. The type of material the club is made of
 - E. The angle the ball was hit
30. An inert substance that resembles the treatment given to an experimental group is:
- A. A placebo
 - B. A control
 - C. A variable
 - D. A hypothesis
 - E. Never used in an experiment
31. In an experiment, which of the following is not generally a true statement?
- A. The larger the sample size the more meaningful the results
 - B. The smaller the sample size the more meaningful the results
 - C. Without the proper control an experiment is not valid
 - D. It is important to standardize aspects of an experiment which might affect the outcome, other than the independent variable
 - E. None are correct

You perform an experiment in which you take 16 pots of strawberry plants and give half of them 1 gm of ammonium nitrate per liter of water and the other half just get water. Each group is then split in half again, and exposed to either eight or 16 hours of light each day. You monitor the height of the plants for four weeks. You observe that increasing ammonium nitrate and light both increase plant height.

32. Which of the following are independent variables in this experiment?
 - A. The amount of ammonium nitrate and light
 - B. The amount of ammonium nitrate
 - C. The amount of light
 - D. The height of the plants and amount of light
 - E. The height of the plants
33. Which of the following are dependent variables in this experiment?
 - A. The amount of ammonium nitrate and light
 - B. The amount of ammonium nitrate
 - C. The amount of light
 - D. The height of the plants
 - E. The height of the plants and amount of light
34. In this experiment the size of the pot should be which of the following?
 - A. An independent variable
 - B. A dependent variable
 - C. A standardized variable
 - D. Either an independent or dependent variable
 - E. Either a dependent or standardized variable
35. Ammonium nitrate is:
 - A. An atom
 - B. A molecule
 - C. A cell
 - D. A tissue
 - E. A biosphere
36. A plant takes up nutrients like ammonium nitrate to maintain:
 - A. Asexual reproduction
 - B. Sexual reproduction
 - C. Natural selection
 - D. Evolution
 - E. Homeostasis
37. The leaf of a plant is:
 - A. An organ
 - B. A molecule
 - C. An organelle
 - D. A cell
 - E. An organism
38. A plant is:
 - A. A consumer
 - B. A decomposer
 - C. A producer
 - D. A consumer and decomposer
 - E. A consumer and producer

39. Organisms require energy to stay organized. What is the energy source for the plants in your experiment?
- A. Ammonium nitrate
 - B. Light
 - C. Water
 - D. Soil
 - E. Carbon dioxide
40. Your strawberry plants produce both fruit and runners. How could they reproduce?
- A. Asexually
 - B. Sexually
 - C. Developmentally
 - D. Developmentally and sexually
 - E. Sexually and asexually

You expose the bacteria *Staphylococcus aureus* to low levels of the antibiotic methicillin. The surviving bacteria are then exposed to higher concentrations of methicillin and the process repeated until a strain of methicillin-resistant *S. aureus* (MRSA) was generated. To test your hypothesis, you perform an experiment by spreading the original strain of *S. aureus* and the MRSA strain onto agar plates containing doses of methicillin used in the hospital, and only the MRSA survives.

41. Which of the following are independent variables in this experiment?
- A. The strain of *S. aureus*
 - B. The dose of methicillin
 - C. Survival in the presence of methicillin
 - D. The agar plates
 - E. The time of bacterial growth
42. Which of the following are dependent variables in this experiment?
- A. The strain of *S. aureus*
 - B. The dose of methicillin
 - C. The agar plates
 - D. Survival in the presence of methicillin
 - E. The time of bacterial growth
43. How could some of the original strain of *S. aureus* bacteria survive in the presence of methicillin?
- A. The methicillin caused mutations in the bacteria
 - B. They had pre-existing mutations that gave resistance
 - C. The methicillin was no longer active
 - D. The methicillin may not have been added to those plates
 - E. The bacteria wanted to survive the antibiotic and mutated to become resistant
44. Some of the original strain of *S. aureus* bacteria surviving in the presence of methicillin is an example of which of the following?
- A. Mutation
 - B. Homeostasis
 - C. Evolution
 - D. Sexual reproduction
 - E. Natural selection
45. How would *S. aureus* bacteria reproduce?
- A. Asexually
 - B. Sexually
 - C. Sexually and asexually
 - D. Developmentally
 - E. Developmentally and sexually

46. *Staphylococcus* is which of the following?
- Species
 - Domain
 - Kingdom
 - Phylum
 - Genus
47. *Staphylococcus aureus* would have which of the following?
- Nucleus
 - Cell wall and nucleus
 - Cell wall
 - Cell wall and cell membrane
 - Cell membrane and nucleus
48. MRSA infections occur in humans (*Homo sapiens*). *Homo sapiens* are a:
- Species
 - Genus
 - Domain
 - Kingdom
 - Phylum
49. MRSA infections occur in humans (*Homo sapiens*). *Homo sapiens* are in which domain?
- Archaea
 - Bacteria
 - Eukarya
 - Animalia
 - Protista
50. MRSA infections occur in humans (*Homo sapiens*). *Homo sapiens* are in which kingdom?
- Eukarya
 - Archaea
 - Bacteria
 - Animalia
 - Protista
51. What did Charles Darwin propose after observing the 11-inch long nectarines of the *Angraecum sesquipedale* orchid in Madagascar?
- The existence of a moth with a proboscis of 10-11 inches
 - The existence of a bird with a proboscis of 10-11 inches
 - The presence of very small bees that can fit into a long nectar
 - That the orchid must reproduce asexually
 - That the orchid was an evolutionary dead end and could no longer reproduce
52. Charles Darwin's proposal is:
- A standardized variable
 - A theory
 - An independent variable
 - A dependent variable
 - A hypothesis
53. You decide to test Charles Darwin's proposal by placing nets over some orchids that allow small pollinators to enter, but prevent the large sphinx moth from entering. You then compare the number of seeds produced by plants with and without the nets. The seed production is:
- A dependent variable
 - A hypothesis
 - A theory
 - An independent variable
 - A standardized variable

54. What is the advantage to the orchid having an 11-inch long nectary?
- A. It can produce nectar over a larger area and attract more pollinators
 - B. It can collect more rain water
 - C. It can only be pollinated by one species of moth, reducing cross fertilization
 - D. It can collect more sunlight for photosynthesis
 - E. It can trap insects as a source of nutrients
55. What is the advantage to the sphinx moth *Xanthopan morgani* by having an 8-inch long tongue?
- A. It is used to attract mates through sexual selection
 - B. It can only pollinate one type of flower
 - C. It makes flying more efficient
 - D. It can be used to capture other flying insects for food
 - E. It can reach nectar that no other pollinator can reach
56. The 11-inch nectary of the orchid and 8-inch long tongue of the moth are an example of which of the following?
- A. Homeostasis
 - B. Taxonomy
 - C. Development
 - D. Coevolution
 - E. Asexual reproduction
57. Pollination is a step in _____ in a plant.
- A. Sexual reproduction
 - B. Asexual reproduction
 - C. Development
 - D. Metabolism
 - E. Homeostasis
58. What is the advantage to a plant like an orchid producing nectar over a plant like a pine tree that does not produce nectar?
- A. Nectar helps disperse pollen by wind
 - B. Nectar attracts animals that perform pollination
 - C. Nectar provides food for the pollen and growing fruit
 - D. Nectar helps disperse pollen by water
 - E. Nectar provides a sticky surface for pollen to attach to, promoting fertilization
59. To survive on land an orchid would have which of the following adaptations?
- A. Stomata
 - B. Stomata and a vascular system
 - C. A vascular system
 - D. Chloroplasts
 - E. Chloroplasts and stomata
60. A moth has which of the following characteristics?
- A. An exoskeleton
 - B. An open circulatory system
 - C. Lungs
 - D. An exoskeleton and open circulatory system
 - E. An exoskeleton and lungs
61. The "Kingdom" is the most all-inclusive taxonomic category.
True False
62. The cell is the basic unit of life.
True False
63. The smallest chemical unit of an element is a molecule.
True False

64. Decomposers are a special group of producers.
True False
65. *Staphylococcus aureus* became resistant to methicillin because after methicillin was introduced as an antibiotic treatment, the *Staphylococcus* then mutated in such a way so that methicillin was not harmful.
True False
66. In an experiment designed to determine if a fertilizer increased crop yield in tomato plants, the number of tomatoes produced by each plant would be the independent variable.
True False
67. In an experiment designed to determine if a fertilizer increased crop yield in tomato plants, the number of tomatoes produced by each plant would be the dependent variable.
True False
68. In an experiment designed to determine if a fertilizer increased crop yield in tomato plants, the amount of sunlight and water the plants received would be standardized variables.
True False
69. A theory is an advanced hypothesis that has been proven to be true.
True False

1 Key

1. Which is the correct sequence for levels of biological organization within an organism?

- A.** Atom - molecule - organelle - cell - tissue
- B. Molecule - atom - organelle - tissue - cell
- C. Cell - organelle - atom - tissue - molecule
- D. Organelle - molecule - atom - tissue - cell
- E. Atom - organelle - molecule - cell - tissue

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #1*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

2. Which is the correct sequence for levels of biological organization occurring beyond the individual?

- A. Population - ecosystem - community - biosphere
- B. Community - population - ecosystem - biosphere
- C. Community - population - biosphere - ecosystem
- D.** Population - community - ecosystem - biosphere
- E. Ecosystem - population - biosphere - community

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #2*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

3. To be considered a living organism, the organism must consist of:

- A. DNA and proteins
- B.** One or more cells
- C. RNA and proteins
- D. Atoms and molecules
- E. DNA and RNA

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #3*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

4. Organisms that extract energy from nonliving environments are called:

- A. Heterotrophs
- B. Decomposers
- C. Parasites
- D. Endotherms
- E.** Autotrophs

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #4*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

5. Organisms that obtain energy by eating nutrients that make up other organisms are called:

- A. Autotrophs
- B. Plants
- C.** Heterotrophs
- D. Producers
- E. Chemotrophs

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #5*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

6. Which is not a required characteristic of life?
A. Homeostasis
B. Movement
C. Structural organization
D. Evolution
E. Energy use

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #6
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

7. The correct sequence of taxonomic categories beginning with domain in descending order are:
A. Kingdom - phylum - order - class - genus - family - species
B. Kingdom - class - phylum - order - family - genus - species
C. Kingdom - phylum - order - class - genus - family - species
D. Kingdom - phylum - class - order - family - genus - species
E. Kingdom - phylum - class - order - genus - family - species

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #7
LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02
TOPIC: General Topics

8. "The most restrictive taxon" and "the ability to breed only among themselves" reference:
A. Members of the same species
B. Members of the same domain
C. Members of the same genus
D. Members of the same family
E. Members of the same kingdom

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #8
LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02
TOPIC: General Topics

9. The four kingdoms included in the domain Eukarya are:
A. Bacteria, fungi, plantae, and animalia
B. Bacteria, protista, plantae, and animalia
C. Protista, fungi, plantae, and animalia
D. Archaea, bacteria, plantae, and animalia
E. Archaea, fungi, plantae, and animalia

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #9
LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02
TOPIC: General Topics

10. A major difference between bacteria and other living organisms is that bacteria:
A. Have cell walls and other organisms do not
B. Do not have a nucleus in their cells and other organisms do
C. Have a nucleus in their cells and other organisms do not
D. Are autotrophs and other organisms are not
E. Do not have cell walls and other organisms do

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #10
LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02
TOPIC: General Topics

11. Which of the following is not a true statement about the scientific method?
- A. It is a general way of organizing an investigation
 - B. It is a framework to consider ideas in a repeatable way
 - C. It begins with observations
 - D.** It does not apply to problems encountered in everyday life
 - E. It is a framework to consider evidence in a repeatable way

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #11
LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03
TOPIC: General Topics

12. Which of the following is not true about a hypothesis?
- A.** It can be proven to be true
 - B. It can be proven to be false
 - C. It is a tentative explanation
 - D. It is based on previous knowledge
 - E. It must be testable to be useful

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #12
LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03
TOPIC: General Topics

13. In an experimental procedure, what is manipulated by the investigator to determine whether it influences the phenomenon of interest is the:
- A. Standardized variable
 - B. Control group
 - C. Dependent variable
 - D.** Independent variable
 - E. Both control group and standardized variable are correct.

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #13
LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03
TOPIC: General Topics

14. In an experimental procedure what is actually being measured by the investigator is the:
- A. Independent variable
 - B.** Dependent variable
 - C. Control group
 - D. Standardized variable
 - E. Both dependent variable and standardized variable are correct

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #14
LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03
TOPIC: General Topics

15. Which of the following would not be a "control" in an experimental procedure?
- A. A placebo
 - B. A known standard of comparison
 - C. A normal group
 - D.** An experimental group
 - E. A "zero-value" group

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #15
LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03
TOPIC: General Topics

16. A theory differs from a hypothesis in that a theory:
- A. Has more supportive evidence than a hypothesis
 - B. Is broader in scope than a hypothesis
 - C. Has predictive power
 - D. Ties together many existing observations
 - E. All are correct**

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #16
LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03
TOPIC: General Topics

17. A structure consisting of tissues organized to carry out a specific function defines a(n):
- A. Organ**
 - B. Cell
 - C. Population
 - D. Atom
 - E. Molecule

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #17
LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02
TOPIC: General Topics

18. An ecosystem would include all of the following except:
- A. A community
 - B. A biosphere**
 - C. Populations
 - D. Organisms
 - E. None of these are correct

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #18
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

19. Asexual reproduction differs from sexual reproduction in that:
- A. Asexual reproduction produces genetically diverse offspring
 - B. Asexual reproduction uses DNA to code for traits in offspring
 - C. Asexual reproduction occurs only in bacteria
 - D. Asexual reproduction produces offspring that are virtually identical**
 - E. Asexual reproduction does not occur in animals

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #19
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

20. Homeostasis means:
- A. That a population changes over time
 - B. That conditions are held constant and do not change
 - C. That cells have enough water
 - D. That all organisms require an energy source
 - E. That conditions remain within a constant range**

BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #20
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

21. The correct sequence going from smallest to largest is:
- A. Tissue - cell - organelle - molecule - atom
 - B. Molecule - atom - organelle - cell - tissue
 - C.** Atom - molecule - organelle - cell - tissue
 - D. Cell - tissue - organelle - molecule - atom
 - E. Atom - molecule - cell - organelle - tissue

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #21*

*LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01*

TOPIC: General Topics

22. All ecosystems:
- A.** Need a continuous outside energy source
 - B. Once mature never change
 - C. Are entirely self-sufficient
 - D. Consist of only living organisms
 - E. None of the above are correct

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #22*

*LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01*

TOPIC: General Topics

23. Which taxonomic category would include the most closely related organisms?
- A. Family
 - B.** Class
 - C. Kingdom
 - D. Domain
 - E. Order

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #23*

*LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02*

TOPIC: General Topics

24. Which taxonomic category would include the least closely related organisms?
- A. Family
 - B. Genus
 - C. Order
 - D.** Phylum
 - E. Class

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #24*

*LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02*

TOPIC: General Topics

25. Which class do humans belong to?
- A. Animalia
 - B.** Mammalia
 - C. Primates
 - D. Eukarya
 - E. Hominidae

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #25*

*LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02*

TOPIC: General Topics

26. Which is a correct sequence of steps in the scientific method?
- A. Observation - form hypothesis - draw conclusions - design an experiment
 - B. Observation - draw conclusion - design an experiment - form hypothesis
 - C.** Observation - form hypothesis - design an experiment - collect data
 - D. Form hypothesis - observation - design an experiment - collect data
 - E. Form hypothesis - observation - collect data - design an experiment

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #26

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

27. In an experiment designed to measure the distance a golf ball is hit by clubs made of different material, the dependent variable would be:
- A.** The distance the golf ball traveled
 - B. The type of material the club is made of
 - C. The wind direction when the experiment took place
 - D. The material the golf ball was made of
 - E. The speed of the golf club prior to hitting the golf ball

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #27

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

28. In an experiment designed to measure the distance a golf ball is hit by clubs made of different material, the independent variable would be:
- A. The wind direction when the experiment took place
 - B. The distance the golf ball traveled
 - C. The material the golf ball was made of
 - D. The speed of the golf club prior to hitting the golf ball
 - E.** The type of material the club is made of

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #28

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

29. In an experiment designed to measure the distance a golf ball is hit by clubs made of different material, all of the variables would be standardized except:
- A. The wind direction when the experiment took place
 - B. The force used to hit the ball
 - C. The material the golf ball was made of
 - D.** The type of material the club is made of
 - E. The angle the ball was hit

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #29

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

30. An inert substance that resembles the treatment given to an experimental group is:
- A.** A placebo
 - B. A control
 - C. A variable
 - D. A hypothesis
 - E. Never used in an experiment

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #30

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

31. In an experiment, which of the following is not generally a true statement?
- A. The larger the sample size the more meaningful the results
 - B.** The smaller the sample size the more meaningful the results
 - C. Without the proper control an experiment is not valid
 - D. It is important to standardize aspects of an experiment which might affect the outcome, other than the independent variable
 - E. None are correct

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #31

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

You perform an experiment in which you take 16 pots of strawberry plants and give half of them 1 gm of ammonium nitrate per liter of water and the other half just get water. Each group is then split in half again, and exposed to either eight or 16 hours of light each day. You monitor the height of the plants for four weeks. You observe that increasing ammonium nitrate and light both increase plant height.

Hoefnagels - Chapter 001

32. Which of the following are independent variables in this experiment?
- A.** The amount of ammonium nitrate and light
 - B. The amount of ammonium nitrate
 - C. The amount of light
 - D. The height of the plants and amount of light
 - E. The height of the plants

BLOOMS LEVEL: 3. Apply

Hoefnagels - Chapter 001 #32

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

33. Which of the following are dependent variables in this experiment?
- A. The amount of ammonium nitrate and light
 - B. The amount of ammonium nitrate
 - C. The amount of light
 - D.** The height of the plants
 - E. The height of the plants and amount of light

BLOOMS LEVEL: 3. Apply

Hoefnagels - Chapter 001 #33

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

34. In this experiment the size of the pot should be which of the following?
- A. An independent variable
 - B. A dependent variable
 - C.** A standardized variable
 - D. Either an independent or dependent variable
 - E. Either a dependent or standardized variable

BLOOMS LEVEL: 3. Apply

Hoefnagels - Chapter 001 #34

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

35. Ammonium nitrate is:
- A. An atom
 - B.** A molecule
 - C. A cell
 - D. A tissue
 - E. A biosphere

BLOOMS LEVEL: 3. Apply

Hoefnagels - Chapter 001 #35

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

36. A plant takes up nutrients like ammonium nitrate to maintain:
- A. Asexual reproduction
 - B. Sexual reproduction
 - C. Natural selection
 - D. Evolution
 - E. Homeostasis**

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #36
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

37. The leaf of a plant is:
- A. An organ**
 - B. A molecule
 - C. An organelle
 - D. A cell
 - E. An organism

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #37
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

38. A plant is:
- A. A consumer
 - B. A decomposer
 - C. A producer**
 - D. A consumer and decomposer
 - E. A consumer and producer

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #38
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

39. Organisms require energy to stay organized. What is the energy source for the plants in your experiment?
- A. Ammonium nitrate
 - B. Light**
 - C. Water
 - D. Soil
 - E. Carbon dioxide

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #39
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

40. Your strawberry plants produce both fruit and runners. How could they reproduce?
- A. Asexually
 - B. Sexually
 - C. Developmentally
 - D. Developmentally and sexually
 - E. Sexually and asexually**

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #40
LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01
TOPIC: General Topics

You expose the bacteria *Staphylococcus aureus* to low levels of the antibiotic methicillin. The surviving bacteria are then exposed to higher concentrations of methicillin and the process repeated until a strain of methicillin-resistant *S. aureus* (MRSA) was generated. To test your hypothesis, you perform an experiment by spreading the original strain of *S. aureus* and the MRSA strain onto agar plates containing doses of methicillin used in the hospital, and only the MRSA survives.

41. Which of the following are independent variables in this experiment?

- A.** The strain of *S. aureus*
- B. The dose of methicillin
- C. Survival in the presence of methicillin
- D. The agar plates
- E. The time of bacterial growth

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #41

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03

TOPIC: General Topics

42. Which of the following are dependent variables in this experiment?

- A. The strain of *S. aureus*
- B. The dose of methicillin
- C. The agar plates
- D.** Survival in the presence of methicillin
- E. The time of bacterial growth

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #42

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.
SECTION: 01.03

TOPIC: General Topics

43. How could some of the original strain of *S. aureus* bacteria survive in the presence of methicillin?

- A. The methicillin caused mutations in the bacteria
- B.** They had pre-existing mutations that gave resistance
- C. The methicillin was no longer active
- D. The methicillin may not have been added to those plates
- E. The bacteria wanted to survive the antibiotic and mutated to become resistant

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #43

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01

TOPIC: General Topics

44. Some of the original strain of *S. aureus* bacteria surviving in the presence of methicillin is an example of which of the following?

- A. Mutation
- B. Homeostasis
- C. Evolution
- D. Sexual reproduction
- E.** Natural selection

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #44

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01

TOPIC: General Topics

45. How would *S. aureus* bacteria reproduce?

- A.** Asexually
- B. Sexually
- C. Sexually and asexually
- D. Developmentally
- E. Developmentally and sexually

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #45

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
SECTION: 01.01

TOPIC: General Topics

46. *Staphylococcus* is which of the following?
- A. Species
 - B. Domain
 - C. Kingdom
 - D. Phylum
 - E. Genus**

BLOOMS LEVEL: 2. Understand
Hoefnagels - Chapter 001 #46

LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02

TOPIC: General Topics

47. *Staphylococcus aureus* would have which of the following?
- A. Nucleus
 - B. Cell wall and nucleus
 - C. Cell wall
 - D. Cell wall and cell membrane**
 - E. Cell membrane and nucleus

BLOOMS LEVEL: 2. Understand
Hoefnagels - Chapter 001 #47

LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02

TOPIC: General Topics

48. MRSA infections occur in humans (*Homo sapiens*). *Homo sapiens* are a:
- A. Species**
 - B. Genus
 - C. Domain
 - D. Kingdom
 - E. Phylum

BLOOMS LEVEL: 2. Understand
Hoefnagels - Chapter 001 #48

LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02

TOPIC: General Topics

49. MRSA infections occur in humans (*Homo sapiens*). *Homo sapiens* are in which domain?
- A. Archaea
 - B. Bacteria
 - C. Eukarya**
 - D. Animalia
 - E. Protista

BLOOMS LEVEL: 2. Understand
Hoefnagels - Chapter 001 #49

LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02

TOPIC: General Topics

50. MRSA infections occur in humans (*Homo sapiens*). *Homo sapiens* are in which kingdom?
- A. Eukarya
 - B. Archaea
 - C. Bacteria
 - D. Animalia**
 - E. Protista

BLOOMS LEVEL: 2. Understand
Hoefnagels - Chapter 001 #50

LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.
SECTION: 01.02

TOPIC: General Topics

51. What did Charles Darwin propose after observing the 11-inch long nectarines of the *Angraecum sesquipedale* orchid in Madagascar?

- A. The existence of a moth with a proboscis of 10-11 inches
- B. The existence of a bird with a proboscis of 10-11 inches
- C. The presence of very small bees that can fit into a long nectar
- D. That the orchid must reproduce asexually
- E. That the orchid was an evolutionary dead end and could no longer reproduce

BLOOMS LEVEL: 2. Understand
Hoefnagels - Chapter 001 #51

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

TOPIC: Investigating Life

52. Charles Darwin's proposal is:

- A. A standardized variable
- B. A theory
- C. An independent variable
- D. A dependent variable
- E. A hypothesis

BLOOMS LEVEL: 2. Understand
Hoefnagels - Chapter 001 #52

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

TOPIC: Investigating Life

53. You decide to test Charles Darwin's proposal by placing nets over some orchids that allow small pollinators to enter, but prevent the large sphinx moth from entering. You then compare the number of seeds produced by plants with and without the nets. The seed production is:

- A. A dependent variable
- B. A hypothesis
- C. A theory
- D. An independent variable
- E. A standardized variable

BLOOMS LEVEL: 4. Analyze
Hoefnagels - Chapter 001 #53

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

TOPIC: Investigating Life

54. What is the advantage to the orchid having an 11-inch long nectary?

- A. It can produce nectar over a larger area and attract more pollinators
- B. It can collect more rain water
- C. It can only be pollinated by one species of moth, reducing cross fertilization
- D. It can collect more sunlight for photosynthesis
- E. It can trap insects as a source of nutrients

BLOOMS LEVEL: 4. Analyze
Hoefnagels - Chapter 001 #54

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

LEARNING OUTCOME: 18.05.02 Explain the interaction of flowers and fruit with animals in angiosperm evolution.

SECTION: 01.01

SECTION: 18.05

TOPIC: General Topics

TOPIC: Investigating Life

TOPIC: Plant Diversity

55. What is the advantage to the sphinx moth *Xanthopan morgani* by having an 8-inch long tongue?
- A. It is used to attract mates through sexual selection
 - B. It can only pollinate one type of flower
 - C. It makes flying more efficient
 - D. It can be used to capture other flying insects for food
 - E.** It can reach nectar that no other pollinator can reach

BLOOMS LEVEL: 4. Analyze
Hoefnagels - Chapter 001 #55

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
LEARNING OUTCOME: 18.05.02 Explain the interaction of flowers and fruit with animals in angiosperm evolution.

SECTION: 01.01

SECTION: 18.05

TOPIC: General Topics

TOPIC: Investigating Life

TOPIC: Plant Diversity

56. The 11-inch nectary of the orchid and 8-inch long tongue of the moth are an example of which of the following?
- A. Homeostasis
 - B. Taxonomy
 - C. Development
 - D.** Coevolution
 - E. Asexual reproduction

BLOOMS LEVEL: 4. Analyze
Hoefnagels - Chapter 001 #56

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
LEARNING OUTCOME: 18.05.02 Explain the interaction of flowers and fruit with animals in angiosperm evolution.

SECTION: 01.01

SECTION: 18.05

TOPIC: General Topics

TOPIC: Investigating Life

TOPIC: Plant Diversity

57. Pollination is a step in _____ in a plant.
- A.** Sexual reproduction
 - B. Asexual reproduction
 - C. Development
 - D. Metabolism
 - E. Homeostasis

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #57

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
LEARNING OUTCOME: 18.05.02 Explain the interaction of flowers and fruit with animals in angiosperm evolution.

SECTION: 01.01

SECTION: 18.05

TOPIC: General Topics

TOPIC: Investigating Life

TOPIC: Plant Diversity

58. What is the advantage to a plant like an orchid producing nectar over a plant like a pine tree that does not produce nectar?
- A. Nectar helps disperse pollen by wind
 - B.** Nectar attracts animals that perform pollination
 - C. Nectar provides food for the pollen and growing fruit
 - D. Nectar helps disperse pollen by water
 - E. Nectar provides a sticky surface for pollen to attach to, promoting fertilization

BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #58

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.
LEARNING OUTCOME: 18.05.02 Explain the interaction of flowers and fruit with animals in angiosperm evolution.

SECTION: 01.01

SECTION: 18.05

TOPIC: General Topics

TOPIC: Investigating Life

TOPIC: Plant Diversity

59. To survive on land an orchid would have which of the following adaptations?
A. Stomata
B. Stomata and a vascular system
C. A vascular system
D. Chloroplasts
E. Chloroplasts and stomata

*BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #59*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

LEARNING OUTCOME: 18.01.03 Understand the adaptations necessary for plants to become dominant terrestrial organisms.

SECTION: 01.01

SECTION: 18.01

TOPIC: General Topics

TOPIC: Investigating Life

TOPIC: Plant Diversity

60. A moth has which of the following characteristics?
A. An exoskeleton
B. An open circulatory system
C. Lungs
D. An exoskeleton and open circulatory system
E. An exoskeleton and lungs

*BLOOMS LEVEL: 3. Apply
Hoefnagels - Chapter 001 #60*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

LEARNING OUTCOME: 20.08.01 Describe the characteristics of arthropods.

SECTION: 01.01

SECTION: 20.08

TOPIC: General Topics

TOPIC: Investigating Life

TOPIC: Plant Diversity

61. The "Kingdom" is the most all-inclusive taxonomic category.
TRUE

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #61*

LEARNING OUTCOME: 01.02.01 Compare and contrast the three branches of life.

SECTION: 01.02

TOPIC: General Topics

62. The cell is the basic unit of life.
TRUE

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #62*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

63. The smallest chemical unit of an element is a molecule.
FALSE

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #63*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

64. Decomposers are a special group of producers.
FALSE

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #64*

LEARNING OUTCOME: 01.01.01 Describe the characteristics shared by all living organisms.

SECTION: 01.01

TOPIC: General Topics

65. *Staphylococcus aureus* became resistant to methicillin because after methicillin was introduced as an antibiotic treatment, the *Staphylococcus* then mutated in such a way so that methicillin was not harmful.
FALSE

*BLOOMS LEVEL: 1. Remember
Hoefnagels - Chapter 001 #65*

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

66. In an experiment designed to determine if a fertilizer increased crop yield in tomato plants, the number of tomatoes produced by each plant would be the independent variable.

FALSE

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #66

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

67. In an experiment designed to determine if a fertilizer increased crop yield in tomato plants, the number of tomatoes produced by each plant would be the dependent variable.

TRUE

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #67

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

68. In an experiment designed to determine if a fertilizer increased crop yield in tomato plants, the amount of sunlight and water the plants received would be standardized variables.

TRUE

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #68

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

69. A theory is an advanced hypothesis that has been proven to be true.

FALSE

BLOOMS LEVEL: 1. Remember

Hoefnagels - Chapter 001 #69

LEARNING OUTCOME: 01.03.01 Identify standardized, dependent, and independent variables in an experiment.

SECTION: 01.03

TOPIC: General Topics

1 Summary

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