

Student: \_\_\_\_\_

1. The simplest structure shared among all living organisms is the
  - A. gut.
  - B. cell.
  - C. photosynthetic chloroplast.
  - D. community.
  - E. nucleus.
2. Which of the following is likely NOT a common feature shared among all living organisms?
  - A. All living organisms use energy.
  - B. All living organisms maintain organization.
  - C. All living organisms have evolved over the course of many generations.
  - D. All living organisms maintain some level of homeostasis.
  - E. All living organisms are composed of similar structures.
3. All living organisms respond and adjust to their environments. The process through which this occurs is called
  - A. photosynthesis.
  - B. metabolism.
  - C. adaptation.
  - D. growth and development.
  - E. genomics.
4. The process by which organisms maintain a stable internal environment in the face of a fluctuating external environment is called
  - A. metabolism.
  - B. cellular respiration.
  - C. growth and development.
  - D. homeostasis.
  - E. functional proteomics and genomics.
5. Polypeptides (proteins) are composed of amino acids as \_\_\_\_\_ are composed of DNA.
  - A. genes
  - B. RNA
  - C. proteomes
  - D. lipids
  - E. metabolites
6. We maintain a fairly constant body temperature despite exposures to different seasons or external temperatures. This is achieved through our capacity to
  - A. adapt to changing environments.
  - B. regulate body temperature.
  - C. maintain homeostasis.
  - D. All of these choices are correct.
  - E. None of these choices are correct.
7. All of the chemical reactions used to break down nutrients and build up components within the body are collectively known as
  - A. anabolism.
  - B. catabolism.
  - C. metabolism.
  - D. proteolysis.
  - E. hydrolysis.

8. Which level of organization includes all others?
  - A. cell
  - B. tissue
  - C. organ
  - D. organism
  - E. population
9. Which level of organization is required for all others to form?
  - A. cell
  - B. tissue
  - C. organ
  - D. organism
  - E. population
10. When cells associate with each other they form
  - A. atoms.
  - B. molecules.
  - C. macromolecules.
  - D. tissues.
  - E. populations.
11. When communities of organisms interact with their physical environment they form a(n)
  - A. population.
  - B. organism.
  - C. community.
  - D. ecosystem.
  - E. macromolecular community.
12. Which of the following is LEAST likely required for the digestion of a meal?
  - A. molecules
  - B. cells
  - C. tissues
  - D. organs
  - E. populations
13. Which is the simplest of all levels of organization?
  - A. atom
  - B. cell
  - C. organ
  - D. organism
  - E. population
14. Which level of organization reflects an individual composed of multiple organ systems?
  - A. atom
  - B. cell
  - C. organ
  - D. organism
  - E. population
15. Which of the following are components of molecules?
  - A. atoms
  - B. cells
  - C. organs
  - D. organisms
  - E. populations

16. Many people at a wedding ceremony represent which level of organization?
- A. cell
  - B. organ
  - C. organism
  - D. population
  - E. ecosystem
17. A flower on a plant represents which level of organization?
- A. atom
  - B. cell
  - C. organ
  - D. organism
  - E. population
18. The phenomenon through which populations of organisms change over several generations is termed
- A. homeostasis.
  - B. growth and development.
  - C. reproduction.
  - D. biological evolution.
  - E. organization.
19. Changes in \_\_\_\_\_ represent the predominant cause for biological evolution.
- A. homeostasis
  - B. growth and development
  - C. reproduction
  - D. genetic makeup
  - E. energy
20. A variety of finch species within the Hawaiian Islands have acquired different types of beaks needed for utilizing specific food resources. The process by which these different species of finches came about is likely to have involved
- A. natural selection.
  - B. evolution.
  - C. an accumulation of harmful genetic mutations.
  - D. both natural selection and evolution.
  - E. None of these choices are correct.
21. Which of the following is True of a genetic mutation?
- A. It always produces harmful effects.
  - B. It never affects protein structure or function.
  - C. It is not a mechanism through which biological evolution occurs.
  - D. It happens quite frequently in a population.
  - E. It generally produces a change in the DNA sequence of a gene.
22. New species evolve from pre-existing species by the accumulation of
- A. metabolic events.
  - B. genetic mutations.
  - C. proteomes.
  - D. reproductive events.
  - E. developmental events.
23. Evolutionary change
- A. occurs through the modification of characteristics in a preexisting population.
  - B. may involve vertical descent with mutation.
  - C. may involve horizontal gene transfer.
  - D. All of these choices are correct.
  - E. None of these choices are correct.

24. In the process of biological evolution, new species may evolve through exchange of genes from one species to another. This process is called
- proteome transfer.
  - horizontal gene transfer.
  - vertical evolution.
  - vertical descent with mutation.
  - genomic sciences.
25. The grouping or classification of species is termed
- eukaryotism.
  - prokaryotism.
  - genus.
  - kingdom.
  - taxonomy.
26. When grouping organisms, which classification is most general for a particular type of organism?
- Kingdom
  - Phylum
  - Order
  - Family
  - Species
27. When grouping organisms, which classification is most general for a particular type of organism?
- Kingdom
  - Phylum
  - Order
  - Family
  - Species
28. Which Kingdom of organisms is most noted for its ability to carry out photosynthesis?
- Animalia
  - Protista
  - Fungi
  - Plantae
  - Bacteria
29. Biologists use nomenclature or the binomial to provide each species with a unique scientific name. Our species is called *Homo sapiens*. The first word refers to which taxonomical grouping?
- Kingdom
  - Phylum
  - Order
  - Genus
  - Species
30. When considering nomenclature for scientific names, what is the difference between the two primates, *Homo sapiens* and *Homo erectus*?
- One is a primate but the other is not.
  - They are animals of a different kingdom.
  - They are animals of a different order.
  - They are animals of a different species.
  - They are animals of a different genus.
31. Which of the following is generally more complex than the others?
- Archaea
  - Bacteria
  - Prokarya
  - Eukarya
  - microorganisms

32. The complete genetic composition of an organism is called its
- A. proteome.
  - B. genome.
  - C. transcriptosome.
  - D. phenotype.
  - E. None of these choices are correct.
33. Which is responsible for encoding the proteins found in a cell?
- A. genome
  - B. proteome
  - C. cytoskeleton
  - D. evolution
  - E. extracellular proteins
34. If a scientist were studying the interaction of different proteins in the regulation of insulin secretion from a pancreatic cell, he or she would be studying
- A. genomics.
  - B. proteomics.
  - C. cell biology.
  - D. both genomics and proteomics.
  - E. both proteomics and cell biology.
35. An explanation for a biological process that is substantiated by a large body of evidence is called a
- A. hypothesis.
  - B. theory.
  - C. systems biology.
  - D. reductionism.
  - E. prediction.
36. Collecting data without a specific hypothesis in mind is called
- A. reductionism.
  - B. hypothesis testing.
  - C. discovery-based science.
  - D. theoretical.
  - E. All of these choices are correct.
37. All tissues are composed of cells.  
True False
38. The capacity to maintain a fairly constant body temperature is a homeostatic process.  
True False
39. A community is composed of different populations of animals and plants.  
True False
40. A defining characteristic that distinguishes prokaryotic and eukaryotic organisms is the lack of cell structure in one versus the other.  
True False
41. The modification of a limb that was used for walking in a pre-existing ancestor to one that is used as a wing for a species today is called proteomics.  
True False
42. A bacterial infection such as pneumonia is most likely caused by organisms derived from the animal kingdom.  
True False
43. All genetic mutations are harmful to an organism.  
True False

44. Vertical evolution, whereby living organisms evolve from a common ancestor ("tree of life"), is the only mechanism of evolution on Earth.  
True False
45. The effects of a genetic mutation are always limited to simply a change in DNA sequence with little consequence on the proteins expressed.  
True False
46. The proteome, rather than genome, is most directly responsible for the structure, function, and appearance of organisms.  
True False
47. Little scientific evidence is necessary when formulating a theory.  
True False
48. The maintenance of cell structure requires energy.  
True False
49. Discovery-based science and hypothesis testing are the two major scientific approaches that help us understand biology.  
True False
50. This question refers to the 5-stage process of hypothesis testing. What is the appropriate order of the stages when generating and testing a hypothesis?  
(1) Experimentation is conducted to determine if the predictions are correct.  
(2) The hypothesis is accepted or rejected.  
(3) Observations are made regarding a natural phenomenon.  
(4) The observations lead to a hypothesis that tries to explain the phenomenon. A useful hypothesis is one that is testable because it makes specific predictions.  
(5) The data from the experiment is analyzed.  
A. 1, 2, 3, 4, 5  
B. 3, 4, 5, 1, 2  
C. 1, 3, 4, 2, 5  
D. 3, 4, 1, 5, 2  
E. 3, 4, 2, 1, 5

# 1 Key

1. The simplest structure shared among all living organisms is the
- A. gut.
  - B.** cell.
  - C. photosynthetic chloroplast.
  - D. community.
  - E. nucleus.

*Blooms Level: Remember  
Brooker - Chapter 01 #1  
Section: 1.01  
Topic: General*

2. Which of the following is likely NOT a common feature shared among all living organisms?
- A. All living organisms use energy.
  - B. All living organisms maintain organization.
  - C. All living organisms have evolved over the course of many generations.
  - D. All living organisms maintain some level of homeostasis.
  - E.** All living organisms are composed of similar structures.

*Blooms Level: Remember  
Brooker - Chapter 01 #2  
Section: 1.01  
Topic: General*

3. All living organisms respond and adjust to their environments. The process through which this occurs is called
- A. photosynthesis.
  - B. metabolism.
  - C.** adaptation.
  - D. growth and development.
  - E. genomics.

*Blooms Level: Remember  
Brooker - Chapter 01 #3  
Section: 1.01  
Topic: General*

4. The process by which organisms maintain a stable internal environment in the face of a fluctuating external environment is called
- A. metabolism.
  - B. cellular respiration.
  - C. growth and development.
  - D.** homeostasis.
  - E. functional proteomics and genomics.

*Blooms Level: Remember  
Brooker - Chapter 01 #4  
Section: 1.01  
Topic: General*

5. Polypeptides (proteins) are composed of amino acids as \_\_\_\_\_ are composed of DNA.
- A.** genes
  - B. RNA
  - C. proteomes
  - D. lipids
  - E. metabolites

*Blooms Level: Understand  
Brooker - Chapter 01 #5  
Section: 1.01  
Topic: General*

6. We maintain a fairly constant body temperature despite exposures to different seasons or external temperatures. This is achieved through our capacity to
- A. adapt to changing environments.
  - B. regulate body temperature.
  - C. maintain homeostasis.
  - D.** All of these choices are correct.
  - E. None of these choices are correct.

*Blooms Level: Understand  
Brooker - Chapter 01 #6  
Section: 1.01  
Topic: General*

7. All of the chemical reactions used to break down nutrients and build up components within the body are collectively known as
- A. anabolism.
  - B. catabolism.
  - C.** metabolism.
  - D. proteolysis.
  - E. hydrolysis.

*Blooms Level: Remember  
Brooker - Chapter 01 #7  
Section: 1.01  
Topic: General*

8. Which level of organization includes all others?
- A. cell
  - B. tissue
  - C. organ
  - D. organism
  - E.** population

*Blooms Level: Remember  
Brooker - Chapter 01 #8  
Section: 1.01  
Topic: General*

9. Which level of organization is required for all others to form?
- A.** cell
  - B. tissue
  - C. organ
  - D. organism
  - E. population

*Blooms Level: Remember  
Brooker - Chapter 01 #9  
Section: 1.01  
Topic: General*

10. When cells associate with each other they form
- A. atoms.
  - B. molecules.
  - C. macromolecules.
  - D.** tissues.
  - E. populations.

*Blooms Level: Remember  
Brooker - Chapter 01 #10  
Section: 1.01  
Topic: General*

11. When communities of organisms interact with their physical environment they form a(n)  
A. population.  
B. organism.  
C. community.  
**D. ecosystem.**  
E. macromolecular community.

*Blooms Level: Remember  
Brooker - Chapter 01 #11  
Section: 1.01  
Topic: General*

12. Which of the following is LEAST likely required for the digestion of a meal?  
A. molecules  
B. cells  
C. tissues  
D. organs  
**E. populations**

*Blooms Level: Understand  
Brooker - Chapter 01 #12  
Section: 1.01  
Topic: General*

13. Which is the simplest of all levels of organization?  
**A. atom**  
B. cell  
C. organ  
D. organism  
E. population

*Blooms Level: Remember  
Brooker - Chapter 01 #13  
Section: 1.01  
Topic: General*

14. Which level of organization reflects an individual composed of multiple organ systems?  
A. atom  
B. cell  
C. organ  
**D. organism**  
E. population

*Blooms Level: Understand  
Brooker - Chapter 01 #14  
Section: 1.01  
Topic: General*

15. Which of the following are components of molecules?  
**A. atoms**  
B. cells  
C. organs  
D. organisms  
E. populations

*Blooms Level: Remember  
Brooker - Chapter 01 #15  
Section: 1.01  
Topic: General*

16. Many people at a wedding ceremony represent which level of organization?  
A. cell  
B. organ  
C. organism  
**D. population**  
E. ecosystem

*Blooms Level: Understand  
Brooker - Chapter 01 #16  
Section: 1.01  
Topic: General*

17. A flower on a plant represents which level of organization?  
A. atom  
B. cell  
**C.** organ  
D. organism  
E. population

*Blooms Level: Understand  
Brooker - Chapter 01 #17  
Section: 1.01  
Topic: General*

18. The phenomenon through which populations of organisms change over several generations is termed  
A. homeostasis.  
B. growth and development.  
C. reproduction.  
**D.** biological evolution.  
E. organization.

*Blooms Level: Remember  
Brooker - Chapter 01 #18  
Section: 1.01  
Topic: General*

19. Changes in \_\_\_\_\_ represent the predominant cause for biological evolution.  
A. homeostasis  
B. growth and development  
C. reproduction  
**D.** genetic makeup  
E. energy

*Blooms Level: Understand  
Brooker - Chapter 01 #19  
Section: 1.01  
Topic: General*

20. A variety of finch species within the Hawaiian Islands have acquired different types of beaks needed for utilizing specific food resources. The process by which these different species of finches came about is likely to have involved  
A. natural selection.  
B. evolution.  
C. an accumulation of harmful genetic mutations.  
**D.** both natural selection and evolution.  
E. None of these choices are correct.

*Blooms Level: Understand  
Brooker - Chapter 01 #20  
Section: 1.02  
Topic: General*

21. Which of the following is True of a genetic mutation?  
A. It always produces harmful effects.  
B. It never affects protein structure or function.  
C. It is not a mechanism through which biological evolution occurs.  
D. It happens quite frequently in a population.  
**E.** It generally produces a change in the DNA sequence of a gene.

*Blooms Level: Understand  
Brooker - Chapter 01 #21  
Section: 1.02  
Topic: General*

22. New species evolve from pre-existing species by the accumulation of
- A. metabolic events.
  - B.** genetic mutations.
  - C. proteomes.
  - D. reproductive events.
  - E. developmental events.

*Blooms Level: Understand  
Brooker - Chapter 01 #22  
Section: 1.02  
Topic: General*

23. Evolutionary change
- A. occurs through the modification of characteristics in a preexisting population.
  - B. may involve vertical descent with mutation.
  - C. may involve horizontal gene transfer.
  - D.** All of these choices are correct.
  - E. None of these choices are correct.

*Blooms Level: Understand  
Brooker - Chapter 01 #23  
Section: 1.02  
Topic: General*

24. In the process of biological evolution, new species may evolve through exchange of genes from one species to another. This process is called
- A. proteome transfer.
  - B.** horizontal gene transfer.
  - C. vertical evolution.
  - D. vertical descent with mutation.
  - E. genomic sciences.

*Blooms Level: Remember  
Brooker - Chapter 01 #24  
Section: 1.02  
Topic: General*

25. The grouping or classification of species is termed
- A. eukaryotism.
  - B. prokaryotism.
  - C. genus.
  - D. kingdom.
  - E.** taxonomy.

*Blooms Level: Remember  
Brooker - Chapter 01 #25  
Section: 1.02  
Topic: General*

26. When grouping organisms, which classification is most general for a particular type of organism?
- A.** Kingdom
  - B. Phylum
  - C. Order
  - D. Family
  - E. Species

*Blooms Level: Understand  
Brooker - Chapter 01 #26  
Section: 1.02  
Topic: General*

27. When grouping organisms, which classification is most general for a particular type of organism?
- A.** Kingdom
  - B. Phylum
  - C. Order
  - D. Family
  - E. Species

*Blooms Level: Understand  
Brooker - Chapter 01 #27  
Section: 1.02  
Topic: General*

28. Which Kingdom of organisms is most noted for its ability to carry out photosynthesis?
- A. Animalia
  - B. Protista
  - C. Fungi
  - D. Plantae**
  - E. Bacteria

Blooms Level: Remember  
Brooker - Chapter 01 #28  
Figure: 1.12  
Section: 1.02  
Topic: General

29. Biologists use nomenclature or the binomial to provide each species with a unique scientific name. Our species is called *Homo sapiens*. The first word refers to which taxonomical grouping?
- A. Kingdom
  - B. Phylum
  - C. Order
  - D. Genus**
  - E. Species

Blooms Level: Understand  
Brooker - Chapter 01 #29  
Section: 1.02  
Topic: General

30. When considering nomenclature for scientific names, what is the difference between the two primates, *Homo sapiens* and *Homo erectus*?
- A. One is a primate but the other is not.
  - B. They are animals of a different kingdom.
  - C. They are animals of a different order.
  - D. They are animals of a different species.**
  - E. They are animals of a different genus.

Blooms Level: Understand  
Brooker - Chapter 01 #30  
Section: 1.02  
Topic: General

31. Which of the following is generally more complex than the others?
- A. Archaea
  - B. Bacteria
  - C. Prokarya
  - D. Eukarya**
  - E. microorganisms

Blooms Level: Understand  
Brooker - Chapter 01 #31  
Section: 1.02  
Topic: General

32. The complete genetic composition of an organism is called its
- A. proteome.
  - B. genome.**
  - C. transcriptosome.
  - D. phenotype.
  - E. None of these choices are correct.

Blooms Level: Remember  
Brooker - Chapter 01 #32  
Section: 1.02  
Topic: General

33. Which is responsible for encoding the proteins found in a cell?  
**A.** genome  
B. proteome  
C. cytoskeleton  
D. evolution  
E. extracellular proteins

*Blooms Level: Remember  
Brooker - Chapter 01 #33  
Section: 1.02  
Topic: General*

34. If a scientist were studying the interaction of different proteins in the regulation of insulin secretion from a pancreatic cell, he or she would be studying  
A. genomics.  
B. proteomics.  
C. cell biology.  
D. both genomics and proteomics.  
**E.** both proteomics and cell biology.

*Blooms Level: Understand  
Brooker - Chapter 01 #34  
Section: 1.02  
Topic: General*

35. An explanation for a biological process that is substantiated by a large body of evidence is called a  
A. hypothesis.  
**B.** theory.  
C. systems biology.  
D. reductionism.  
E. prediction.

*Blooms Level: Remember  
Brooker - Chapter 01 #35  
Section: 1.03  
Topic: General*

36. Collecting data without a specific hypothesis in mind is called  
A. reductionism.  
B. hypothesis testing.  
**C.** discovery-based science.  
D. theoretical.  
E. All of these choices are correct.

*Blooms Level: Remember  
Brooker - Chapter 01 #36  
Section: 1.03  
Topic: General*

37. All tissues are composed of cells.  
**TRUE**

*Blooms Level: Understand  
Brooker - Chapter 01 #37  
Section: 1.01  
Topic: General*

38. The capacity to maintain a fairly constant body temperature is a homeostatic process.  
**TRUE**

*Blooms Level: Understand  
Brooker - Chapter 01 #38  
Section: 1.01  
Topic: General*

39. A community is composed of different populations of animals and plants.  
**TRUE**

*Blooms Level: Understand  
Brooker - Chapter 01 #39  
Section: 1.01  
Topic: General*

40. A defining characteristic that distinguishes prokaryotic and eukaryotic organisms is the lack of cell structure in one versus the other.  
**FALSE**
- Blooms Level: Understand  
Brooker - Chapter 01 #40  
Section: 1.02  
Topic: General*
41. The modification of a limb that was used for walking in a pre-existing ancestor to one that is used as a wing for a species today is called proteomics.  
**FALSE**
- Blooms Level: Understand  
Brooker - Chapter 01 #41  
Section: 1.02  
Topic: General*
42. A bacterial infection such as pneumonia is most likely caused by organisms derived from the animal kingdom.  
**FALSE**
- Blooms Level: Understand  
Brooker - Chapter 01 #42  
Section: 1.02  
Topic: General*
43. All genetic mutations are harmful to an organism.  
**FALSE**
- Blooms Level: Understand  
Brooker - Chapter 01 #43  
Section: 1.02  
Topic: General*
44. Vertical evolution, whereby living organisms evolve from a common ancestor ("tree of life"), is the only mechanism of evolution on Earth.  
**FALSE**
- Blooms Level: Understand  
Brooker - Chapter 01 #44  
Section: 1.02  
Topic: General*
45. The effects of a genetic mutation are always limited to simply a change in DNA sequence with little consequence on the proteins expressed.  
**FALSE**
- Blooms Level: Understand  
Brooker - Chapter 01 #45  
Section: 1.02  
Topic: General*
46. The proteome, rather than genome, is most directly responsible for the structure, function, and appearance of organisms.  
**TRUE**
- Blooms Level: Remember  
Brooker - Chapter 01 #46  
Section: 1.02  
Topic: General*
47. Little scientific evidence is necessary when formulating a theory.  
**FALSE**
- Blooms Level: Understand  
Brooker - Chapter 01 #47  
Section: 1.03  
Topic: General*
48. The maintenance of cell structure requires energy.  
**TRUE**
- Blooms Level: Understand  
Brooker - Chapter 01 #48  
Section: 1.01  
Topic: General*

49. Discovery-based science and hypothesis testing are the two major scientific approaches that help us understand biology.

**TRUE**

*Blooms Level: Remember  
Brooker - Chapter 01 #49  
Section: 1.03  
Topic: General*

50. This question refers to the 5-stage process of hypothesis testing. What is the appropriate order of the stages when generating and testing a hypothesis?
- (1) Experimentation is conducted to determine if the predictions are correct.
  - (2) The hypothesis is accepted or rejected.
  - (3) Observations are made regarding a natural phenomenon.
  - (4) The observations lead to a hypothesis that tries to explain the phenomenon. A useful hypothesis is one that is testable because it makes specific predictions.
  - (5) The data from the experiment is analyzed.
- A. 1, 2, 3, 4, 5  
B. 3, 4, 5, 1, 2  
C. 1, 3, 4, 2, 5  
**D.** 3, 4, 1, 5, 2  
E. 3, 4, 2, 1, 5

*Blooms Level: Remember  
Brooker - Chapter 01 #50  
Section: 1.03  
Topic: General*

# 1 Summary

<u>Category</u>	<u># of Questions</u>
Blooms Level: Remember	22
Blooms Level: Understand	28
Brooker - Chapter 01	50
Figure: 1.12	1
Section: 1.01	23
Section: 1.02	22
Section: 1.03	5
Topic: General	50