

Human Biology 16th edition Mader Test Bank

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Human Biology, 16e (Mader)
Chapter 1 Exploring Life and Science

- 1) The scientific study of life is called
- A) biology.
 - B) ecology.
 - C) anatomy.
 - D) biochemistry.
 - E) limnology.

Answer: A

Explanation: Biology is the study of life.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 1. Remember

Learning Outcome: 01.01.01 Explain the basic characteristics that are common to all living organisms.

Accessibility: Keyboard Navigation

- 2) A complex individual that consists of organ systems is known as a(n)
- A) community.
 - B) population.
 - C) organism.
 - D) tissue.
 - E) species.

Answer: C

Explanation: A complex individual that consists of organ systems is known as an organism.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Describe the levels of organization of life.

Accessibility: Keyboard Navigation

- 3) All of the ecosystems on the planet together are called the
- A) atmosphere.
 - B) hydrosphere.
 - C) biosphere.
 - D) lithosphere.
 - E) stratosphere.

Answer: C

Explanation: The biosphere is the sphere that contains all life, made up of all Earth's ecosystems.

Section: 01.01

Topic: Levels of Biological Organization; Biodiversity

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Describe the levels of organization of life.

Accessibility: Keyboard Navigation

- 4) In a swamp, all of the alligators would represent a(n)
- A) organism.
 - B) population.
 - C) community.
 - D) ecosystem.
 - E) biosphere.

Answer: B

Explanation: The alligators in a swamp are all members of one species and belong to a population.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 2. Understand

Learning Outcome: 01.01.02 Describe the levels of organization of life.

Accessibility: Keyboard Navigation

- 5) The region in which populations interact with each other and with the physical environment is called a(n) community.

Answer: FALSE

Explanation: The region in which populations interact with each other and with the physical environment is called a(n) ecosystem.

Section: 01.01

Topic: Levels of Biological Organization; Biodiversity

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Describe the levels of organization of life.

Accessibility: Keyboard Navigation

- 6) The region in which populations interact with each other and with the physical environment is called a(n)
- A) entity.
 - B) ecosystem.
 - C) biosystem.
 - D) community.
 - E) biosphere.

Answer: B

Explanation: An ecosystem includes populations of organisms interacting with each other and the physical environment.

Section: 01.01

Topic: Levels of Biological Organization; Biodiversity

Bloom's: 1. Remember

Learning Outcome: 01.01.02 Describe the levels of organization of life.

Accessibility: Keyboard Navigation

- 7) All of the changes that occur starting from the time an egg is fertilized and continuing through childhood, adolescence, and adulthood are called
- A) metabolism.
 - B) evolution.
 - C) homeostasis.
 - D) reproduction.
 - E) development.

Answer: E

Explanation: Development includes the changes that occur in an organism throughout its lifetime.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 1. Remember

Learning Outcome: 01.01.03 Explain why the study of evolution is important in understanding life.

Accessibility: Keyboard Navigation

- 8) Which of the following statements most correctly defines homeostasis?
- A) All living organisms are alike.
 - B) Living organisms do not change much over time.
 - C) Human beings and other animals acquire materials and energy when they eat food.
 - D) It takes energy to maintain the organization of the cell.
 - E) Cells and organisms maintain a fairly constant internal environment.

Answer: E

Explanation: Homeostasis is the ability of living things to maintain an internal environment that operates under specific conditions.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 4. Analyze

Learning Outcome: 01.01.03 Explain why the study of evolution is important in understanding life.

Accessibility: Keyboard Navigation

- 9) The face of a sunflower turns to follow the sun as it moves across the sky. This is an example of
- A) metabolism.
 - B) homeostasis.
 - C) response to stimuli.
 - D) development.
 - E) reproduction.

Answer: C

Explanation: Movement in response to sunlight is an example of response to an external stimulus.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 3. Apply

Learning Outcome: 01.01.01 Explain the basic characteristics that are common to all living organisms.

Accessibility: Keyboard Navigation

10) Choose the correct order (1–5) of increasing complexity/organization.

- A) (1) tissues, (2) organ systems, (3) cells, (4) organs, (5) organism
- B) (1) cells, (2) organ systems, (3) tissues, (4) organs, (5) organism
- C) (1) tissues, (2) organs, (3) organ systems, (4) cells, (5) organism
- D) (1) cells, (2) tissues, (3) organs, (4) organ systems, (5) organism
- E) (1) organism, (2) organ systems, (3) organs, (4) tissues, (5) cells

Answer: D

Explanation: The levels of organization include: (1) cells, (2) tissues, (3) organs, (4) organ systems, (5) organism.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 2. Understand

Learning Outcome: 01.01.02 Describe the levels of organization of life.

Accessibility: Keyboard Navigation

11) Fish have scales that enable them to live in a water environment. This is an example of

- A) homeostasis.
- B) adaptation.
- C) metabolism.
- D) development.
- E) cellular organization.

Answer: B

Explanation: Adaptation provides members of a population with a better chance for survival. Fish scales are an adaptation to their environment.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 2. Understand

Learning Outcome: 01.01.03 Explain why the study of evolution is important in understanding life.

Accessibility: Keyboard Navigation

12) The domain Eukarya contains _____ kingdom(s).

- A) one
- B) two
- C) three
- D) four
- E) five

Answer: D

Explanation: The four kingdoms in domain Eukarya include: plants, fungi, animals, and protists.

Section: 01.02

Topic: Eukarya

Bloom's: 1. Remember

Learning Outcome: 01.02.01 Summarize the place of humans in the overall classification of living organisms.

Accessibility: Keyboard Navigation

13) Traditions, beliefs, and values are considered what aspect of human life?

- A) communicative
- B) cultural
- C) instructional
- D) biological
- E) chemical

Answer: B

Explanation: Cultural activities of humans include traditions, beliefs, and values.

Section: 01.02

Topic: Humans and Life

Bloom's: 2. Understand

Learning Outcome: 01.02.02 Understand that humans have a cultural heritage.

Accessibility: Keyboard Navigation

14) The cell you are examining under the microscope appears to contain a nucleus. This organism belongs to the domain

- A) Bacteria.
- B) Archaea.
- C) Eukarya.
- D) Animalia.
- E) Fungi.

Answer: C

Explanation: Only domain Eukarya contains organisms that contain a nucleus. Animalia and Fungi are both kingdoms within the domain Eukarya.

Section: 01.02

Topic: Eukarya

Bloom's: 2. Understand

Learning Outcome: 01.02.01 Summarize the place of humans in the overall classification of living organisms.

Accessibility: Keyboard Navigation

15) Which organisms are most closely related to humans?

- A) spiders
- B) earthworms
- C) parakeets
- D) meerkats
- E) snakes

Answer: D

Explanation: All of these are animals. Only snakes, parakeets, and meerkats are vertebrates. Only meerkats are mammals; therefore meerkats are most closely related to humans.

Section: 01.02

Topic: Humans and Life

Bloom's: 4. Analyze

Learning Outcome: 01.02.01 Summarize the place of humans in the overall classification of living organisms.

Accessibility: Keyboard Navigation

16) Humans evolved from apes.

Answer: FALSE

Explanation: Today's apes are our evolutionary cousins. Humans did not evolve from apes.

Section: 01.02

Topic: Humans and Life

Bloom's: 2. Understand

Learning Outcome: 01.02.01 Summarize the place of humans in the overall classification of living organisms.

Accessibility: Keyboard Navigation

17) Only humans have a language that allows for the communication of information and experiences symbolically.

Answer: TRUE

Explanation: Humans are the only animals with this capacity.

Section: 01.02

Topic: Humans and Life

Bloom's: 1. Remember

Learning Outcome: 01.02.02 Understand that humans have a cultural heritage.

Accessibility: Keyboard Navigation

18) Humans clear forests to grow crops, and they build houses and cities. What are these an example of?

A) how humans modify the biosphere

B) how humans preserve ecosystems

C) the high value humans place on biodiversity

D) the positive impact of humans on life on Earth

E) how humans do not need the rest of life on Earth

Answer: A

Explanation: These are examples of how humans modify the biosphere, often to their own detriment.

Section: 01.02

Topic: Humans and Life

Bloom's: 3. Apply

Learning Outcome: 01.02.03 Describe the relationship between humans and the biosphere.

Accessibility: Keyboard Navigation

19) Humans are part of the biosphere and must live in harmony with it if we are to survive as a species.

Answer: TRUE

Explanation: All living things on Earth are part of the biosphere. We are dependent on the rest of the biosphere and must preserve it.

Section: 01.02

Topic: Humans and Life

Bloom's: 2. Understand

Learning Outcome: 01.02.03 Describe the relationship between humans and the biosphere.

Accessibility: Keyboard Navigation

20) _____ observations are supported by factual information, while _____ observations involve personal judgment.

- A) Subjective; analytical
- B) Objective; analytical
- C) Objective; subjective
- D) Objective; hypothetical
- E) Subjective; theoretical

Answer: C

Explanation: Objective observations are supported by factual information, while subjective observations involve personal judgment.

Section: 01.03

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation

21) Which of the following statements is an objective observation?

- A) This milk tastes funny.
- B) This package is larger than that one.
- C) I like this picture.
- D) This mattress feels hard to me.
- E) I think I am going to be sick.

Answer: B

Explanation: Only the observation that one package is larger than another is objective—it can be measured. The rest of the statements rely on personal opinion.

Section: 01.03

Topic: Process of Science

Bloom's: 4. Analyze

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation

22) What is the unifying principle of the biological sciences?

- A) technology
- B) anatomy
- C) biochemistry
- D) taxonomy
- E) evolution

Answer: E

Explanation: The unifying principle of the biological sciences is evolution.

Section: 01.03

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation

23) Where on a graph can you find the information that the graph pertains to?

- A) The x-axis only.
- B) The y-axis only.
- C) The dot points that are connected by the lines of the graph.
- D) The top of each bar in a bar graph.
- E) The x-axis and y-axis.

Answer: E

Explanation: Both the x- and y-axis of the graph contains information about what the graph pertains to. The top of the bar in bar graphs will not contain any information.

Section: 01.03

Topic: Process of Science

Bloom's: 2. Understand

Learning Outcome: 01.03.04 Interpret information that is presented in a scientific graph.

Accessibility: Keyboard Navigation

24) The tentative explanation to be tested is called

- A) a theory.
- B) a hunch.
- C) a hypothesis.
- D) the data.
- E) the conclusion.

Answer: C

Explanation: A hypothesis is a tentative explanation to be tested.

Section: 01.03

Topic: Scientific Method

Bloom's: 1. Remember

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation

25) Line graphs are used to depict the relationship between two quantities.

Answer: TRUE

Explanation: True, line graphs are used to depict the relationship between two quantities.

Section: 01.03

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.03.04 Interpret information that is presented in a scientific graph.

Accessibility: Keyboard Navigation

26) The information collected during the experiment or observation is called

- A) a theory.
- B) a hunch.
- C) the hypothesis.
- D) the data.
- E) the conclusion.

Answer: D

Explanation: Data includes the information collected during the experiment or an observation.

Section: 01.03

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation

27) The general public needs to have an understanding of science in order to make informed decisions about the future of our species.

Answer: TRUE

Explanation: True, the general public needs to have an understanding of science in order to make informed decisions about the future of humans and our world.

Section: 01.04

Topic: Process of Science

Bloom's: 2. Understand

Learning Outcome: 01.04.02 Summarize some of the major challenges facing science.

Accessibility: Keyboard Navigation

28) The cause of stomach ulcers appears to be

- A) excess stomach acid.
- B) the bacterium *Helicobacter pylori*.
- C) drinking too much coffee.
- D) extreme stress.
- E) diets rich in meat products.

Answer: B

Explanation: The bacterium *Helicobacter pylori* is a major contributor to stomach ulcers.

Section: 01.03

Topic: Bacteria; Experimental Design

Bloom's: 1. Remember

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation

- 29) Which of the following statements is a hypothesis?
- A) If a student buys a meal plan, he or she will eat more vegetables.
 - B) Ginny gained 5 lbs her freshman year.
 - C) Blake failed the test.
 - D) There are more calories in french fries than in colas.
 - E) I like my biology class better than my other classes.

Answer: A

Explanation: If/then statements are often hypotheses. The other statements do not propose something that can be tested.

Section: 01.03

Topic: Scientific Method

Bloom's: 5. Evaluate

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation

- 30) A controlled study in which neither the patient nor the examiner is aware of whether the patient is receiving a treatment, is called a(n)
- A) statistical study.
 - B) double-blind study.
 - C) variable study.
 - D) adaptive study.
 - E) blind study.

Answer: B

Explanation: In a double-blind study, neither the patient nor the examiner is aware of whether the patient is receiving a treatment.

Section: 01.03

Topic: Experimental Design

Bloom's: 1. Remember

Learning Outcome: 01.03.02 Distinguish between a control group and an experimental group in a scientific test.

Accessibility: Keyboard Navigation

31) In an experiment designed to test the effect of temperature on goldfish respiration, the temperatures that were changed represent what type of variable?

- A) control
- B) responding
- C) experimental
- D) correlative
- E) placebo

Answer: C

Explanation: The temperatures are being changed by the researchers and are called the experimental variables.

Section: 01.03

Topic: Experimental Design

Bloom's: 2. Understand

Learning Outcome: 01.03.02 Distinguish between a control group and an experimental group in a scientific test.

Accessibility: Keyboard Navigation

32) If the control group in an experiment shows the same results as the test group, the treatment was successful.

Answer: FALSE

Explanation: If the control and test group show the same results, the treatment has no effect.

Section: 01.03

Topic: Experimental Design

Bloom's: 2. Understand

Learning Outcome: 01.03.02 Distinguish between a control group and an experimental group in a scientific test.

Accessibility: Keyboard Navigation

33) To make all subjects think they are receiving the same treatment, patients in the control group can receive a placebo.

Answer: TRUE

Explanation: A placebo is a treatment that appears to be the same as that administered to the test group but contains no medication.

Section: 01.03

Topic: Experimental Design

Bloom's: 1. Remember

Learning Outcome: 01.03.02 Distinguish between a control group and an experimental group in a scientific test.

Accessibility: Keyboard Navigation

- 34) One of the difficulties with publication of research in scientific journals is that it
- A) is technical and may be difficult for a layperson to read.
 - B) is often out of context or misunderstood.
 - C) is unverified and usually not referenced.
 - D) displays bias.
 - E) is designed to convince readers to purchase a product.

Answer: A

Explanation: Scientific journals are often technical and difficult to read and understand for those outside of the field.

Section: 01.03

Topic: Process of Science

Bloom's: 2. Understand

Learning Outcome: 01.03.03 Recognize the importance of scientific journals in the reporting of scientific information.

Accessibility: Keyboard Navigation

- 35) Which of the following URLs would you trust least in writing a scientific paper?

- A) .com
- B) .gov
- C) .edu
- D) .org
- E) both .edu and .gov

Answer: A

Explanation: URLs that end in .com often represent companies that are intending to sell you a product and may not present trustworthy information.

Section: 01.03

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.03.03 Recognize the importance of scientific journals in the reporting of scientific information.

Accessibility: Keyboard Navigation

- 36) An important part of scientific research is repeatability.

Answer: TRUE

Explanation: Another scientist should be able to repeat the experiment in a different location and get the same, or very similar, results.

Section: 01.03

Topic: Experimental Design

Bloom's: 2. Understand

Learning Outcome: 01.03.03 Recognize the importance of scientific journals in the reporting of scientific information.

Accessibility: Keyboard Navigation

- 37) The standard error tells
- A) how often the examiner made an error.
 - B) how often the experimental variable was tested.
 - C) the relationship between the control and test groups.
 - D) whether or not the research has been published in a scientific journal.
 - E) how uncertain a particular value is.

Answer: E

Explanation: The standard error is a statistical term that tells how uncertain a particular value is.

Section: 01.03

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.03.05 Recognize the importance of statistical analysis to the study of science.

Accessibility: Keyboard Navigation

- 38) A probability value of less than 5% in a scientific study is acceptable.

Answer: TRUE

Explanation: This is acceptable, but keep in mind that the lower the p value, the less likely that results are due to chance.

Section: 01.03

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.03.05 Recognize the importance of statistical analysis to the study of science.

Accessibility: Keyboard Navigation

- 39) Which of the following is an example of correlation without causation?

- A) HPV can cause cervical cancer.
- B) Illegal drug use causes an increase in crime.
- C) *Helicobacter pylori* can cause ulcers.
- D) People who commit crimes also consume bread.
- E) Parents have children.

Answer: D

Explanation: Many people consume bread and consuming bread does not make you commit crimes.

Section: 01.03

Topic: Process of Science

Bloom's: 4. Analyze

Learning Outcome: 01.03.05 Recognize the importance of statistical analysis to the study of science.

Accessibility: Keyboard Navigation

40) In a graph, the experimental variable is plotted on the

- A) x-axis.
- B) y-axis.
- C) x- and y-axis.
- D) z-axis.
- E) x- and z-axis.

Answer: A

Explanation: The experimental variable is plotted on the x- or horizontal axis.

Section: 01.04

Topic: Experimental Design

Bloom's: 1. Remember

Learning Outcome: 01.03.04 Interpret information that is presented in a scientific graph.

Accessibility: Keyboard Navigation

41) Choose the following interest group that should be held most responsible for the future roles of new scientific technologies.

- A) scientists
- B) politicians
- C) clergy
- D) educators
- E) everyone

Answer: E

Explanation: Everyone should be held responsible for the future roles of new scientific technologies.

Section: 01.04

Topic: Process of Science

Bloom's: 2. Understand

Learning Outcome: 01.04.02 Summarize some of the major challenges facing science.

Accessibility: Keyboard Navigation

42) In conducting a review of the literature on the Internet, which of the following sources would be the least reliable?

- A) The Centers of Disease Control
- B) The Cystic Fibrosis Foundation
- C) The National Institute of Health
- D) The Pasteur Institute
- E) Astrology and Medicine

Answer: E

Explanation: The source Astrology and Medicine would be the least reliable.

Section: 01.03

Topic: Process of Science

Bloom's: 5. Evaluate

Learning Outcome: 01.03.03 Recognize the importance of scientific journals in the reporting of scientific information.

Accessibility: Keyboard Navigation

43) After studying biology, you should

- A) become an animal rights activist.
- B) be better able to make wise decisions regarding your own well-being and the earth's.
- C) get a high paying job as a biologist.
- D) understand all there is to know about humans and biology.
- E) dislike anything to do with biology.

Answer: B

Explanation: After studying biology, it is hoped that you will be better able to make wise decisions regarding your own well-being and the earth's.

Section: 01.04

Topic: Process of Science

Bloom's: 3. Apply

Learning Outcome: 01.04.02 Summarize some of the major challenges facing science.

Accessibility: Keyboard Navigation

44) Technology is the application of scientific knowledge to the interests of humans.

Answer: TRUE

Explanation: Technology, the application of scientific knowledge, offers us ways to improve our lives.

Section: 01.04

Topic: Process of Science

Bloom's: 1. Remember

Learning Outcome: 01.04.01 Distinguish between science and technology.

Accessibility: Keyboard Navigation

45) Scientists who have a financial stake in a company are now required to state that when they do research. This is an example of

- A) ethics in science.
- B) financial planning.
- C) a new business model.
- D) a biotechnology revolution.
- E) statistical significance.

Answer: A

Explanation: A scientist who has a vested interest in the success of a product may not be honest in evaluating that product. This is an example of ethics in science.

Section: 01.04

Topic: Process of Science

Bloom's: 3. Apply

Learning Outcome: 01.04.02 Summarize some of the major challenges facing science.

Accessibility: Keyboard Navigation

46) Which of the following statements best explains the atomic bomb and the benefit of nuclear physics to cancer therapy?

- A) Science and technology are not risk-free.
- B) Science and technology are wrong.
- C) Science and technology are good for mankind.
- D) Science and technology are value-neutral.
- E) Science and technology always provide value to people.

Answer: A

Explanation: There are often risks and benefits to science and technology.

Section: 01.04

Topic: Process of Science

Bloom's: 5. Evaluate

Learning Outcome: 01.04.02 Summarize some of the major challenges facing science.

Accessibility: Keyboard Navigation

47) List the four kingdoms of life that are classified under the domain Eukarya and indicate the key features of each.

Answer: Kingdom Protista: Complex single-celled organisms, sometimes filaments, colonies, or even multicellular. Absorb, photosynthesize, and ingest food.

Kingdom Fungi: Mostly multicellular filaments with specialized, complex cells. Absorb food.

Kingdom Plantae: Multicellular, usually with specialized tissues, containing complex cells, photosynthesize.

Kingdom Animalia: Multicellular with specialized tissues containing complex cells. Ingest cells.

Section: 01.02

Topic: Eukarya

Bloom's: 6. Create

Learning Outcome: 01.02.01 Summarize the place of humans in the overall classification of living organisms.

Accessibility: Keyboard Navigation

48) List the characteristics that are common to all living organisms.

Answer: Organisms are organized. They have the ability to acquire materials and energy. They can reproduce and grow. Organisms have an evolutionary history.

Section: 01.01

Topic: Levels of Biological Organization

Bloom's: 6. Create

Learning Outcome: 01.01.01 Explain the basic characteristics that are common to all living organisms.

Accessibility: Keyboard Navigation

49) Describe the steps associated with the scientific method.

Answer: Observation: New observations are made and previous data are studied.

Hypothesis: Input from various sources is used to formulate a testable statement.

Experiment/Observation: The hypothesis is tested by experiment or further observations.

Conclusion: The results are analyzed, and the hypothesis is supported or rejected.

Scientific Theory: Many experiments and observations support a theory.

Section: 01.03

Topic: Scientific Method

Bloom's: 6. Create

Learning Outcome: 01.03.01 Describe the general process of the scientific method.

Accessibility: Keyboard Navigation