

Guest Hollow's Biology Workbook Answer Key

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Lesson 1.1: True or False

1. true
2. false
3. false
4. true
5. false
6. true
7. false
8. false
9. true
10. true
11. false
12. true
13. false
14. true
15. true

Lesson 1.1: Multiple Choice

1. a
2. d
3. a
4. b
5. c
6. d
7. c

Lesson 1.1 Vocabulary I

1. k
2. d
3. b
4. j
5. f
6. l
7. g
8. c
9. e
10. h
11. a
12. i

Lesson 1.1 Vocabulary 2

1. observation
2. experiment
3. law
4. world
5. Evidence
6. method
7. science
8. question
9. theory
10. communicating
11. Science

Psalm 19 missing words:

declare, God, hands, speech, knowledge, language, earth, world

Lesson 1.2: True or False

1. true
2. false
3. false
4. false
5. true
6. true
7. true
8. false
9. false
10. true
11. false
12. false
13. true
14. false
15. false

1.2 Multiple Choice

1. a
2. a
3. d
4. b
5. d
6. b
7. c
8. d

Lesson 1.2 Vocabulary 1

1. e
2. j
3. l
4. f
5. i
6. h
7. k
8. b
9. g
10. a
11. d
12. c

Lesson 1.2 Vocabulary 2

1. Biology
2. develop
3. function
4. cells
5. homeostasis
6. tissue
7. organism
8. Competition
9. environment
10. organ
11. biosphere
12. Reproduction

Characteristics of Life

Students should have labeled and illustrated 3 of the following concepts and then written the remaining 3 on the lines below the circles:

To be classified as a living thing, an object must have all six of the following characteristics:

It responds to the environment.

It grows and develops.

It produces offspring. - Offspring is just a fancy word for babies or little copies of itself or something like that.

It maintains homeostasis. - Don't worry, I'll explain what that means in a minute.

It has complex chemistry.

It consists of cells.

Lesson 2.1 True or False

1. false
2. true
3. true
4. true
5. false
6. false
7. true
8. true
9. false
10. true
11. true
12. false
13. true
14. true
15. true

Lesson 2.1 Critical Reading

1. (1) Make up the cells and other structures of organisms. (2) Carry out life processes.
2. Carbohydrates and lipids store energy. Carbohydrates are the most common type of organic compound.
3. DNA consists of two polynucleotide chains, RNA consists of just one polynucleotide chain.
4. Proteins are made out of small molecules called amino acids. Small proteins may contain just a few hundred amino acids, whereas large proteins may contain thousands of amino acids.
5. Carbon is considered the essential element of life because of its ability to form stable bonds with many elements, including itself. This property allows carbon to form a huge variety of very large and complex molecules. In fact, there are nearly 10 million carbon based compounds in living organisms.

Lesson 2.1 Multiple Choice

1. c
2. b
3. d
4. d
5. c
6. b
7. c
8. d

Lesson 2.1 Vocabulary I

1. e
2. c
3. b
4. j
5. d
6. i
7. a
8. g
9. k
10. l
11. h
12. f

Lesson 2.1: Vocabulary II

1. compound
2. DNA
3. Antibodies
4. Organic, life
5. Glucose
6. Carbohydrates
7. Hemoglobin
8. double helix
9. Starch
10. Cellulose
11. genetic, RNA
12. mass

Lesson 2.1: Critical Writing

Sample answers

1. Carbohydrates: used to store energy.
2. Lipids: used to store energy, are the major components of cell membranes, and serve as chemical messengers.
3. Proteins: help cells keep their shape, make up muscle tissues, speed up chemical reactions in cells, target foreign particles (such as bacteria) for destruction, and some carry messages or materials.
4. Nucleic Acids: has a code that carries instructions for making proteins. The information in DNA is passed from parents to offspring when organisms reproduce. This is how inherited characteristics are passed from one generation

to the next.

Lesson 2.2 True or False

1. false
2. false
3. true
4. true
5. true
6. false
7. true
8. false
9. true
10. true
11. true
12. false
13. true
14. true
15. true

Lesson 2.2: Critical Reading

1. An enzyme is a protein that speeds up a biochemical reaction.
2. Biochemistry demonstrates that knowledge of chemistry as well as biology is needed to understand fully the life processes of organisms at the level of the cell. Metabolism is the sum of all the biochemical reactions in an organism, and biochemical reactions are chemical reactions that take place inside the cells of living things. Therefore, metabolism is an aspect of biochemistry.
3. When your body digests food, molecules are broken down into smaller units and release energy. As energy is released, these are exothermic reactions. Exothermic reactions in organisms are catabolic reactions.
4. An enzyme works by reducing the amount of activation energy needed to start the reaction.
5. Activation energy is the amount of energy needed to start a biochemical reaction.

Lesson 2.2: Multiple Choice

1. a
2. d
3. c
4. d
5. b

6. a
7. a
8. c

Lesson 2.2: Vocabulary I

1. e
2. g
3. k
4. l
5. j
6. f
7. d
8. b
9. c
10. i
11. h
12. a

Lesson 2.2: Vocabulary II

1. cells
2. reactants
3. energy
4. Exothermic
5. Activation
6. metabolism
7. chemical bonds
8. conserved
9. heat
10. element
11. anabolic
12. enzyme

Lesson 2.2: Critical Writing

Sample answer

Enzymes are proteins that speeds up a biochemical reaction. Enzymes works by reducing the amount of activation energy needed to start a biochemical reaction. The reaction of glucose and oxygen turning into carbon dioxide and water occurs much faster in the presence of enzymes.

Lesson 2.3: Critical Reading

1. Pepsin is an enzyme that helps break down proteins

in the stomach. Pepsin needs an acidic environment to do its job, and the stomach secretes a strong acid that allows pepsin to work.

2. Water can dissolve many substances that organisms need, and it is necessary for many biochemical reactions.

3. Lemon juice has a pH of about 2.5, and soda pop has a pH of about 3. Lemon juice is more acidic, making it the stronger acid.

4. A hydronium ion (H_3O^+) is one of the products of the breakdown of water. The hydronium ion, which has positive charge, forms when another water molecule accepts a hydrogen ion from another water molecule.

5. Photosynthesis uses water as a reactant, and in cellular respiration, water is a product.

Lesson 2.3: True or False

1. true
2. false
3. false
4. true
5. false
6. true
7. true
8. true
9. true
10. true
11. false
12. false
13. true
14. false
15. true

Lesson 2.3: Multiple Choice

1. a
2. d
3. c
4. d
5. b
6. d
7. b

Lesson 2.3: Vocabulary 1

1. c
2. i

3. a
4. b
5. l
6. e
7. h
8. k
9. g
10. f
11. j
12. d

Lesson 2.3: Vocabulary II

1. structure
2. oxygen, hydrogen
3. lower
4. solution
5. acidity
6. acid
7. hydrogen
8. Polarity
9. boiling
10. 7
11. Blood
12. positive

Answer to question:

Each molecule of water consists of one atom of oxygen and two atoms of hydrogen (student's drawing should show this).

The oxygen atom in a water molecule attracts electrons more strongly than the hydrogen atoms do. As a result, the oxygen atom has a slightly negative charge, and the hydrogen atoms have a slightly positive charge. This difference in electrical charge between different parts of the water molecule is called polarity and is why water is a polar molecule.

Lesson 3.1: True or False

1. false
2. true
3. true
4. false
5. true
6. true
7. false
8. true

9. false
10. true
11. false
12. true
13. false
14. false
15. true

Lesson 3.1: Critical Reading

1. Eukaryotic cells contain a nucleus.
2. Prokaryotic organisms are all single-celled organisms, such as bacteria.
3. An organelle is a structure within the cytoplasm that performs a specific job in the cell. Examples include mitochondria, rough endoplasmic reticulum and the Golgi apparatus.
4. A nucleus of a cell is a structure in the cytoplasm of eukaryotic cells that is surrounded by a membrane. The nucleus contains DNA.
5. Viruses are not living. They are not made of cells, nor can they reproduce by themselves.

Lesson 3.1: Multiple Choice

1. d
2. b
3. a
4. b
5. a
6. a
7. b
8. d

Lesson 3.1: Vocabulary I

1. d
2. e
3. i
4. f
5. g
6. k
7. l
8. b
9. d
10. j
11. a

12. h

Lesson 3.1: Vocabulary II

1. cells
2. cytoplasm, ribosomes
3. ribosomes
4. bacteria
5. Eukaryotic, prokaryotic
6. bacteria (or animalcules)
7. Viruses
8. nucleus
9. DNA
10. lipids
(or phospholipids)
11. function
12. Prokaryotic cells

3.1 Compare and Contrast

Students should draw and point out these types of differences:

Based on whether they have a nucleus, there are two basic types of cells: prokaryotic cells and eukaryotic cells.

1. Prokaryotic cells are cells without a nucleus.
2. Both cell types have ribosomes and plasma membranes.
3. Eukaryotic cells are usually larger than prokaryotic cells.
4. Eukaryotic cells are found mainly in multicellular organisms.
5. Eukaryotic cells contain other organelles besides the nucleus.

Lesson 3.2: True or False

1. false
2. false
3. false
4. false
5. true
6. true
7. true
8. true
9. false

10. true
11. true
12. false
13. true
14. false
15. true

Lesson 3.2: Critical Reading

1. The plasma membrane (or cell membrane) is the outer barrier of the cell; it forms a barrier between the cytoplasm inside the cell and the environment outside the cell.
2. Semi-permeability, or selective permeability, is the ability to allow only certain molecules in or out of the cell. It is a characteristic of the plasma membrane.
3. The plasma membrane is made out of phospholipids, and each phospholipid molecule has a head and two tails. The head “loves” water (hydrophilic) and the tails “hate” water (hydrophobic). The water-hating tails are on the interior of the membrane as they cannot be in contact with water, whereas the water-loving heads point outwards, toward either the cytoplasm or the fluid that surrounds the cell as they are in contact with a water-based environment. For the membrane to form in this way, it must be a bilayer.
4. There are other lipids, such as cholesterol, and many proteins. Cholesterol helps the plasma membrane keep its shape. Many of the proteins in the plasma membrane assist other substances in crossing the membrane.
5. Cilia and flagella are extensions from the plasma membrane. The whip-like flagella and brush-like cilia can help a single-celled organism move, or, in multicellular organisms, they can move other particles, such as by sweeping foreign particles in lung cells.

Lesson 3.2: Multiple Choice

1. d
2. c
3. a
4. b
5. d
6. a
7. a
8. c

Lesson 3.2: Vocabulary I

1. j
2. f
3. l
4. e
5. b
6. d
7. h
8. k
9. g
10. a
11. c
12. i

Lesson 3.2: Vocabulary II

1. nucleus
2. cytoplasm
3. barrier
4. cytoskeleton
5. ribosomes
6. enzymes
7. Plant
8. proteins
9. power plants
10. organ system
11. chromosomes
12. flagella

Lesson 3.2: Critical Writing

Sample answer

The plasma membrane forms a barrier between the cytoplasm inside the cell and the environment outside the cell. This barrier forms due to the structure of the plasma membrane. The plasma membrane is composed mainly of phospholipids. The phospholipids in the plasma membrane are arranged in two layers, called a phospholipid bilayer. Each phospholipid molecule has a head and two tails. The head part is hydrophilic and the tails are hydrophobic. The water-hating tails are on the interior of the membrane, whereas the water-loving heads point outwards, toward either the cytoplasm or the fluid that surrounds the cell. This orientation of the phospholipid bilayer forms the water-tight barrier.

Lesson 3.3: True or False

1. false
2. true
3. true
4. true
5. false
6. false
7. false
8. false
9. false
10. false
11. true
12. true
13. true
14. true
15. true

Lesson 3.3 Critical Reading

1. In passive transport, a substance always moves from an area where it is more concentrated to an area where it is less concentrated. It's a little like a ball rolling down a hill. It goes by itself without any input of extra energy.
2. Simple diffusion proceeds without any help from other molecules, whereas facilitated diffusion is diffusion with the help of transport proteins.
3. As simple diffusion is the movement of a substance across a membrane without any help from other molecules, the substances must be able to squeeze between the lipid molecules in the plasma membrane. The substance simply moves from the side of the membrane where it is more concentrated to the side where it is less concentrated. Substances that can move through the membrane by simple diffusion are generally very small, hydrophobic molecules, such as molecules of oxygen and carbon dioxide.
4. Water moves across the membrane by osmosis. Like other molecules, water moves from an area of higher concentration to an area of lower concentration. Water moves across the membrane by going through a channel protein.
5. The two types of transport proteins are channel proteins and carrier proteins. Channel proteins form tiny holes in the membrane. This allows water molecules and small ions to pass through the membrane without

coming into contact with the hydrophobic tails of the lipid molecules in the interior of the membrane. Carrier proteins bind with specific ions or molecules and then change shape. As carrier proteins change shape, they carry the ions or molecules across the membrane.

Lesson 3.3: Multiple Choice

1. c
2. a
3. b
4. a
5. a
6. b
- 7.
8. c

Lesson 3.3: Vocabulary I

1. h
2. g
3. d
4. e
5. j
6. b
7. i
8. f
9. c
10. k
11. a

Lesson 3.3: Vocabulary II

1. homeostasis
2. carrier
3. vesicle
4. Passive
5. pump
6. transport
7. Concentration
8. Endocytosis
9. ATP
10. Osmosis
11. lower, higher
12. plasma membrane

Lesson 3.3: Critical Writing

Sample Answer:

Passive transport occurs when substances cross the plasma membrane without any input of energy from the cell, whereas active transport needs additional energy. This energy is usually in the form of ATP. Passive transport does not need energy as substances are moving from an area where they have a higher concentration to an area where they have a lower concentration. An example would be simple diffusion.

In active transport, substances move in the opposite direction, from an area of low concentration to an area of high concentration. An example of active transport is the sodium-potassium pump.

Lesson 4.1: True or False

1. true
2. false
3. true
4. true
5. true
6. false
7. false
8. true
9. false
10. true
11. false
12. true
13. false
14. false
15. true

Lesson 4.1: Critical Reading

1. Energy is defined as the ability to do work. Energy is used as a bird flies through the air, a firefly glows in the dark, and a dog wags its tail.
2. Autotrophs are organisms that make their own food, whereas heterotrophs are living things that cannot make their own food.
3. (a) autotroph, (b) heterotroph, (c) autotroph, (d) heterotroph, (e) heterotroph
4. In a cell, energy is required to break down and build up molecules and to transport molecules across plasma membranes.
5. Autotrophs are also known as producers. Autotrophs

produce food not only for themselves but for all other living things as well.

Lesson 4.1: Multiple Choice

1. a
2. d
3. d
4. d
5. a
6. b
7. c
8. b

Lesson 4.1: Vocabulary I

- 1 c.
2. e
3. h
4. l
5. f
6. i
7. a
8. k
9. b
10. j
11. d
12. g

Lesson 4.1: Vocabulary II

1. food
2. glucose, ATP
3. oxygen
4. carbon dioxide
5. sunlight
6. Cellular respiration
7. oxygen
8. ATP
9. $C_6H_{12}O_6$
10. chloroplast, mitochondria
11. autotrophs, heterotrophs
12. energy

Lesson 4.1: Critical Writing

Drawings will vary.

Lesson 4.2: True or False

1. true
2. true
3. false
4. false
5. true
6. false
7. true
8. true
9. true
10. false
11. false
12. true
13. false
14. true
15. false

Lesson 4.2: Multiple Choice

1. d
2. b
3. c
4. a
5. a
6. b
7. d
8. b

Lesson 4.2: Vocabulary I

1. c
2. f
3. b
4. i
5. l
6. d
7. k
8. h
9. e
10. j
11. g
12. a

Lesson 4.2: Vocabulary II

1. Chloroplasts

2. light reactions
3. Calvin cycle
4. oxygen
5. chemosynthesis
6. grana, thylakoid
7. autotrophs
8. chlorophyll
9. electrons
10. two, glucose
11. ATP, NADPH
12. glucose

Lesson 4.3: True or False

1. false
2. true
3. false
4. true
5. true
6. false
7. true
8. false
9. false
10. true
11. true
12. true
13. true
14. false
15. false

Lesson 4.3: Multiple Choice

1. b
2. c
3. c
4. a
5. b
6. d
7. a
8. c

Lesson 4.3: Vocabulary I

1. c
2. e
3. h
4. l
5. b

6. k
7. d
8. j
9. f
10. i
11. g
12. a

Lesson 4.3: Vocabulary II

1. glycolysis, Krebs
2. anaerobic
3. mitochondria
4. III
5. oxygen
6. pyruvate
7. cellular respiration
8. NADH, ATP
9. Acetyl-CoA
10. 2, 4
11. ATP synthase
12. 38

Lesson 4.4: True or False

1. false
2. true
3. true
4. true
5. false
6. false
7. true
8. true
9. false
10. false
11. true
12. false
13. true
14. true
15. false

Lesson 4.4: Critical Reading

1. Fermentation is a way of making ATP without oxygen.
2. NAD⁺ allows glycolysis to continue to make

ATP. So NAD⁺ must continually be recycled from NADH during fermentation. Without this recycling, glycolysis cannot continue.

3. Both lactic acid fermentation and alcoholic fermentation begin with pyruvate (or pyruvic acid), the product of glycolysis.

4. Yeasts in bread dough use alcoholic fermentation. During this process, they produce carbon dioxide gas, which is released as pyruvic acid is reduced to ethanol. The gas forms bubbles in the dough, which cause the dough to expand. The bubbles leave small holes in the bread after it bakes, making the bread light and fluffy.

5. Your muscles get sore because your muscle cells used lactic acid fermentation for energy when oxygen cannot reach these cells quickly enough for aerobic respiration, such as during intense activity. This causes lactic acid to build up in the muscles. It is the buildup of lactic acid that makes the muscles feel tired and sore.

Lesson 4.4: Multiple Choice

1. a
2. c
3. d
4. a
5. a
6. d
7. b
8. d

Lesson 4.4: Vocabulary I

1. e
2. c
3. g
4. j
5. a
6. i
7. l
8. f
9. k
10. d
11. h
12. b

Lesson 4.4: Vocabulary II

1. ATP

2. glycolysis
3. glycolysis
4. oxygen
5. alcoholic
6. fungi
7. lactic acid
8. carbon dioxide
9. two
10. Yeasts
11. ATP
12. ATP

Lesson 5.1: True or False

1. false
2. true
3. true
4. true
5. true
6. false
7. true
8. false
9. false
10. false
11. true
12. true
13. true
14. true
15. false

Lesson 5.1: Critical Reading

1. The cell cycle describes the life of a cell. It is a repeating series of events, including growth, DNA synthesis, and cell division.
2. The phases of the eukaryotic cell cycle include G1, S, and G2 phases, which together make up interphase, and the M phase.
3. A cell spends most of its life in Growth Phase 1 (G1). During this phase, the cell grows rapidly, while performing routine metabolic processes. It also makes proteins needed for DNA replication and copies some of its organelles in preparation for cell division.
4. Cancer is a disease that occurs when the cell cycle is no longer regulated. Cancer may occur because a cell's DNA becomes damaged.
5. The S phase is the Synthesis phase. The DNA is copied (or replicated) during this phase.

Lesson 5.1: Multiple Choice

1. d
2. d
3. a
4. d
5. b
6. b
7. a
8. a

Lesson 5.1: Vocabulary I

1. d
2. f
3. c
4. i
5. a
6. k
7. b
8. g
9. h
10. e
11. l
12. j

Lesson 5.1: Vocabulary II

1. cell cycle
2. mitosis
3. Interphase
4. synthesis
5. prokaryotes (or bacteria)
6. chromosomes
7. cytoplasm
8. Checkpoints
9. daughter
10. segregation
11. mitosis
12. proteins

Lesson 5.1 Draw the Eukaryotic Cell Cycle

Drawings will vary

Lesson 5.2: True or False

1. false
2. true
3. true
4. true
5. false
6. false
7. false
8. true
9. false
10. false
11. true
12. true
13. true
14. false.
15. true

Lesson 5.2: Critical Reading

1. Chromosomes are the form of the genetic material of a cell during cell division. They are coiled structures made of DNA and proteins.
2. Homologous chromosomes form a pair of chromosomes of the same size and shape that also contain the same genes. Human cells have 23 pairs of homologous chromosomes.
3. Chromatin is uncoiled DNA, which is the state of DNA during interphase. Chromosomes are the coiled DNA structures during cell division.
4. Because the DNA has replicated, the chromosome is composed of two identical sister chromatids.
5. A gene is a segment of DNA with the genetic instructions for making proteins. Most genes contain the instructions for a single protein.

Lesson 5.2: Multiple Choice

1. b
2. d
3. a
4. d
5. c
6. a
7. d
8. c

Lesson 5.2: Vocabulary I

1. j

2. b
3. f
4. i
5. e
6. a
7. g
8. c
9. k
10. d
11. h
12. l

Lesson 5.2: Vocabulary II

1. DNA
2. Mitosis
3. metaphase
4. cytokinesis
5. chromosome
6. gene
7. chromatids
8. prophase, metaphase, anaphase, telophase
9. 46
10. telophase
11. spindle
12. chromatids

Lesson 5.3: True or False

1. false
2. true
3. false
4. true
5. true
6. false
7. true
8. false
9. true
10. true
11. true
12. false
13. false
14. true
15. true

Lesson 5.3: Critical Reading

1. Meiosis is a type of cell division in which the

number of chromosomes is reduced by half.

2. DNA is not replicated after meiosis I. Immediately after meiosis I, the two resulting cells enter meiosis II.

3. During metaphase I, homologous chromosome pairs line up at the equator of the cell, whereas during metaphase II, single chromosomes line up at the equator.

4. (a) anaphase II, (b) prophase I, (c) telophase I

5. The final product of meiosis is four haploid cells.

Lesson 5.3: Multiple Choice

1. c
2. a
3. d
4. d
5. c
6. b
7. c
8. d

Lesson 5.3: Vocabulary I

1. e
2. b
3. j
4. i
5. a
6. k
7. h.
8. c
9. l
10. d
11. g
12. f

Lesson 5.3: Vocabulary II

1. independently
2. genetic
3. 23
4. budding
5. half

6. 46
7. haploid
8. four
9. sperm, egg
10. metaphase I
11. alternating
12. two

Lesson 6.1: True or False

1. false
2. true
3. false
4. true
5. false
6. true
7. true
8. true
9. true
10. false
11. false
12. false
13. false
14. true
15. true

Lesson 6.1: Multiple Choice

1. d
2. a
3. c
4. b
5. a
6. c
7. a
8. d

Lesson 6.1: Vocabulary I

1. c
2. e
3. f
4. a
5. i
6. h
7. b
8. l
9. g
10. j
11. d
12. j

Lesson 6.1: Vocabulary II

1. genetics
2. allele
3. Pea
4. genes
5. independent assortment
6. purple
7. three, one
8. homozygous
9. phenotype
10. heterozygous
11. locus
12. segregation

Lesson 6.2: True or False

1. true
2. true
3. true
4. false
5. false
6. true
7. false
8. true
9. true
10. false
11. true
12. false
13. false
14. false
15. true

Lesson 6.2: Multiple Choice

1. c
2. b
3. a
4. d
5. d
6. b
7. d
8. c

Lesson 6.2: Vocabulary I

1. e
2. g
3. a
4. h
5. d
6. f
7. j
8. b
9. i
10. k
11. c

Lesson 6.2: Vocabulary II

1. one, one
2. genotypes
3. Codominance
4. Probability
5. meiosis
6. 50%
7. 50%
8. Incomplete

9. environmental 10. heterozygous 11. alleles 12. gametes

Lesson 6.2 Punnett Square

YY	Yy
Yy	yy

7.1 True or False

1. true 2. false 3. false 4. false 5. true 6. true 7. false
8. true 9. true 10. true 11. true 12. false 13. true 14.
true 15. true

7.2 Critical Reading

1. Only the smooth strain bacteria could kill the mice.
2. Griffith concluded that something in the heat-killed S-strain was transferred to the previously harmless Rstrain, making the R-strain deadly.
3. Viruses are not cells because they are basically DNA inside a protein coat. They also cannot reproduce on their own.
4. Hershey and Chase determined that the molecule the viruses inserted into bacteria during reproduction is DNA. This confirmed that DNA is the genetic material.
5. Sample answer:

Lesson 7.1: Multiple Choice

1. c 2. a 3. b 4. d 5. a 6. b 7. a 8. a

Lesson 7.1: Vocabulary I

1. d 2. f 3. j 4. e 5. i 6. a 7. k 8. g 9. b 10. h 11. l 12. c

Lesson 7.1: Vocabulary II

1. T, C 2. helix 3. deadly 4. protein 5. Hershey 6. Chargaff's 7. Messenger 8. ribosomes 9. RNA 10. Ribosomal 11. Transfer 12. deoxyribonucleic acid

Lesson 7.2: True or False

1. false 2. true 3. true 4. true 5. false 6. true 7. false
8. false 9. false 10. true 11. true 12. false 13. false.

14. true 15. true

Lesson 7.2: Multiple Choice

1. d 2. b 3. a 4. b 5. a 6. b 7. c 8. c

Lesson 7.2: Vocabulary I

1. g 2. i 3. c 4. e 5. j 6. l 7. k 8. a 9. b 10. d 11. h 12. f

Lesson 7.2: Vocabulary II

1. nucleus 2. promoter 3. codon 4. termination 5. genetic 6. Translation 7. As (adenines) 8. methionine 9. introns 10. stop 11. anticodon 12. mRNA

Lesson 7.3 Mutations

Point mutations:

The car was red. The red cat had one key.
The key has one eye and one tip.

The car was red. The red caa had one key.
The key has one eye and one tip.

Inversion mutations:

The car was red. Yek eno dah rac der eht.
The key has one eye and one tip.

Insertion mutations:

The car was red. The red car had one key.
Had the key has one eye and one tip.

Deletion mutations:

The car was red. The key has one eye and one tip.

Frame shift mutations:

The car was red. Tth ere dca rha don eke yth
eke yha son eey ean don eti p.

The car was red. Her edc arh ado nek eyt hek
eyh aso nee yea ndo net ip.

Lesson 7.4: True or False

1. false 2. false 3. true 4. true 5. false 6. true 7. false
8. false 9. false 10. true 11. true 12. true 13. false 14.
true 15. true

Lesson 7.4: Multiple Choice

1. b 2. c 3. b 4. a 5. d 6. a 7. b

Lesson 7.4: Vocabulary I

1. b 2. h 3. e 4. l 5. j 6. c 7. i 8. k 9. a 10. f 11. g 12. d

Lesson 7.4: Vocabulary II

1. operator 2. regulatory 3. gene 4. polymerase
5. TATA 6. elements 7. proteins 8. cancer 9.
development 10. promote 11. prevent 12. operon

Lesson 8.1: True or False

1. false 2. true 3. false 4. true 5. true 6. true 7. false
8. true 9. true 10. false 11. true 12. false 13. true 14.
false 15. false

Lesson 8.1: Critical Reading

1. Autosomes are chromosomes that contain genes for characteristics that are unrelated to sex. Humans have 22 pairs of autosomes.
2. Answers should include some of the following points:
3. Female = XX, male = XY.
4. Human cells use splicing (of mRNA) and other processes to make multiple proteins from the instructions encoded in a single gene.
5. Differences in alleles account for the considerable genetic variation among people. In fact, most human genetic variation is the result of differences in individual DNA bases within alleles.

Lesson 8.1: Multiple Choice

1. b 2. d 3. d 4. a 5. b 6. c 7. b 8. b

Lesson 8.1: Vocabulary I

1. c 2. e 3. h 4. g 5. d 6. j 7. a 8. k 9. l 10. b 11. f 12. j

Lesson 8.1: Vocabulary II

1. genome 2. sex 3. linked 4. genetic 5. X
6. autosomes 7. 1 8. map 9. 20,000 to 22,000
10. non-homologous (or different) 11. inherited 12.
chromosomes

Lesson 8.1: Critical Writing

Sample answer

Your genes make you different from everyone else - unless you have an identical twin. Your genome consists of about 3 billion base pairs and is divided into thousands of genes on 23 pairs of chromosomes. You have two copies of each gene, inheriting one copy from each parent, and you have about 20,000 to 22,000 genes. The combination of genes inherited from your parents makes you unique. So, even though you may inherit many of the same genes from your parents as your siblings, there are still many differences.

Lesson 8.2: True or False

1. false 2. false 3. true 4. true 5. true 6. false 7. false
8. false 9. true 10. true 11. false 12. false 13. true 14.
true 15. true

Lesson 8.2: Critical Reading

1. Genetic disorders are either caused by mutations in one or a few genes, or they are caused by abnormal numbers of chromosomes.
2. Sickle-shaped red blood cells that clog tiny blood vessels, causing pain and damaging organs and joints.
3. Few genetic disorders are controlled by dominant alleles, because a mutant dominant allele would be expressed in every individual who inherits even one copy of it. If it causes a serious disorder, affected people may die young and fail to reproduce. Therefore, the mutant dominant allele is likely to die out of the population.
4. Chromosomal disorders are caused by nondisjunction, which is the failure of replicated chromosomes to separate during meiosis. Some of the resulting gametes will be missing a chromosome, while others will have an extra copy of the chromosome.

5. Down syndrome results from an extra copy (complete or partial) of chromosome 21. Individuals with Down syndrome experience developmental delays, distinctive facial appearance, and other abnormalities.

Lesson 8.2: Multiple Choice

1. b 2. d 3. d 4. c 5. a 6. a 7. a 8. c

Lesson 8.2: Vocabulary I

1. d 2. c 3. f 4. k 5. j 6. a 7. h 8. b 9. e 10. i 11. l 12. g

Lesson 8.2: Vocabulary II

1. traits 2. X 3. allele 4. gene, alleles 5. multiple
6. hemoglobin 7. clotting 8. Down syndrome 9. Xlinked
10. polygenic 11. mutations 12. meiosis

Lesson 8.3: True or False

1. false 2. false 3. true 4. false 5. true 6. true 7. true
8. true 9. false 10. false 11. true 12. true 13. false 14.
true

Lesson 8.3: Multiple Choice

1. d 2. b 3. a 4. d 5. d 6. a 7. b 8. d

Lesson 8.3: Vocabulary I

1. b 2. e 3. g 4. c 5. i 6. f 7. j 8. d 9. a 10. h

Lesson 8.3: Vocabulary II

1. genes 2. polymerase chain reaction 3. ligase
4. cloning 5. transformation 6. chromosome 7.
engineering 8. ethical 9. denaturing 10. Recombinant
11. proteins 12. technology

Lesson 11.1: True or False

1. false 2. false 3. true 4. true 5. false 6. true 7. true
8. false 9. false 10. false 11. true 12. true 13. false
14. false 15. true

Lesson 11.1: Multiple Choice

1. b 2. d 3. c 4. d 5. a 6. c 7. d 8. b

Lesson 11.1: Vocabulary I

1. h 2. p 3. c 4. l 5. n 6. j 7. i 8. e 9. a 10. g 11. b 12. f 13. m 14. d 15. k

Lesson 11.1: Vocabulary II

1. nonliving 2. Producers 3. dead 4. Trophic
5. energy 6. plants 7. exclusion 8. autotrophs.
9. Detritivores 10. carnivores 11. Consumers 12.
ecosystem

Lesson 11.2: True or False

1. false 2. false 3. false 4. true 5. true 6. true 7. false
8. false 9. true 10. false 11. false 12. false 13. true
14. true 15. false

Lesson 11.2 Water Cycle Diagram

Check picture against picture in textbook of the water cycle.

Lesson 11.2 Nitrogen Cycle Diagram

Check picture against picture in textbook of the nitrogen cycle.

Lesson 11.3: True or False

1. false 2. true 3. false 4. true 5. true 6. true 7. false
8. false 9. true 10. false 11. false 12. false 13. true
14. true

Lesson 11.3: Critical Reading

1. Terrestrial biomes include all the land areas on Earth where organisms live. Examples include tundras, temperate forests and grasslands, chaparral, temperate and tropical deserts, and tropical forests and grasslands.
2. Climate is the average weather in an area over a long period of time, whereas weather refers to the conditions of the atmosphere from day to day.
3. The amount of moisture depends on both precipitation and evaporation. Precipitation increases moisture, evaporation decreases moisture. Climates

can be classified in terms of their moisture.

4. Climate determines the growing season and soil quality, which affect the five basic needs of plants: air, warmth, sunlight, water, and nutrients.

5. Plants grow best in soil that contains plenty of nutrients and organic matter, which are added to soil when plant litter and dead organisms decompose. Decomposition occurs best in temperate climates, so these climates usually have the best soil for plant growth.

Lesson 11.3: Multiple Choice

1. b 2. c 3. d 4. b 5. a 6. b 7. c 8. d

Lesson 11.3: Vocabulary I

1. j 2. a 3. f 4. i 5. d 6. h 7. c 8. g 9. k 10. e 11. l 12. b

Lesson 11.3: Vocabulary II

1. photic 2. Freshwater 3. nutrients 4. water 5. Plants
6. wetland 7. land 8. sunlight 9. Climate 10. dormant
11. producers 12. ocean

Lesson 12.1 True or False

1. False
2. True
3. False
4. False
5. False
6. True
7. True
8. True
9. False
10. True

Lesson 12.1: Critical Reading

1. Symbiosis is a close relationship between two species in which at least one species benefits.
2. Mutualism is a symbiotic relationship in which both species benefit. An example is the relationship between the goby fish and the shrimp. From their relationship, the shrimp is protected by the fish, and the fish gets a safe retreat and a place to lay its eggs.
3. Commensalism is a symbiotic relationship in which

one species benefits while the other species is not affected. An example is the hermit crab using the shells of dead snails for homes.

4. Parasitism is a symbiotic relationship in which one species benefits while the other species is harmed. Roundworms are parasites of mammals, including humans. The worms produce huge numbers of eggs, which are passed in the host's feces to the environment.

5. If a parasite kills its host, the parasite is also likely to die. Instead, parasites usually cause relatively minor damage to their host.

Lesson 12.1: Multiple Choice

1. a 2. d 3. b 4. a 5. c 6. d 7. b 8. a

Lesson 12.1: Vocabulary I

1. g 2. h 3. a 4. m 5. k 6. b 7. l 8. j 9. c 10. i 11. n 12. f 13. d 14. e

Lesson 12.1: Vocabulary II

1. primary 2. Parasitism 3. predator, prey 4. benefits 5. God 6. Competition 7. lichens 8. community 9. Camouflage 10. Interspecific 11. species 12. biomes

Lesson 12.2: True or False

1. false 2. true 3. false 4. true 5. true 6. false 7. true 8. true 9. false 10. false 11. true 12. false 13. false 14. true 15. true

Lesson 12.2: Multiple Choice

1. b 2. a 3. c 4. b 5. c 6. a 7. b 8. a

Lesson 12.2: Vocabulary I

1. j 2. d 3. f 4. h 5. k 6. b 7. a 8. l 9. c 10. i 11. e 12. g

Lesson 12.2: Vocabulary II

1. 2. resources 3. stable 4. distribution 5. largest 6. survivorship 7. growth 8. population 9. exponential 10. size 11. growth 12. unstable 13. away 14. population

Lesson 13.1: True or False

1. true 2. false 3. true 4. false 5. true 6. false 7. false
8. true 9. true 10. false 11. true 12. true 13. true 14.
false 15. false

Lesson 13.1: Multiple Choice

1. b 2. c 3. d 4. a 5. b 6. a 7. d 8. c

Lesson 13.1: Vocabulary I

1. e 2. g 3. l 4. i 5. b 6. c 7. a 8. d 9. h 10. f 11. j 12. k

Lesson 13.1: Vocabulary II

1. Bacteria, Archaea 2. spheres 3. nucleus 4. 20 5.
cyanobacteria 6. transfer 7. biofilm 8. antibiotic 9.
asexual 10. DNA 11. plasma membrane 12. cell wall
13. Archaea 14. billions

Lesson 13.2: True or False

1. true 2. true 3. false 4. true 5. false 6. true 7. false
8. true 9. false 10. false 11. true 12. true 13. true 14.
false

Lesson 13.2: Critical Reading

1. A virion is an individual virus; it is a tiny particle much smaller than a prokaryotic cell.
2. Because viruses do not consist of cells, they lack cell membranes, cytoplasm, ribosomes, and other cell organelles. Without ribosomes, they cannot make their own proteins.
3. A virus consists of DNA or RNA within a capsid. The shape of the capsid may vary from one type of virus to another. Some viruses also have an envelope of phospholipids and proteins.
4. Viruses are classified on the basis of several traits. They may be classified by capsid shape, presence or absence of an envelope, and type of nucleic acid.

Lesson 13.2: Multiple Choice

1. d 2. c 3. c 4. a 5. b 6. c 7. b 8. d

Lesson 13.2: Multiple Choice

1. d 2. c 3. c 4. a 5. b 6. c 7. b 8. d

Lesson 13.2: Vocabulary II

1. vaccines 2. life 3. complex 4. electron 5. ribosomes 6. protein 7. homeostasis 8. therapy 9. latent 10. antibiotics 11. disease 12. AIDS

Lesson 14.1: True or False

1. false 2. false 3. true 4. true 5. false 6. false 7. true 8. true 9. false 10. true 11. false 12. true 13. true 14. true 15. false

Lesson 14.1: Multiple Choice

1. a 2. b 3. c 4. b 5. d 6. b

Lesson 14.1: Vocabulary I

1. j 2. d 3. f 4. b 5. k 6. e 7. g 8. c 9. h 10. i 11. l 12. a

Lesson 14.1: Vocabulary II

1. motility 2. flagella 3. endosymbionts 4. protists 5. pseudopod 6. organelles 7. chloroplasts 8. DNA 9. spores 10. meiosis 11. multicellular 12. ingestion, absorption, photosynthesis

Lesson 14.2: True or False

1. true 2. false 3. true 4. true 5. true 6. true 7. false 8. false 9. false 10. false 11. true 12. false 13. false 14. true 15. true

Lesson 14.2: Multiple Choice

1. d 2. c 3. b 4. d 5. a 6. b 7. c 8. a

Lesson 14.2: Vocabulary I

1. i 2. h 3. g 4. j 5. e 6. b 7. c 8. f 9. l 10. k 11. a 12. d

Lesson 14.2: Vocabulary II

1. sporozoan 2. water mold 3. slime mold 4. protozoa
5. flagellate 6. kelp 7. algae 8. predators 9. amoeboid
10. herbivores 11. decomposers 12. ciliate

Lesson 14.3: True or False

1. false 2. true 3. true 4. false 5. false 6. false 7. true
8. false 9. false 10. true 11. true 12. true 13. true 14.
true 15. true

Lesson 14.3: Multiple Choice

1. a 2. c 3. a 4. c 5. a 6. d 7. b

Lesson 14.3: Vocabulary I

1. f 2. g 3. d 4. h 5. i 6. l 7. c 8. b 9. j 10. a 11. k 12. e

Lesson 14.3: Vocabulary II

1. zygosporangium 2. fungi 3. hyphae 4. meiosis 5. mitosis
6. spores 7. mycelium 8. diploid 9. haploid 10.
cellulose 11. chitin 12. budding

Lesson 14.4: True or False

1. false 2. false 3. true 4. true 5. true 6. false 7. true
8. false 9. true 10. false 11. false 12. true 13. true 14.
true 15. true

Lesson 14.4: Critical Reading

1. Parasitism is a relationship between two different kinds of organisms in which one organism (the parasite) benefits and the other organism (the host) is harmed.
2. An example of parasitism is athlete's foot. The parasite is a fungus, and the host is the human. The parasite gets nutrients, and the host experiences unwelcome symptoms.
3. Mutualism is a relationship in which both organisms in the relationship benefit.
4. Mycorrhiza is an example of a mutualistic relationship between a fungus and a plant. The fungus gets access to food made by the plant. The plant gets access to water and nutrients. A lichen is another example of a mutualistic relationship between a fungus and a photosynthetic organism (either a cyanobacterium or

green algae). The fungus benefits from food made by the photosynthesizer. The photosynthesizer benefits by getting water and nutrients from the fungus.

5. Parasitism between two types of organisms can continue to exist as long as some of the host individuals survive. In some cases, a parasite may help keep the population of a host in check.

Lesson 14.4: Multiple Choice

1. c 2. b 3. a 4. d 5. b 6. c 7. d 8. b

Lesson 14.4: Vocabulary I

1. g 2. k 3. i 4. j 5. d 6. l 7. h 8. a 9. e 10. c 11. b 12. f

Lesson 14.4: Vocabulary II

1. heterotroph 2. mutualism 3. fungi 4. cellulose 5. mycorrhizae 6. hyphae 7. autotroph 8. decomposer 9. yeast 10. saprotroph 11. parasitism 12. lichen

Lesson 14.4 Critical Writing

Answers will vary.

Lesson 14.5: True or False

1. false 2. false 3. true 4. true 5. false 6. true 7. false
8. false 9. true 10. true 11. false 12. false 13. false
14. false 15. true

Lesson 14.5: Critical Reading

1. Fungi can make people sick by poisoning them with toxic chemicals they produce, by infecting them as parasites, and by causing allergic reactions.

2. It is very dangerous to eat the “destroying angel” mushroom because this mushroom makes toxins. These toxins make a person seriously ill. Symptoms of poisoning may include problems with digestion, hallucinations, organ function, and may even cause death.

3. Candida

4. Ringworm is a skin disease. A ring-shaped rash, which may be found on the arms, legs, head, neck, or trunk of the body, is characteristic of this disease. Ringworm is caused by a fungus.

5. Both ringworm and athlete's foot are caused by the same fungus. Athlete's foot differs in that it is found on the feet.

Lesson 14.5: Multiple Choice

1. a 2. d 3. b 4. b 5. c 6. d 7. b 8. d

Lesson 14.5: Vocabulary I

1. d 2. b 3. f 4. g 5. j 6. c 7. k 8. a 9. l 10. i 11. h 12. e

Lesson 14.5: Vocabulary II

1. vector
2. Trypanosoma Plasmodium
3. Ringworm
4. fungi
5. Mold
6. Candidiasis
7. Malaria
8. Protozoa
9. Athlete's Foot
10. giardiasis
11. Plasmodium
12. Chagas disease

Lesson 15.1 True or False

1. false
2. true
3. true
4. true
5. true
6. false
7. false
8. false
9. false
10. true
11. true
12. false

Lesson 15.1 Multiple Choice

1. b
2. a
3. d

4. c
5. b
6. a
7. c

Lesson 15.1 Vocabulary 1

1. e
2. k
3. d
4. g
5. b
6. i
7. h
8. a
9. j
10. l
11. c
12. f

Lesson 15.1: Vocabulary II

1. germination
2. pollen
3. vascular tissue
4. weed
5. angiosperms
6. gymnosperms
7. rhizoid
8. vegetative reproduction (asexual reproduction is also correct)
9. sporophyte
10. gametophyte
11. flower
12. fruit

Lesson 15.1 Alternation of Generations in Ferns Drawing

Please look at the diagram in the textbook. The students drawing should match the textbook drawing closely and feature all of the appropriate arrows, labels and drawings.

Lesson 15.2 True or False

1. true
2. false
3. false
4. true
5. true

6. false
7. false
8. true
9. false
10. false
11. false
12. true
13. false
14. true

Lesson 15.2 Multiple Choice

1. a
2. b
3. c
4. c
5. b
6. a
7. c
8. d

Lesson 15.2: Vocabulary I

1. d
2. i
3. f
4. b
5. k
6. h
7. a
8. j
9. g
10. l
11. e
12. c

Lesson 15.2: Vocabulary II

1. tracheophyte
2. spermatophyte
3. byrophytes
4. sepal
5. endosperm
6. phloem
7. xylem
8. pistil
9. nectar
10. petals
11. seed coat

12. stamen

Lesson 16.1: True or False

1. false
2. true
3. false
4. false
5. false
6. true
7. false
8. true
9. true
10. true
11. false
12. true
13. false
14. false
15. false

Lesson 16.1: Critical Reading

1. A tissue is a group of similar cells located together to perform a specific function.
2. The plant's epidermis consists of its outermost layer of cells. It is a single cell thick. The epidermis' function is to regulate and mediate a plant's interactions with its environment.
3. Ground tissue carries out many metabolic activities (synthesis and degradation of compounds, energy transformation). Other functions are support, water storage, and food storage.
4. Xylem and phloem are bundled because together they make up vascular tissue. Both function to transport water. Xylem transports water and minerals; phloem transports sugar dissolved in water.
5. All plants have dermal tissue, ground tissue, and vascular tissue because the functions carried out by these tissues are essential for life.

Lesson 16.1: Multiple Choice

1. a
2. a

3. c
4. d
5. c
6. c
7. d
8. b

Lesson 16.1: Vocabulary I

1. f
2. j
3. l
4. e
5. h
6. c
7. k
8. g
9. b
10. i
11. d
12. a

Lesson 16.1: Vocabulary II

1. chloroplast
2. chromoplast
3. meristem
4. parenchyma
5. ground tissue
6. dermis
7. cell wall
8. vascular tissue
9. sclerenchyma
10. central vacuole
11. collenchyma
12. cuticle

Lesson 16.1: Writing

Answers will vary.

Lesson 16.2: True or False

1. false
2. true
3. true
4. true
5. false

6. true
7. false
8. true
9. false
10. true
11. false
12. false
13. true
14. true
15. true

Lesson 16.2 Label the Leaf

Please refer to the leaf diagram in the textbook to check the label answers. Deduct points for messy handwriting.

Lesson 16.2: Critical Reading

1. The root cap covers the root meristem. Another function of the root cap is to protect the cells in the meristem from physical damage as the growing root pushes through the soil.
2. Root hairs are long, thin cells. A long, thin cell will have a greater surface area than a cube-shaped cell with the same volume.
3. The ground tissue of a root stores food and also contains the vascular tissue.
4. The three main functions of roots are to absorb water and minerals, to anchor and support the plant, and to store food.
5. The secondary root meristem makes the root grow thicker when its cells divide.

Lesson 16.2: Multiple Choice

1. a
2. d
3. b
4. b
5. a
6. c
7. a
8. c

Lesson 16.2: Vocabulary I

1. e
2. i

3. j
4. c
5. k
6. b
7. l
8. a
9. h
10. f
11. g
12. d

Lesson 16.2: Vocabulary II

1. blade
2. taproot
3. root system
4. deciduous plants
5. stomata
6. bark
7. Mesophyll
8. fibrous
9. evergreen plant
10. nodes
11. root hairs
12. petiole

Extra credit answer: Psalm 1:3

Lesson 16.3: True or False

1. false
2. true
3. true
4. false
5. false
6. false
7. true
8. true
9. false
10. true
11. true
12. true
13. false
14. true
15. true

Lesson 16.3: Multiple Choice

1. a
2. c
3. b
4. d
5. d
6. b
7. b
8. c

Lesson 16.3: Vocabulary I

1. l
2. k
3. d
4. i
5. j
6. c
7. f
8. e
9. g
10. h
11. b
12. a

Lesson 16.3: Vocabulary II

1. antheridia
2. archegonia
3. diploid
4. haploid
5. vascular tissue
6. egg
7. sperm
8. mitosis
9. meiosis
10. sporophyte
11. gametophyte
12. sporangium

Lesson 16.4: True or False

1. false
2. false
3. false
4. true
5. false
6. true
7. false

8. true
9. true
10. false
11. true
12. true
13. false
14. true
15. false

Lesson 16.4: Multiple Choice

1. b
2. d
3. a
4. b
5. d
6. b
7. c
8. c

Lesson 16.4: Vocabulary I

1. k
2. j
3. a
4. g
5. e
6. b
7. h
8. l
9. d
10. i
11. f
12. c

Lesson 16.4: Vocabulary II

1. tropical
2. epiphytes
3. auxin
4. photosynthesis
5. tropism
6. transpiration
7. temperate
8. phototropism
9. herbivore
10. gravitropism
11. aquatic

12. xerophytes

Lesson 16.4 Critical Writing

Sample answer: Plants don't have immune systems, but they do respond to disease. Typically, their first line of defense is the death of cells surrounding infected tissue. This prevents the infection from spreading. Many plants also produce hormones and toxins to fight pathogens. For example, willow trees produce salicylic acid to kill bacteria. The same compound is used in many acne products for the same reason. Exciting new research suggests that plants may even produce chemicals that warn other plants of threats to their health, allowing the plants to prepare for their own defense. As these and other responses show, plants may be rooted in place, but they are far from helpless.

Lesson 17.1 True or False

1. false
2. false
3. true
4. false
5. false
6. true
7. true
8. true
9. true
10. false
11. false
12. true
13. false
14. true
15. false

Lesson 17.1: Multiple Choice

1. a
2. d
3. b
4. b
5. a
6. c

Lesson 17.1: Vocabulary I

1. j
2. c
3. l
4. h
5. a
6. f
7. k

8. b
9. g
10. i
11. e
12. d

Lesson 17.1: Vocabulary II

1. vertebral column
2. animals
3. marine
4. terrestrial
5. notochord
6. sensory organs
7. vertebrate
8. invertebrate
9. amniotes
10. eukaryote
11. chordate
12. exoskeleton

17.1 Major Animal Phyla

Refer to the textbook table for the answers. Students may draw any appropriate example animal into each box.

17.2 True or False

1. true
2. false
3. false
4. true
5. true
6. true
7. true
8. false
9. false
10. false
11. true
12. true
13. true
14. true
15. false

Extra Credit: The drawing should be something that has radial symmetry. Look up radial symmetry in Google images or in the textbook chapter for acceptable answers.

17.2 Label and Answer

Labels can be found in the textbook illustration.

1. A pseudocoelom is a partial body cavity that is filled with fluid.
2. This is a fluid-filled body cavity, completely enclosed by mesoderm. It lies between the digestive cavity and body wall.
3. Invertebrates with a true coelom include mollusks and annelids.

Lesson 17.2: Multiple Choice

1. b
2. c
3. a
4. c
6. c
7. d
8. d

Lesson 17.2: Vocabulary I

1. e
2. h
3. b
4. k
5. c
6. f
7. l
8. g
9. d
10. i
11. j
12. a

Lesson 17.2: Vocabulary II

1. radial
2. cephalization
3. incomplete (digestive system)
4. pseudocoelom
5. mesoderm
6. endoderm
7. ectoderm
8. complete
9. segmentation
10. bilateral
11. larva (larval stage)

12. hydrostatic skeleton

18.1 True or False

1. false
2. true
3. false
4. true
5. false
6. false
7. true
8. true
9. true
10. true
11. false
12. true
13. true
14. false
15. true

Lesson 18.1: Critical Reading

1. Both tapeworms and flukes are flatworms. Both can have a human host at least during some part of their life cycle.
2. The liver fluke lives in the liver and circulatory system of humans.
3. The snail is another host of the liver fluke.
4. The fluke parasitizes the snail during some, but not all, of its larval stages.
5. The fluke gets from humans to snails by its eggs being expelled from human feces. After fertilization, the eggs develop into embryos and hatch into larvae in the water. One of the early larval stages finds the snail host, where larval development continues.

Lesson 18.1: Multiple Choice

1. c
2. a
3. b
4. d
5. c
6. a
7. d
8. c

Lesson 18.1: Vocabulary I

1. h
2. d
3. j
4. e
5. b
6. i
7. a
8. g
9. f
10. l
11. c
12. k

Lesson 18.1: Vocabulary II

1. filter-feeders
2. Cnidaria
3. spicules
4. Platyhelminthes
5. nerve net
6. endoskeleton
7. collar cells
8. medusa
9. Nematoda
10. sessile
11. Porifera
12. polyp