Cells and Energy

Study Guide A

Answer Key

SECTION 1. CHEMICAL ENERGY AND ATP

- 1. molecule: food molecules
- 2. high-energy; lower-energy
- phosphate group.
- 4), ac de be et
- 5. belie
- 6. c; d
- 7. wo f.
- 8. chemical energy; light energy
- 9. thinee; two
- 10. chemical; molecules

SECTION 2. OVERVIEW OF PHOTOSYNTHESIS

- 1. chemical energy
- light energy; chemical energy
- visible light.
- 4. photosynthesis
- 5. stromac grana-
- 6. grana
- Equation: 6CO₂ + 6H₂O → C₈H₁₂O₆ + 6O₂
- 8, 6CO₂ and 6H₂O
- 6O₂ and C₄H₁₂O₄
- 10. b
- 11. require light; energy
- do not require light; sugars.
- Refer to Figure 2.2 for a visual answer.
 The four steps are: d, a, b, c
- 14, energy; sugars
- 15. green
- 16. independent

SECTION 3. PHOTOSYNTHESIS IN DETAIL

- capture; transfer
- 2. molecules
- 3. ATP: NADPH
- 4. b. g. d. f. c. c. a
- carbon dioxide.
- 6. 1 b; 2 d; A a; 3 c; 4 c
- 7. proteins
- S. synthesizes
- 9, with no beginning or end.

SECTION 4. OVERVIEW OF CELLULAR RESPIRATION

- 1. energy; oxygen
- 2. oxygen
- 3. mitochondria
- glucose: ATP.
- 5. bc c.
- 6. 40. 61
- Equation: C₆H₁₂O₆ + 6O₂ → 6CO₂ + 6H₂O
- 6O₂ and C₄H₁₂O₄
- 9. 6CO₂ and 6H₂O
- 10. di
- Refer to Figure 4.2 for a visual answer.
 The four steps are: d, b, a, c
- 12. sugar
- 13. oxygen
- 14. break down

SECTION 5. CELLULAR RESPIRATION IN DETAIL

- I. glucose
- Pyruvate and NADH; ATP
- 3. twoo; four
- 4. c
- 5. c. b. a. d. e.
- 6. immer
- electrons; hydrogen ions
- 8. c. d. b. a.
- electrons.

SECTION 6. FERMENTATION

- L. ATP
- 2. electrons
- hard exercise.
- 4. oxygen
- 5. twee
- For a visual answer, refer to the lactic acid fermentation diagram in Section 6. The order of the four steps is: d, b, c, a
- For a visual answer, refer to the alcoholic fermentation diagram in Section 6. The order of the four steps is: e, a, d, b

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- 1. Understanding the eBook Mcdougal Biology Study Guide Answers
 - The Rise of Digital Reading Mcdougal Biology Study Guide Answers
 - Advantages of eBooks Over Traditional Books
- 2. Identifying Mcdougal Biology Study Guide Answers
 - Exploring Different Genres
 - o Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
- 3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Mcdougal Biology Study Guide Answers
 - User-Friendly Interface
- 4. Exploring eBook Recommendations from Mcdougal Biology Study Guide Answers
 - Personalized Recommendations
 - Mcdougal Biology Study Guide Answers User Reviews and Ratings
 - Mcdougal Biology Study Guide Answers and Bestseller Lists
- 5. Accessing Mcdougal Biology Study Guide Answers Free and Paid eBooks
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 - Mcdougal Biology Study Guide Answers Enhanced eBook Features
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 - Highlighting and Note-Taking Mcdougal Biology Study Guide Answers
 - Interactive Elements Mcdougal Biology Study Guide Answers
- 8. Staying Engaged with Mcdougal Biology Study Guide Answers
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Mcdougal Biology Study Guide Answers
- 9. Balancing eBooks and Physical Books Mcdougal Biology Study Guide Answers
 - $\circ\,$ Benefits of a Digital Library
 - Creating a Diverse Reading Collection Mcdougal Biology Study Guide Answers
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Mcdougal Biology Study Guide Answers
 - Setting Reading Goals Mcdougal Biology Study Guide Answers
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Mcdougal Biology Study Guide Answers
 - Fact-Checking eBook Content of Mcdougal Biology Study Guide Answers
 - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements

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