

## Cells and Energy

**Study Guide B****Answer Key****SECTION 1: CHEMICAL ENERGY AND ATP**

- ATP is adenosine triphosphate (ADP).
- A molecule that transfers energy down the potential energy hill from molecules to cells processes.
- ATP is a high-energy molecule that is converted into lower-energy ADP when a phosphate group is removed and energy is released. ADP is converted back into ATP by the addition of a phosphate group.
- ATP is high-energy adenosine triphosphate (ATP). Phosphate removed, energy released; lower-energy adenosine triphosphate (ADP); energy released down potential energy hill carbon-based molecules, phosphate added.
- One molecule of glucose (sugars) yields about 38 ATP. A molecule of fat (fats) yields about 4000 ATP.
- Some plants get the energy in a plant's body by photosynthesis; yields about 1000 ATP. 30 calories per mg (70 Calories per gram).
- Some plants get the energy in a plant's body by respiration; yields about 100 ATP. 30 calories per mg (70 Calories per gram).
- A process by which some organisms use chemical energy released by light energy to store energy in carbon-based molecules.
- ATP has three phosphate groups; ADP has two phosphate groups.
- Together, they mean "put together with chemical aid." In photosynthesis, chemical energy is used to produce carbon-based molecules that store energy.

**SECTION 2: OVERVIEW OF PHOTOSYNTHESIS**

- They produce the source of chemical energy for plants and for other organisms.
- It captures light energy to make sugar that stores chemical energy.

Plant photosynthesis, Energy Flow  
Plant Metabolic Ecology  
Study Guide B

- A molecule in chloroplasts that absorbs some of the energy in visible light.
- Important chemical reactions where photons of light are taken up by plants.
- carbs and gases.
- sun-shaped, membrane-bound compartments inside the green.
- $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$   
Carbon dioxide and water (the reactants) enter photosynthesis. Through many chemical reactions, with the help of many enzymes, a six-carbon sugar and oxygen (the products) are formed.
- The light-dependent reactions require light, and they store and transfer energy. The light-independent reactions do not directly need light, and they break sugars. **Light** for **Chloroplasts** (1) Energy from sunlight is absorbed and transferred along the light-based molecules. Water molecules are broken down and oxygen is released. (2) Energy stored along the light-based molecules is transferred to molecules that carry energy to the light-independent reactions. (3) Carbon dioxide is added to a cycle of chemical reactions, to break sugar molecules. (4) A six-carbon simple sugar (usually glucose;  $\text{C}_6\text{H}_{12}\text{O}_6$ ) is formed.
- Energy from light is used to put sugars together.
- CH<sub>2</sub>O energy is the light-absorbing molecule that makes leaves look green.
- The light-dependent reactions require sunlight, the light-independent reactions don't need sunlight.

**SECTION 3: PHOTOSYNTHESIS IN DETAIL**

- use light and transfer energy
- groups of molecules that capture and transfer energy

# Modern Biology Study Guide Answer Key Chapter 4

**CL Gary**

**Modern Biology Study Guide Answer Key Chapter 4:**

This book delves into Modern Biology Study Guide Answer Key Chapter 4. Modern Biology Study Guide Answer Key Chapter 4 is a vital topic that needs to be grasped by everyone, ranging from students and scholars to the general public. The book will furnish comprehensive and in-depth insights into Modern Biology Study Guide Answer Key Chapter 4, encompassing both the fundamentals and more intricate discussions.

1. The book is structured into several chapters, namely:

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- Chapter 2: Essential Elements of Modern Biology Study Guide Answer Key Chapter 4
- Chapter 3: Modern Biology Study Guide Answer Key Chapter 4 in Everyday Life
- Chapter 4: Modern Biology Study Guide Answer Key Chapter 4 in Specific Contexts
- Chapter 5: Conclusion

2. In chapter 1, the author will provide an overview of Modern Biology Study Guide Answer Key Chapter 4. This chapter will explore what Modern Biology Study Guide Answer Key Chapter 4 is, why Modern Biology Study Guide Answer Key Chapter 4 is vital, and how to effectively learn about Modern Biology Study Guide Answer Key Chapter 4.
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6. In chapter 5, this book will draw a conclusion about Modern Biology Study Guide Answer Key Chapter 4. This chapter will summarize the key points that have been discussed throughout the book.

The book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Modern Biology Study Guide Answer Key Chapter 4.

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