



Name

Period

Date

**SECTION**  
**4.1**

CHEMICAL ENERGY AND ATP

**Study Guide**

**KEY CONCEPT**

All cells need chemical energy.

**VOCABULARY**

ATP

ADP

chemosynthesis

**MAIN IDEA:** The chemical energy used for most cell processes is carried by ATP.

1. What do all cells use for energy?

\_\_\_\_\_

2. What is ATP?

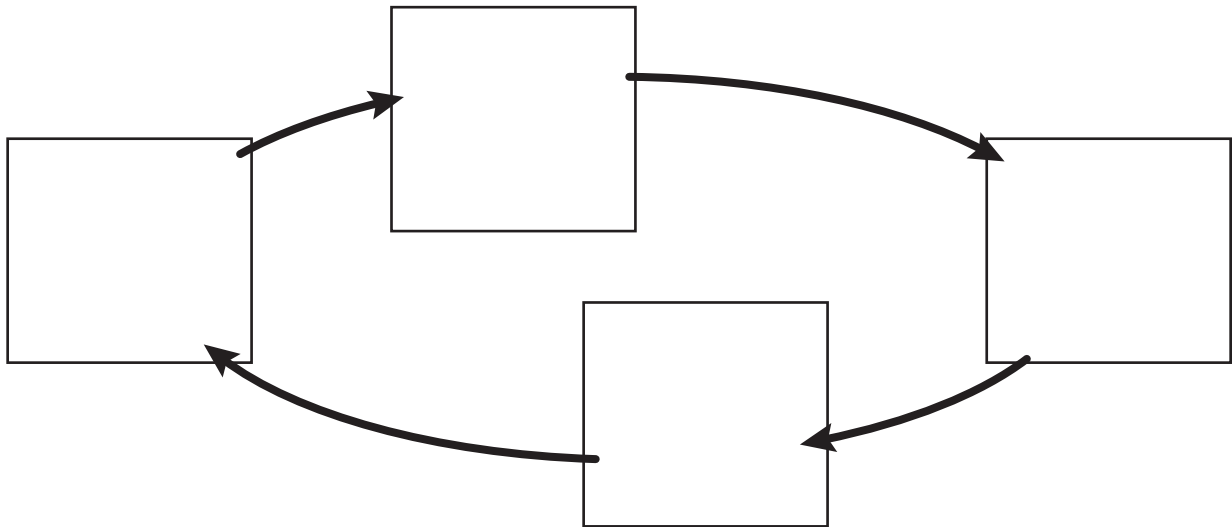
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3. What is the relationship between ATP and ADP?

\_\_\_\_\_

\_\_\_\_\_

Fill in the four parts of the cycle diagram below to take notes on the relationship between ATP and ADP.



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## Section 4.1 STUDY GUIDE CONTINUED

**MAIN IDEA: Organisms break down carbon-based molecules to produce ATP.**

Use the table below to organize your notes about the different types of molecules that are broken down to make ATP.

| Type of Molecule | Role in ATP Production |
|------------------|------------------------|
| Carbohydrates    | 4.                     |
| Lipids           | 5.                     |
| Proteins         | 6.                     |

**MAIN IDEA: A few types of organisms do not need sunlight and photosynthesis as a source of energy.**

7. What is chemosynthesis?

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**Vocabulary Check**

8. The prefix *tri-* means “three,” and the prefix *di-* means “two.” How do these prefixes tell you the difference between adenosine triphosphate (ATP) and adenosine diphosphate (ADP)?

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9. The prefix *chemo-* means “chemical,” and *synthesis* comes from a Greek word that means “to put together.” How do these meanings tell you what chemosynthesis does?

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