Lesson Question

Explore photosynthesis.

Identify the products and reactants of photosynthesis.

Explain the steps in the process of photosynthesis.

Words to Know

*Fill in this table as you work through the lesson. You may also use the glossary to help you.*

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>glucose</td>
<td>the main sugar that provides energy for cells</td>
</tr>
<tr>
<td>photosynthesis</td>
<td>the process by which green plants and some other organisms use water, sunlight, and carbon dioxide to produce food</td>
</tr>
<tr>
<td>products</td>
<td>the substances present in a chemical reaction</td>
</tr>
<tr>
<td>reactants</td>
<td>the substances present in a chemical reaction</td>
</tr>
<tr>
<td>chlorophyll</td>
<td>green pigment found in chloroplasts that captures light for photosynthesis</td>
</tr>
</tbody>
</table>
Warm-Up Photosynthesis

Words to Know

<table>
<thead>
<tr>
<th>stomata</th>
<th>the small ________ on leaves or stems that are used for gas exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylem</td>
<td>a type of vascular tissue that transports ________ and nutrients throughout the plant</td>
</tr>
</tbody>
</table>

Plant Cells

- Plants make their own food using:
  - ________.
  - water.
  - ________.
Instruction

Photosynthesis

Reactants in Photosynthesis

- **Photosynthesis** is the process by which green plants and some other organisms make

- **Reactants** are the present before a reaction.
  
  - Carbon dioxide
  - Energy

Products of Photosynthesis

- Products are the substances present after a chemical reaction.
  
  - (sugar)

Photosynthesis as a Chemical Reaction

- The reactants in photosynthesis are carbon dioxide, water, and energy.
- The products in photosynthesis are glucose and oxygen.

\[
\text{carbon dioxide} + \text{water} + \text{energy} \rightarrow \text{glucose} + \text{oxygen}
\]
Process of Photosynthesis

• Reactants combine in the _______.
  • Roots absorb water, and _______ carries it up the stem to the leaves.
  • Carbon dioxide from the air enters the leaf through the _______.
  • _______ captures energy from sunlight.

Process of Photosynthesis

• _______ is used to break down water into hydrogen and oxygen.
• _______ combines with carbon dioxide to form glucose.
• Plant _______ break down glucose and store carbohydrates.
• Oxygen is _______ through the stomata.
Summary Photosynthesis

Lesson Question

What happens during the process of photosynthesis?

Answer

Review: Key Concepts

- Reactants in photosynthesis are carbon dioxide, water, and energy.
- Products of photosynthesis are glucose and oxygen.

\[
\text{carbon dioxide + water + } \underline{\text{energy}} \rightarrow \text{glucose + } \underline{\text{energy}}
\]

- These are the steps in the process of photosynthesis.
  - Collect in the chloroplasts.
  - A series of molecular changes occur in chemical reactions powered by energy.
  - Products are formed and used for food or released as oxygen into the air.
Summary

Photosynthesis

Use this space to write any questions or thoughts about this lesson.