

Chapter 2 – Cell Processes and Energy

- Students will describe the process of photosynthesis.
- Students will describe the process of respiration.
- Students will describe the events of cell division.

Please answer the following questions on notebook paper. Number the answers to match the questions. Thank you!

Section 2.1

1. Describe the process of photosynthesis.
2. Explain how the sun supplies all living things with the energy they need.
3. Define the terms: photosynthesis, pigment, chlorophyll, stomata, autotroph, heterotroph.

Section 2.2

4. Describe the events that occur during respiration.
5. Describe the relationship between photosynthesis and respiration.
6. Describe alcoholic and lactic-acid fermentation.
7. Define the terms: respiration, fermentation.

Section 2.3

8. List the events that take place during the three stages of the cell cycle.
9. Describe the structure of DNA and how DNA replication occurs.
10. Define the terms: cell cycle, interphase, replication, mitosis, chromosome, chromatid, cytokinesis.

Section 2.1 Photosynthesis

How Living Things Obtain Energy from Sunlight

•Directly:

autotroph -

example –

•Indirectly:

heterotroph -

example -

Photosynthesis -

Equation: _____

Stage 1: Capturing Sun's Energy	Stage 2: Using Energy to Make Food

Cell Processes and Energy ▪ *Guided Reading and Study*

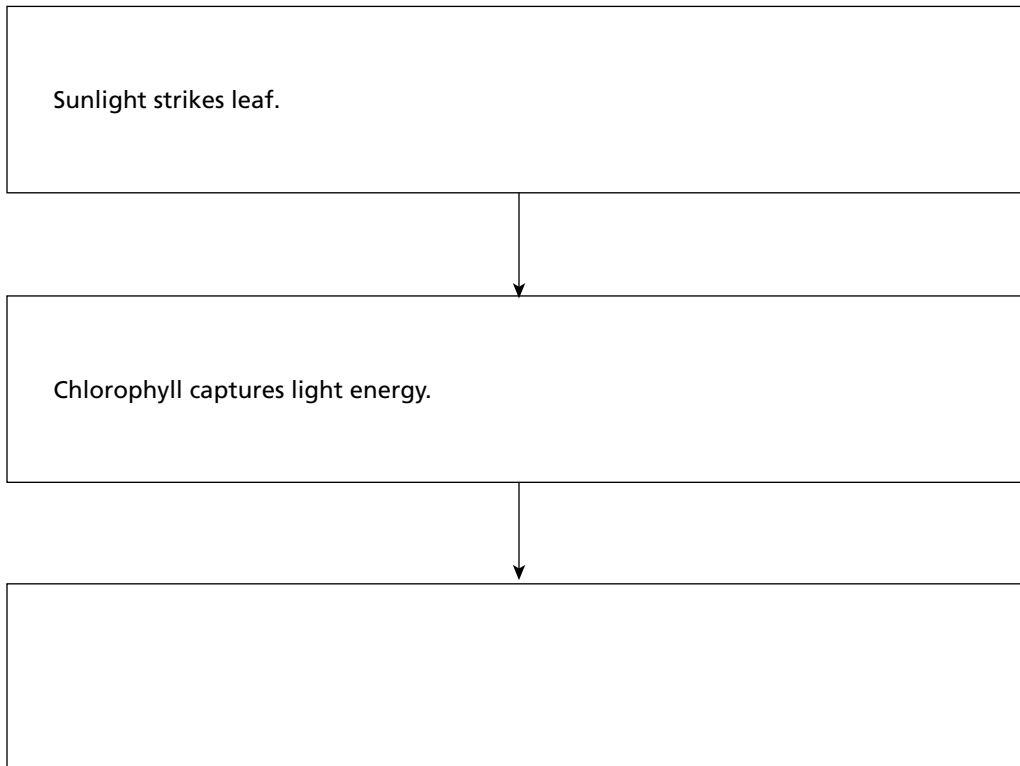
Photosynthesis

This section explains how plants make food by using the energy from sunlight.

Use Target Reading Skills

As you read, create a flowchart that shows the steps in photosynthesis. Put each step in a separate box in the flowchart in the order in which it occurs.

Steps in Photosynthesis



**Cell Processes
and Energy**

Sources of Energy

1. In the process of photosynthesis, plants use the energy in _____ to make food.

Cell Processes and Energy ▪ *Guided Reading and Study*

Photosynthesis *(continued)*

2. Complete the following table about how living things use the sun’s energy.

How Living Things Use Energy From the Sun		
Living Thing	Autotroph or Heterotroph?	Obtains Energy From the Sun Directly or Indirectly?
Grass		
Zebra		
Lion		

The Two Stages of Photosynthesis

3. List the two stages in the process of photosynthesis.
 - a. _____
 - b. _____
4. The green pigment in chloroplasts, called _____, absorbs light energy from the sun.
5. Is the following sentence true or false? Besides the energy in sunlight, the cell needs water and carbon dioxide to make sugar. _____
6. What are stomata?

Cell Processes and Energy ▪ *Guided Reading and Study*

7. Circle the letter of each product of photosynthesis.
- a. water
 - b. carbon dioxide
 - c. oxygen
 - d. sugars
8. Is the following sentence true or false? Photosynthesis produces the carbon dioxide that most living things need to survive. _____

The Photosynthesis Equation

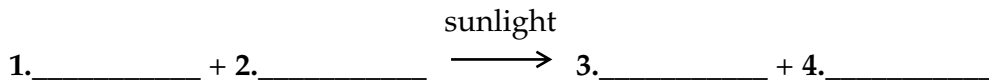
9. Write the chemical equation for the process of photosynthesis.
- _____
10. What word does the arrow in the chemical equation stand for?
- _____
11. Circle the letter of each raw material of photosynthesis.
- a. carbon dioxide
 - b. glucose
 - c. water
 - d. oxygen
12. Circle the letter of each sentence that is true about the products of photosynthesis.
- a. Plant cells use the sugar for food.
 - b. Some of the sugar is made into other compounds, such as cellulose.
 - c. Some of the sugar is stored in the plant's cells for later use.
 - d. Extra sugar molecules pass out of the plant through the stomata.

Cell Processes and Energy ▪ *Review and Reinforce*

Photosynthesis

Understanding Main Ideas

Fill in the blanks in the photosynthesis equation below with the names of the missing compounds. Then answer the questions that follow in the spaces provided.



5. What are the raw materials of photosynthesis?

6. What are the products of photosynthesis?

7. Why is *sunlight* written above the arrow in the equation, rather than on either side of it?

8. Where does photosynthesis occur?

Building Vocabulary

Fill in the blank to complete each statement.

9. The process by which a cell captures the energy in sunlight and uses it to make food is called _____.

10. _____ are colored chemical compounds that absorb light.

11. The main pigment found in the chloroplasts of plants is _____.

12. _____ are small openings on the undersides of leaves through which carbon dioxide enters a plant.

13. An organism that makes its own food is a(n) _____.

14. A(n) _____ is an organism that cannot make its own food.