



Science Virtual Learning

LEP Science

Photosynthesis and Cellular Respiration as a Cycle

April 16, 2020



LEP Science
Lesson: April 16, 2020

Objective/Learning Target: I can explain how photosynthesis and cellular respiration are complementary processes.



Let's get started by reviewing the process of photosynthesis and cellular respiration.

1. Write the formula for photosynthesis.
2. Write the formula for cellular respiration.

1. Write the formula for photosynthesis.



2. Write the formula for cellular respiration.





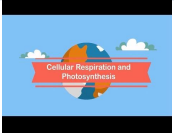
Let's continue our review and learning. Answer the questions as you watch the video.



1. Do plants need food?
2. How do plants get the food?
3. What is needed to do photosynthesis?
4. Where does this take place?
5. How does it happen?

6. Why is cellular respiration important?
7. Where does it happen?
8. Why is the mitochondria like a power plant?
9. How does the mitochondria make energy?

Let's continue our review and learning. Answer the questions as you watch the video.



1. Do plants need food? **Yes**
2. How do plants get the food? **Photosynthesis**
3. What is needed to do photosynthesis? **Water, carbon dioxide, and light**
4. Where does this take place? **chloroplast**
5. How does it happen? **Carbon dioxide, water, and light are combined to make sugar and oxygen**
6. Why is cellular respiration important? **Living organisms generate energy using cellular respiration**
7. Where does it happen? **mitochondria**
8. Why is the mitochondria like a power plant? **It makes energy like power plants provide us with energy for our homes.**
9. How does the mitochondria make energy? **It uses oxygen to break the sugar into carbon dioxide, water, and ATP energy.**



How well can you put this together? Place an "X" in the correct column.

Characteristic	Photosynthesis	Cellular Respiration	Both
Oxygen is a waste product			
Carbon dioxide is a waste product			
Energy is supplied to cells			
A form of nutrition in green plants			
Chloroplasts are needed for this to occur			
Mitochondria are needed for this to occur			
Leaf cells of green plants make food			
Sunlight is needed for this to occur			
Animals do this			
Plants do this			
This is needed for cell to grow			

How well can you put this together? Place an "X" in the correct column. **Answers**

Characteristic	Photosynthesis	Cellular Respiration	Both
Oxygen is a waste product	X		
Carbon dioxide is a waste product		X	
Energy is supplied to cells		X	
A form of nutrition in green plants		X	
Chloroplasts are needed for this to occur	X		
Mitochondria are needed for this to occur		X	
Leaf cells of green plants make food			
Sunlight is needed for this to occur	X		
Animals do this		X	
Plants do this			X
This is needed for cell to grow		X	

Use the word bank to answer the questions (some may be used more than once)

- Photosynthesis
- Cellular Respiration
- CO₂ (carbon dioxide)
- H₂O (water)
- O₂ (oxygen)
- C₆H₁₂O₆ (glucose/sugar)
- Sunlight
- Chloroplast
- Mitochondria

Which process is a "build up" process? _____
 Which process is a "break down" process? _____
 Photosynthesis occurs in what organelle? _____
 Cellular respiration occurs in what organelle? _____



3 things that go in: (REACTANTS)

1. _____
2. _____
3. _____

2 things that come out: (PRODUCTS)

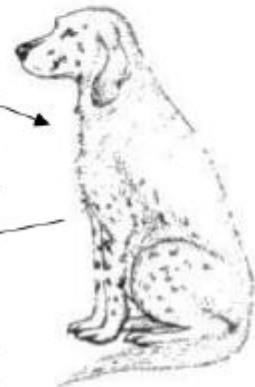
1. _____
2. _____

2 things that go in:
(REACTANTS)

1. _____
2. _____

2 things that come out:
(PRODUCTS)

1. _____
2. _____



What is the ULTIMATE source of all energy??? _____

Use the word bank to answer the questions (some may be used more than once)

- Photosynthesis
- Cellular Respiration
- CO₂ (carbon dioxide)
- H₂O (water)
- O₂ (oxygen)
- C₆H₁₂O₆ (glucose/sugar)
- Sunlight
- Chloroplast
- Mitochondria

- Which process is a "build up" process? Photosynthesis
- Which process is a "break down" process? Cellular Respiration
- Photosynthesis occurs in what organelle? Chloroplast
- Cellular respiration occurs in what organelle? Mitochondria



3 things that go in: (REACTANTS)

1. Carbon Dioxide
2. Water
3. Sunlight

2 things that come out: (PRODUCTS)

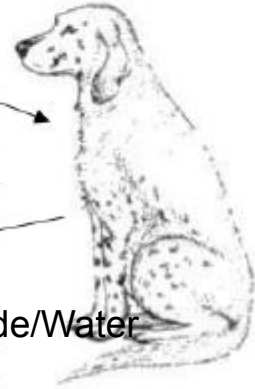
1. Glucose
2. Oxygen

2 things that go in:
(REACTANTS)

1. Glucose
2. Oxygen

2 things that come out:
(PRODUCTS)

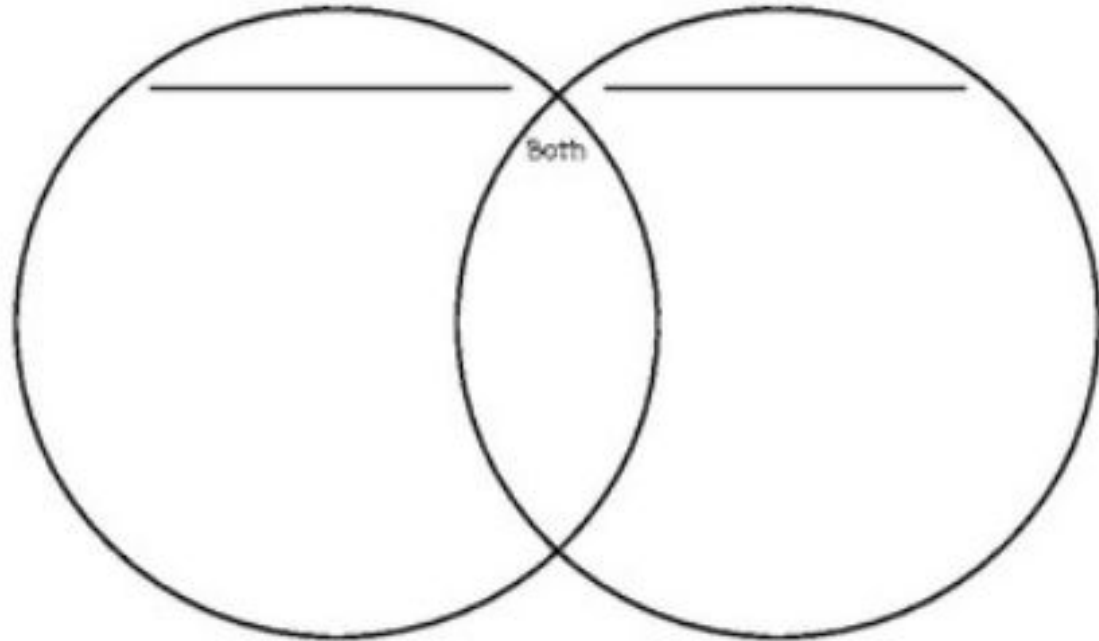
1. Carbon Dioxide/Water
2. ATP Energy

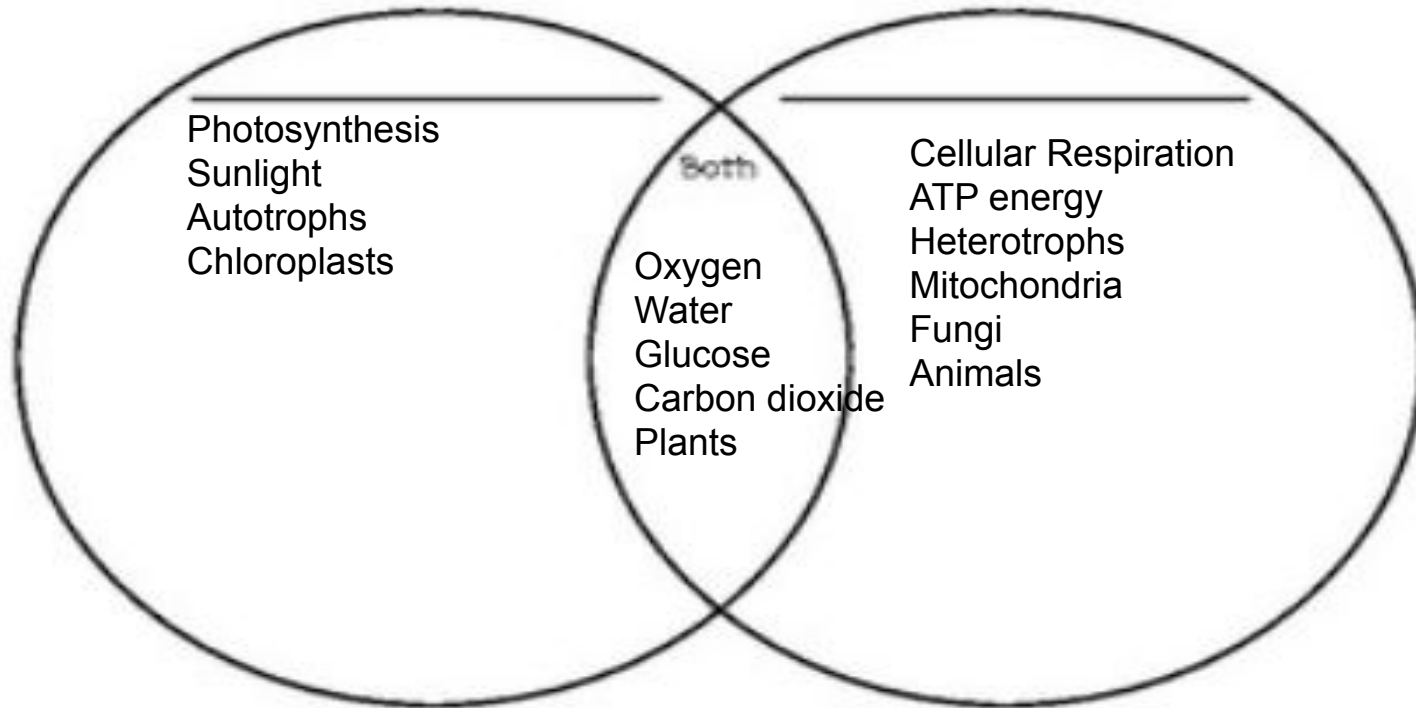


What is the ULTIMATE source of all energy??? Sunlight

More practice: place the words/phrases in the word bank into the correct place on the Venn Diagram.

- Chloroplast
- Mitochondria
- Oxygen
- Water
- Carbon Dioxide
- Glucose
- Sunlight
- ATP Energy
- Autotrophs
- Heterotrophs
- Plants
- Animals
- Fungi
- Photosynthesis
- Cellular Respiration







[Some easy reading](#)

[Notes format of photosynthesis and cellular respiration](#)

[Video with information](#)