

Photosynthesis and Respiration

What is the relationship between photosynthesis and cellular respiration?

Why?

Photosynthesis and cellular respiration are important cell energy processes. They are connected in ways that are vital for the survival of almost all forms of life on earth. In this activity you will examine the process of photosynthesis and how cellular respiration and photosynthesis are tied together.

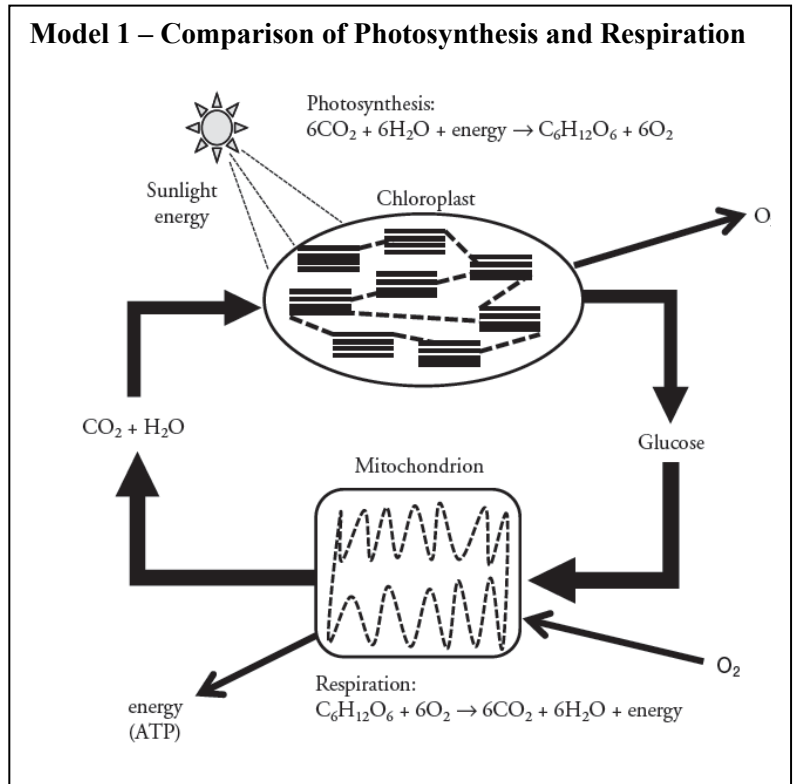
Refer to Model 1 for the following questions.

Photosynthesis:

1. In what cell organelle does photosynthesis occur?
2. What are three reactants needed for photosynthesis?
3. What are two products of photosynthesis?

Respiration

4. In what cell organelle does cellular respiration occur?
5. What are two reactants needed for cellular respiration?
6. What are three products of cellular respiration?
7. What four substances are recycled during photosynthesis and respiration?
8. What is the one component in photosynthesis that is not recycled and must be constantly available?
9. Are chloroplasts found in most plant cells? Explain why.
10. Are mitochondria found in most plant cells? Explain why.
11. Are chloroplasts found in animal cells? Explain why.
12. Are mitochondria found in animal cells? Explain why.



Analysis Questions

13. Write a grammatically correct sentence that compares the reactants and products of photosynthesis with the reactants and products of respiration. Be ready to share your sentence with the class.
14. Carefully consider and discuss the following statement: *“Plants can survive on their own, because they make their own food. Animals can’t survive on their own but need plants for survival.”* Do you agree with this statement? Why or why not? Be ready to discuss your response to this statement.



15. Make a quick list of the foods that you ate during your last meal. In complete sentences, hypothesize what would happen to the supply of those foods if the sun’s energy was no longer available.
16. Explain in complete sentences how the energy used by an athlete during a football game comes from the energy of sunlight.