

Student Activity Worksheet: Shining Light on Photosynthesis

Directions: After reading the *Science News Explores* article "[Explainer: How photosynthesis works](#)," work with a partner to complete the first section of questions as instructed by your teacher.

Breaking down photosynthesis

1. Based on what you read, write an overall chemical reaction for photosynthesis. If you have learned how to balance chemical reactions, balance it.

2. As the article indicates, photosynthesis is the result of multiple chemical reactions that are often described as two separate processes. What reactions do the "photo" in "photosynthesis" refer to? What reactions are classified by the "synthesis" in "photosynthesis"? Where do each of the processes occur?

3. Working with a partner, use the article to diagram all the major chemical reactions in the "photo" and "synthesis" processes. Discuss the purpose or function of a single reaction in terms of how it fits into the overall cycle. Where are the reactions taking place? Are they consuming or producing energy? How is the energy used in subsequent steps?

4. After reviewing all the steps of the photosynthesis, does the overall reaction capture everything that occurs during photosynthesis? What does the overall reaction tell you? What does it leave out?

5. Why might it be important to understand all the steps and details of photosynthesis and not just memorize the overall reaction?

6. Create a comic or graphic tale that explains one of the chemical reactions in the process of photosynthesis. Make sure you highlight the reactants and products and point out how your reaction plays an important role in the overall process of photosynthesis. What preceding reaction is your reaction dependent on, and why is your reaction critical to the overall process? Is your reaction producing or consuming energy? Use additional resources to look up more information about the reaction or part of the process that is assigned to you.

Can plants adapt?

To investigate how certain conditions can impact plants' ability to photosynthesize and how plants can adapt to such conditions, read the *Science News* article "[Some leaves in tropical forests may be getting too hot for photosynthesis](#)" and discuss the second set of questions with a partner.

1. Almost all plants undergo photosynthesis. What are some environmental factors that can affect the process of photosynthesis and therefore the health of plants? Explain using an example from the *Science News* article.
2. In the study referenced in the *Science News* article, what data did scientists collect to learn that leaf temperatures may be getting too hot for photosynthesis?
3. Describe your neighborhood's environmental conditions. What conditions are your local plants exposed to throughout the year?
4. Given your area's environmental conditions, what adaptations do your local plants need to survive? Think beyond photosynthesis. For example, if you live in an area with high levels of erosion, plants need strong roots.

The care and keeping of plants

Choose a native plant that grows in your local area. Do some research and fill in the information below to create a "care card" for your plant. Include a description of the adaptations your plant needs to survive in your local area in the "Additional notes" portion. What makes the plant grow well in your local area?

Plant's Common Name:

Plant's Scientific Name:

Average size:

Water requirements:

Sun tolerance:

Cold hardiness:

Common pests:

Additional notes:



© Society for Science 2000–2023. All rights reserved.