LESSON 2 How Do Green Cells Make Food? ==========

Objectives

When students have completed this lesson, they will be able to:
- identify the raw materials and products of food-making in green cells;
- explain the role of chlorophyll and sunlight in photosynthesis;
- analyze and interpret word and formula equations for photosynthesis.

Exploring Science

Most of the photosynthesis that occurs on Earth is accomplished by algae in the ocean. This, along with photosynthesis by plants - particularly trees - should be supported, both to grow food and to fight global warming.

For the inference question, **B** is the answer. Students may guess **B** if they think of plants' need for light, or **A** if they think of plants' roots. You might explain that a key function of roots is to obtain water, which surrounds aquatic algae.

How Green Cells Make Food

You may wish to have students look at the plant cell from Unit 2 Lesson 2 (page 42) to remind them that chloroplasts make plant cells appear green. You will need to point out that only a small number of chloroplasts were included in the drawing, but a real cell would have many of these structures.

Have students study the drawing of the plant on page 69. Oxygen exits the plant's leaf. In lesson 3 of this unit, students will see how living things *use* oxygen. Point out that green plants and algae use some of the oxygen that they produce for their own needs. What is in excess exists the cells. In summary, green organisms not only provide food for other organisms, they also provide oxygen.

The equation for photosynthesis, and the corresponding equation for cell respiration (that is covered in the next lesson) are such fundamental concepts for an introductory course in biology that it is helpful to have "banner" versions of them continually on display in the classroom. [Full disclosure: the author of this textbook sells such banners online, but similar ones could certainly be "handmade."]

To Do Yourself

While acetone is a better solvent for the extraction of chlorophyll, it is a carcinogen, so alcohol is recommended. Edible ethanol is fine. You may want to complete the same steps - by yourself - using acetone, and then have students observe the difference between your results and theirs.

Questions
Please see below.

Review

Please note: I have not made the answers available online, in the small chance that a student might discover them. Of course, the answers to these questions will be included in the version of the Teacher's Guide provided to teachers who purchase the text.