

6.2 Grading Functions of All Plants Worksheet

This worksheet has “grading” in the title because if they discuss these questions in class, students can be held accountable for correct answers. Level 4 (correct) responses to the questions are in **blue bold italics** below.

Red italics suggest ways to grade student responses by giving them points for correct or partially correct answers. There are 12 points total on this worksheet.

There are three functions that all animals have in common. For each function, explain how plant cells work to accomplish that function. Good answers will address the each of the numbered questions on the Three Questions Poster or Handout. Your answers can include words, illustrations, diagrams, and/or charts.

1. All plants make glucose. How do their cells do that?

Level 4 responses should include answers to each of the four numbered steps for photosynthesis on the Three Questions poster and handout:

- 1. Matter movement: Carbon dioxide and water enter into the plant’s leaf cells.**
- 2. Matter change: Carbon dioxide and water are changed into glucose and oxygen during photosynthesis in the leaf cells.**
- 3. Energy change: Light energy is transformed into chemical energy stored in the C-C and C-H bonds in glucose when glucose is produced during photosynthesis in the leaf cells.**
- 4. Matter movement: Glucose and oxygen leave the cell. The glucose is transported to other cells in the plant, including root cells.**

1 point for each correct part of the answer: 4 points total

2. All plants grow. How do their cells do that?

Level 4 responses should include answers to each of the four numbered steps for biosynthesis on the Three Questions poster and handout:

- 1. Matter movement: Small organic molecules (or monomers, such as amino acids, sugars, fatty acids, and glycerol) and minerals enter the plant’s cell.**
- 2. Matter change: The small organic molecules and soil minerals are combined to make large organic molecules (or polymers, such as carbohydrates, fats/lipids, and proteins).**
- 3. Energy change: The chemical energy stored in the C-C and C-H bonds in the small organic molecules (monomers) stays in these bonds when they are combined into large organic molecules (polymers).**
- 4. Matter movement: The cell grows bigger and may eventually divide as more large organic molecules (polymers) are made.**

1 point for each correct part of the answer: 4 points total

3. All plants use energy to move and function. How do their cells do that?

Level 4 responses should include answers to each of the four numbered steps for cellular respiration on the Three Questions poster and handout:

- 1. Matter movement: Glucose (and other small organic molecules) come into the cell from the phloem.**
- 2. Matter change: Glucose reacts with oxygen to produce carbon dioxide and water.**
- 3. Energy change: Chemical energy in glucose is transformed into motion and heat energy (and energy for other cell functions).**
- 4. Matter movement: Carbon dioxide and water leave the cell.**

1 point for each correct part of the answer: 4 points total