

6.4 Grading Explaining Functions that All Decomposers Share

*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 15 points total on this worksheet.

There are three functions that all animals have in common. For each function, explain how animal 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 decomposers digest food made mostly of water and large organic molecules. How do they digest and take in food?

Level 4 responses should include:

Macro-scale movement:

- Decomposers send digestive enzymes into dead plants or animals with large organic molecules.*
- Some large organic molecules are digested into small organic molecules and absorbed by the decomposers*
- Other large organic molecules are not digested and remain outside the decomposers*

At the cellular and atomic-molecular scales responses should include answers to each of the four numbered steps on the Three Questions poster and handout:

- Matter change: Large organic molecules are separated into small organic molecules (or monomers: amino acids, sugars, fatty acids, glycerol).*
- Matter movement:*
 - (for fungi) Small organic molecules) enter into the hyphae.*
 - (for bacteria) Small organic molecules enter into the single-celled bacteria.*
- Energy change: The chemical energy of the C-C and C-H bonds in the large organic molecules remains in the small organic molecules.*
- Matter movement: (for fungi) The small organic molecules move through the hyphae to all parts of the fungus.*

1 point for each correct part of the answer: 8 points total

2. All decomposers grow. How do their cell(s) do that?

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

- Matter movement: Small organic molecules (or monomers, such as amino acids, sugars, fatty acids, and glycerol) enter the decomposer’s cell.*
- Matter change: The small organic molecules are combined to make large organic molecules (or polymers, such as carbohydrates, fats/lipids, and proteins).*
- 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).*
- 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 decomposers use energy to move and function. How do their cell(s) do that?

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

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

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

Note: If your students read about and studied anaerobic fermentation (using 6.1 Decomposers without Oxygen Handout) then you could give student additional credit for explaining how some decomposers can use fermentation to get energy from organic molecules without oxygen)