

6.3 Grading Functions of All Animals 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 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 animals eat and digest food made mostly of water and large organic molecules and produce feces. What happens to food when they eat and digest it?**

Level 4 responses should include:

Macro-scale movement:

- Food containing water and large organic molecules goes through the digestive system*
- Some large organic molecules are not digested and leave the body as feces*
- Other large organic molecules are digested into small organic molecules and circulate to all cells through the blood*

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:

- 1. Matter movement: Large organic molecules (or polymers: carbohydrates, fats/lipids, proteins) enter into the animal and move through the digestive system to the small intestine.*
- 2. Matter change: Large organic molecules are separated into small organic molecules (or monomers: amino acids, sugars, fatty acids, glycerol).*
- 3. Energy change: The chemical energy of the C-C and C-H bonds in the large organic molecules remains in the small organic molecules.*
- 4. Matter movement: The small organic molecules pass through the intestinal lining into the blood stream.*

1 point for each correct part of the answer: 7 points total

- 2. All animals grow. How do their cells 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: Small organic molecules (or monomers, such as amino acids, sugars, fatty acids, and glycerol) enter the animal’s skin cell.*
- 2. Matter change: The small organic molecules 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 animals 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 on the Three Questions poster and handout:

- 1. Matter movement: Glucose (and other small organic molecules) come into the cell from the blood.*
- 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