

Cells and Systems

This worksheet helps you understand how cells work as the basic unit of life and how they organize into tissues, organs and systems ([Outcome](#)). You will compare different types of cells, explore how materials move in and out of cells, and examine how body systems keep organisms healthy ([Outcome](#)).

Exercises

1. A student observes a plant cell and an animal cell under a microscope. Which of the following is found in the plant cell but NOT in the animal cell?

- A) Cell membrane
- B) Cell wall
- C) Nucleus
- D) Mitochondria

2. The diagram below shows the levels of organization in a multicelled organism. Match each level to its description ([Outcome](#)).

Level	Description
Cell	A group of similar cells working together to perform a specific function
Tissue	The basic unit of life that carries out life processes
Organ	A structure made of different tissues that work together to perform a major function

3. A single-celled amoeba and a grizzly bear are both living organisms, but they are very different. Explain one way they are similar and one way they are different ([Outcome](#)).

Similarity: _____

Difference: _____

4. Water moves into and out of cells through diffusion and osmosis. If a cell is placed in salt water with a higher concentration of salt outside the cell than inside, in which direction will water move?

- A) Into the cell
- B) Out of the cell
- C) Both directions equally
- D) Water will not move

5. Your heart rate increases when you exercise. Which body system is responsible for this change, and what is the purpose of this response ([Outcome](#))?

Body system: _____

Purpose: _____

6. Identify the roles of the following structures in supporting a healthy human body ([Outcome](#)).

Structure	Role
Lungs	_____
Blood cells	_____
Nerve cells	_____

Answer Key

1. B) Cell wall
2. Cell = The basic unit of life that carries out life processes; Tissue = A group of similar cells working together to perform a specific function; Organ = A structure made of different tissues that work together to perform a major function
3. Similarity: Both are made of cells / Both are living things. Difference: An amoeba is single-celled while a grizzly bear is multicelled / An amoeba has no specialized organs while a bear does.
4. B) Out of the cell
5. Body system: Circulatory system (or cardiovascular system). Purpose: To deliver more oxygen and nutrients to muscles during exercise / To meet the body's increased energy demands.
6. Lungs: Exchange oxygen and carbon dioxide with the air; Blood cells: Transport oxygen and nutrients throughout the body; Nerve cells: Carry signals that allow the body to respond to stimuli.