

Cells and Systems

This worksheet reviews how cells, tissues, organs and systems work together in living things, including the human body, and connects to the key concepts of Unit B: Cells and Systems ([Topic](#)). It covers the roles of cells, the differences between plant and animal cells, diffusion and osmosis, and the healthy functioning of human body systems ([Outcome](#), [Outcome](#)).

Exercises

1. Multiple choice. Circle the best answer.

Which statement best describes the role of cells in living things?

- A) Cells are only found in animals, not in plants.
- B) Cells are the basic unit of life, and all living things are made of one or more cells.
- C) Cells are too small to have any real function in an organism.
- D) Only large organisms like trees and grizzly bears are made of cells.

([Outcome](#))

2. Matching. Draw a line from each human body system to its main function.

Body system	Function
Respiratory	A. Carries oxygen and nutrients to tissues and organs
Circulatory	B. Breaks down food into nutrients the body can use
Digestive	C. Exchanges oxygen and carbon dioxide with the environment
Excretory	D. Removes waste products from the body

([Outcome](#))

3. Fill in the blanks. Use the word bank to complete each sentence. Each word is used once.

Word bank: cell wall, cell membrane, single-celled, multicelled

- a) A plant cell has a rigid _____ that gives it a fixed shape, while an animal cell only has a flexible _____.
- b) An amoeba is an example of a _____ organism, while a grizzly bear is an example of a _____ organism.

([Outcome](#))

4. Short answer. Diffusion and osmosis.

A fish's gills are surrounded by water that contains a higher concentration of oxygen than the fish's blood. Explain, in general terms, what will happen to the oxygen and why. Use the word "concentration" in your answer.

([Outcome](#))

5. Short answer. Organization in living things.

List the levels of organization in the human body, in order from smallest to largest, using these four terms: organ, tissue, cell, system.

Smallest: _____

Largest: _____

Then give one example of a cell, a tissue and an organ that all belong to the same body system.

Cell: _____ Tissue: _____ Organ: _____

([Outcome](#), [Outcome](#))

6. Short answer. Science and technology.

Describe one way that scientific research into a human organ or body system has led to an improvement in human health, such as a new medicine, an immunization or a diet designed for a specific organ. Name the organ or system involved.

([Outcome](#))

Answer key

1. B) Cells are the basic unit of life, and all living things are made of one or more cells.
2. Respiratory, C, Circulatory, A, Digestive, B, Excretory, D.
3. a) cell wall, cell membrane; b) single-celled, multicelled.
4. Oxygen will diffuse from the water into the fish's blood because it moves from an area of higher concentration to an area of lower concentration.
5. Smallest to largest: cell, tissue, organ, system. Example answers will vary; accept any biologically consistent set, such as a muscle cell, muscle tissue and the heart within the circulatory system.
6. Answers will vary; accept any example supported by the sources, such as the development of a medicine, an immunization procedure, or an organ-specific diet (for example, a low-sodium diet for heart health).