

Cells and Systems

This worksheet checks your understanding of cells, tissues, organs and body systems, and how they keep an organism healthy ([Topic](#), [Outcome](#), [Outcome](#)). You will also practise describing how research improves human health ([Outcome](#)).

Exercises

1. Matching: Structure and Function

Draw a line from each term to its best description, or write the matching letter on the blank line.

Term	Blank	Description
Cell	_____	A) The smallest basic unit of life
Tissue	_____	B) A group of organs working together to perform a major function
Organ	_____	C) A group of similar cells working together
System	_____	D) A group of tissues working together to perform a specific job

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

2. Multiple Choice: Plant and Animal Cells

Circle the correct letter for each question.

a) Which structure is found in plant cells but not in animal cells?

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

b) Diffusion is best described as the movement of particles from an area of:

- A) low concentration to high concentration
- B) high concentration to low concentration
- C) equal concentration to equal concentration
- D) inside a cell to outside a cell, always

([Outcome](#))

3. Short Answer: Single-Celled vs. Multicelled Organisms

Choose one single-celled organism (such as an amoeba) and one multicelled organism (such as a grizzly bear or a poplar tree). Describe two similarities and one difference between how they carry out life functions.

Similarity 1: _____

Similarity 2: _____

Difference: _____

([Outcome](#))

4. Fill in the Blank: Human Body Systems

Use the words below to complete each sentence. Each word is used once.

respiration circulation digestion excretion sensory

- a) The _____ system breaks down food into nutrients the body can use.
- b) The _____ system removes waste products from the body.
- c) The _____ system carries oxygen and nutrients through the blood to tissues and organs.
- d) The _____ system exchanges oxygen and carbon dioxide in the lungs.
- e) The _____ system allows the body to detect and respond to stimuli, such as heat or sound.

[\(Outcome\)](#)

5. Short Answer: Cells at Work in the Body

Choose two of the following cell types: nerve, muscle, blood, skin, bone. For each one, describe in one or two sentences how it contributes to keeping the human body functioning in a healthy way.

Cell type 1: _____

Contribution: _____

Cell type 2: _____

Contribution: _____

[\(Outcome\)](#)

6. Applying Science: Response and Research

a) Describe one way the human body changes its function in response to a changing condition. Give a specific example (for instance, exercise, cold temperature or a sudden loud noise).

b) Describe one example of scientific research that has improved human health related to a body system (for example, a vaccine, a medicine or a treatment for lung, heart or digestive problems).

c) Write one testable question a scientist could investigate about how air quality affects the respiratory system.

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

Answer key

- 1. Cell = A, Tissue = C, Organ = D, System = B ([Outcome](#), [Outcome](#))
- 2. a) C b) B ([Outcome](#))
- 3. Answers will vary; both organisms must carry out life functions such as obtaining food, responding to their environment and reproducing, but a single-celled organism performs all functions within one cell while a multicelled organism divides these functions among specialized cells, tissues and organs ([Outcome](#)).
- 4. a) digestion b) excretion c) circulation d) respiration e) sensory ([Outcome](#))

5. Answers will vary; for example, nerve cells carry signals through the body, muscle cells contract to produce movement, blood cells carry oxygen and fight infection, skin cells protect the body and help regulate temperature, and bone cells support and protect the body ([Outcome](#)).
6. Answers will vary; for example, heart rate increases during exercise to deliver more oxygen to muscles, or metabolism rises in cold temperatures to generate heat; research examples may include vaccines, medicines or heart-healthy diets; a testable question might be, "How does poor air quality affect breathing rate in humans?" ([Outcome](#), [Outcome](#), [Outcome](#))