

Cells and Systems Formative Quiz

Time: 30 min. 6 questions.

Instructions

Answer all six questions using what you have learned about cells, tissues, organs and body systems. Read each question carefully, and show your thinking for the short answer and numeric questions. You may use full sentences or point form for short answer questions.

Questions

1. Which structure is found in a plant cell but not in an animal cell?

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

[\(Outcome\)](#)

2. Explain, in your own words, how diffusion moves gases or liquids into and out of a cell. Use the word "concentration" in your answer.

[\(Outcome\)](#)

3. True or false: An amoeba and a grizzly bear are both examples of multicelled organisms.

[\(Outcome\)](#)

4. Which body system is mainly responsible for exchanging oxygen and carbon dioxide with the environment?

- A) Digestive system
- B) Excretory system
- C) Respiratory system
- D) Sensory system

[\(Outcome\)](#)

5. Give one example of how scientific research into human cells or organs has improved human health, and briefly explain how it helps people.

[\(Outcome\)](#)

6. A student's resting heart rate is 70 beats per minute. During exercise, the student's heart rate increases by 60%. What is the student's heart rate, in beats per minute, during exercise?

[\(Outcome\)](#)

Curriculum coverage

Question	Outcome alias
1	Outcome
2	Outcome
3	Outcome

4	Outcome
5	Outcome
6	Outcome

Answer key

1. B) Cell wall. Plant cells have a rigid cell wall surrounding the cell membrane, while animal cells have only a cell membrane ([Outcome](#)).
2. Diffusion moves particles from an area of higher concentration to an area of lower concentration, allowing gases such as oxygen and carbon dioxide, and liquids such as water, to pass into and out of a cell without the cell using extra energy ([Outcome](#)).
3. False. An amoeba is a single-celled organism, while a grizzly bear is a multicelled organism, so the two do not belong to the same category ([Outcome](#)).
4. C) Respiratory system. The lungs and bronchia in the respiratory system allow oxygen and carbon dioxide to be exchanged with the surrounding air ([Outcome](#)).
5. Any reasonable example is acceptable, such as the development of vaccines to prevent disease or diets designed around the needs of specific organs like the heart. Research into cells, organs and systems has led to medicines and procedures that prevent or treat illness ([Outcome](#)).
6. 112 beats per minute. A 60% increase on 70 is $70 \times 0.6 = 42$, and $70 + 42 = 112$, reflecting how heart rate rises in response to exercise ([Outcome](#)).