

Cells, Tissues and Organs at Work

30 minutes, 3 stages

Every living thing is built from cells, and cells work together in teams called tissues and organs to keep organisms alive and functioning ([Outcome](#)). Understanding how cells organize into larger structures helps you see why your body works the way it does and how damage to one part affects the whole system.

Stage 1: Single Cells and Multicelled Life (8 min)

Compare a single-celled organism with a multicelled one. Choose one pair from the list below and write three sentences explaining the key differences ([Outcome](#)).

- An amoeba and a grizzly bear
- A single-celled alga and a poplar tree
- Bacteria and a human

In your answer, address:

1. How does each organism gather food or energy?
2. How does a single cell do all the work that a multicelled organism spreads across many cells?
3. What advantage does being multicelled provide?

Stage 2: Plant and Animal Cells (10 min)

Draw or label a simple diagram of a plant cell and an animal cell side by side. You can sketch by hand or describe them in words. Identify structures in cells such as the nucleus, cell membrane, and cytoplasm.

Then list two key differences between them ([Outcome](#)). For each difference, write one sentence explaining why that structure matters. Example: "Plant cells have a cell wall, which provides rigid support so the plant can stand upright without a skeleton."

Stage 3: How Cells Exchange Materials (12 min)

Imagine a cell in your body is surrounded by a fluid with a different concentration of salt than the fluid inside the cell. Water molecules move across the cell membrane to balance the concentration. This process is called osmosis ([Outcome](#)).

Answer the following:

1. Why do you think water molecules move across the membrane rather than staying put?
2. If a plant cell loses too much water through osmosis, what might happen to the plant? (Hint: think about what keeps a plant cell firm.)
3. Name one place in your body where osmosis is happening right now.

Self-check

1. Can you explain in one sentence why cells are called the basic unit of life? ([Outcome](#))
2. If you looked at a cell under a microscope and saw a cell wall, would it be a plant cell or an animal cell? How do you know?
3. What is the difference between diffusion and osmosis? (You do not need to memorize the terms, just describe what each one does.)

