

## CONCEPT 2

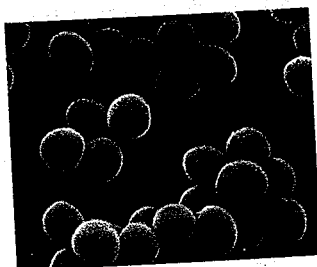
# Bacteria are prokaryotic cells.



### Activity

#### Describing Bacteria

Observe the different types of bacteria cells shown below. How would you describe each cell? How are they similar? How are they different?



**C**ould you live in boiling water or super-salty lakes? You could if you belonged to the archaea. These prokaryotic organisms live in extreme environments. You may be more familiar with the other group of prokaryotic organisms: bacteria.

### Bacteria

A typical bacterial cell looks like the prokaryotic cell in **Figure 1.10** (on page 24). It has a cell wall and a cell membrane that surround its jelly-like cytoplasm. Genetic material and protein-making structures called ribosomes float within the cytoplasm. Some bacteria have whip-like flagella for movement.

### Archaea

Like bacteria, archaea lack a nucleus and have a cell wall. But there are some important differences between them. Molecules found in archaea are more like the molecules found in eukaryotic cells than those of bacterial cells. Archaea also have molecules in their cytoplasm that are not found in any other type of organism.

### Before you leave this page . . .

1. Make a T-chart to compare and contrast bacteria and archaea.
2. What new questions do you have about bacteria and archaea?

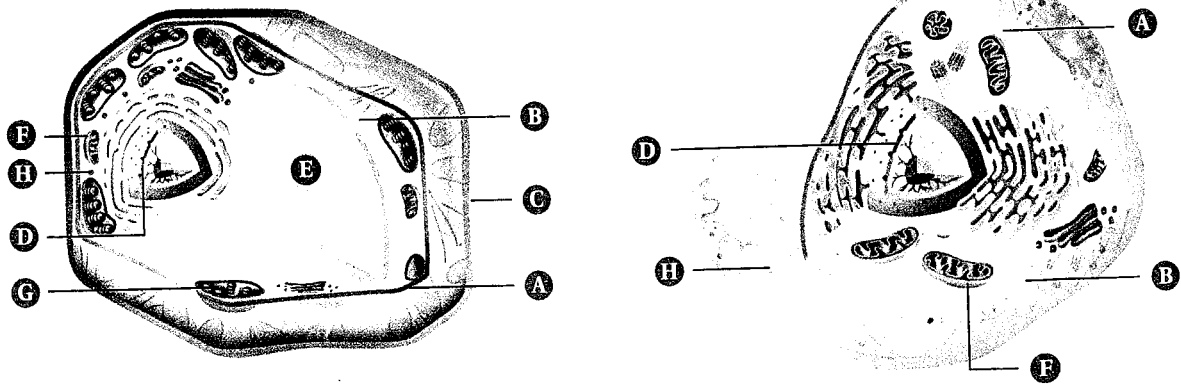
# Plant and animal cells are eukaryotic cells.

## Activity

### Considering Plant and Animal Cells

Observe the plant and animal cells in Figure 1.11. Look at all the labelled features. Summarize the key similarities and differences.

Figure 1.11 shows the two main types of eukaryotic cells.



#### Cell Organelle

- Ⓐ cell membrane
- Ⓑ cytoplasm
- Ⓒ cell wall
- Ⓓ nucleus
- Ⓔ vacuoles
- Ⓕ mitochondria
- Ⓖ chloroplasts
- Ⓗ vesicles

#### Structure and Function

- surrounds and protects the contents of the cell
- helps to control the movement of foods, wastes, and other substances into and out of the cell
- jelly-like fluid in which internal organelles float
- tough, rigid structure surrounding the cell membrane, giving plant cells a regular, box-like shape
- large, often round structure containing the genetic material that controls a cell's growth, reproduction, and other life-sustaining activities
- balloon-like spaces within the cytoplasm to store wastes, food, and substances the cell cannot use right away
- smaller and more numerous in animal cells
- bean-shaped structures that release energy from food molecules to power cell processes
- structures containing chlorophyll (a green substance), which captures energy from the Sun to produce food (sugars) in the leaves and green stems of plants
- small sacs that transport materials and sometimes help materials enter and leave the cell

Figure 1.11 Some common organelles of plant and animal cells. Organelles help cells carry out their life processes.