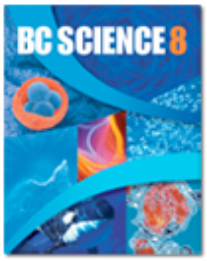
Section 1.2
Cells
Check Your Understanding



Checking Concepts

1. What is the role of the nucleus in a cell?

   The nucleus controls and directs all activities in the cell - like 'city hall' in a a city.

2. Describe the function of the cell membrane.

   The cell membrane is a barrier between the inside and outside of the cell. It controls what materials go in and out of the cell.

3. How does the cell produce energy to carry out various cellular activities?

   Mitochondria combine glucose (sugar) from the food we eat and oxygen (from the air we breath) and produce energy from a chemical reaction.

4. Which organelle is like a storage container?

   The 'Vacuole' is like a storage container.

5. How does a cell make its energy? Which organelle performs this function?

   Animal and plant cells burn glucose (sugar) using oxygen in their mitochondria. Plant cells make their own glucose through Photosynthesis using sunlight in their Chloroplasts.

6. Predict what would happen to a plant cell if the chloroplasts stopped functioning.

   Without Chloroplasts, the plant cannot use sunlight to make it's own glucose, so once it runs out of glucose, the cell would die.

7. Correctly identify the labelled organelles in the illustrations of cells on page 39 of your textbook.

   A **Cell Membrane** B **Cytoplasm**

   C **Nucleus** D **Mitochondria**

   E **Chloroplast** F **Nucleus**

   G **Cell Wall**

8. Which of the cells referred to in question 7 is a plant cell? Support your answer.

The bottom green cell is the plant cell - it has a cell wall and chloroplasts (not found in animal cells).

9. What is the composition of cytoplasm?

Cytoplasm contains water, organelles, and other life supporting materials.

10. Summarize the key points of the cell theory.

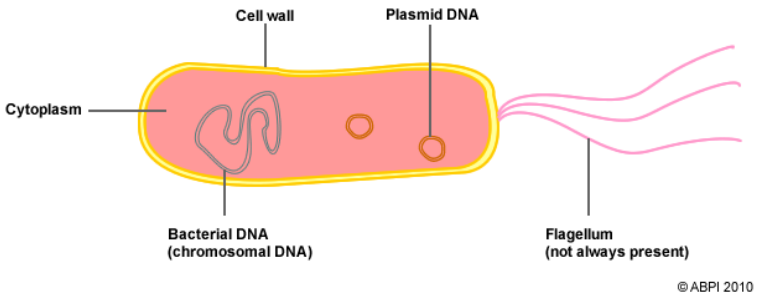
The cell is the basic unit of life
All living things are made up of cells
All cells come from other living cells

11. Why do scientists consider the cell theory to be a main idea of modern biology?

The cell theory explains the basic foundation of all living things - a common necessity for all life.

12. Draw and label a prokaryotic cell.

A bacterial cell is a good example...



13. Describe one difference between bacteria and viruses.

One main difference between bacteria and viruses is that bacteria can reproduce on their own whereas viruses can't.

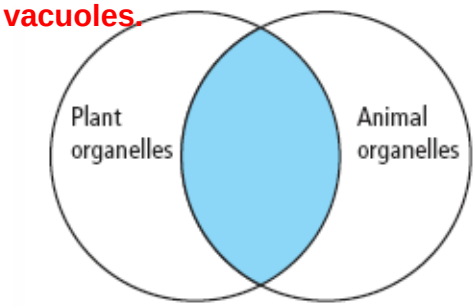
Understanding Key Ideas

14. Recall the Protection Dome of Newo. Explain why a cell membrane could not be like the Protection Dome, which had a solid wall and just one opening.

A true cell needs openings all over in order for nutrients and waste to go in and out - one opening isn't enough.

15. Draw a Venn diagram like the one below to the right. Fill in each section with the correct organelles.

Plant cells only - Chlorplasts, cell wall, one large vacuole
Animal cells ony - Lysozomes, smaller and more numerous vacuoles.
Both: Membrane, nucleus, mitochondria, ribosomes
endoplasmic reticulum, golgi bodies, vesicles,



Pause and Reflect

Write a paragraph or develop a table to explain how each of the examples below is like a cell.

(a) an airport
(b) a shopping mall
(c) a hospital