

Section 1.1 The Cell: Understanding the Basic Unit of Life

Read pages 4-16.

- 1) All living organisms are made up of **one** or **more** cells.
- 2) What are the four basic statements of the cell theory?
 - i) **All living things are made up of one or more cells.**
 - ii) **Cells are the basic units of structure and function in all organisms.**
 - iii) **All cells come from previously existing cells.**
 - iv) **The activity of an entire organism depends on the total activity of its independent cells.**
- 3) Define organelles. **Organelles are specialized parts of a cell that do a specific job.**
- 4) Which organelles does a plant cell have that an animal cell lacks?

A plant cell has a *cell wall* and contains *chloroplasts*.
- 5) Define nuclear membrane. **A nuclear membrane encloses the cell's genetic material.**
- 6) Define DNA. **DNA has the instructions to assemble the necessary substances for building the cell and making it work.**
- 7) Define chromatin. **Chromatin are long strands of DNA that are scattered throughout the nucleus.**
- 8) Define nucleolus. **The nucleolus is a darker area inside the nucleus that makes ribosome parts.**
- 9) Define ribosomes. **Ribosomes help to make proteins, the substances important for cell function.**
- 10) Define cell membrane. **The cell membrane separates the stuff of the cell from its surroundings. It controls what comes in and out of the cell.**
- 11) Define cytoplasm. **Cytoplasm is the jelly-like stuff enclosed by the cell membrane.**
- 12) Define cell wall. **A cell wall is a rigid wall that surrounds the cell membrane.**
- 13) Define mitochondria. **Mitochondria transforms energy for the cell.**

14) Define vacuoles. **Vacuoles are storage rooms that hold water, food, wastes, and other materials.**

15) Define chloroplasts. **Chloroplasts enable plant cells to make their own food by photosynthesis.**

16) Define nucleus. **The nucleus is an organelle surrounded by a double-layered porous membrane.**

17) Name three people whose ideas, research, or discoveries contributed to the cell theory. Briefly describe their contributions.

Aristotle: proposed spontaneous generation and the ladder of life.

Van Leeuwenhoek: developed a simple single-lens microscope.

Virchow: concluded "Where a cell exists, there must have been a preexisting cell."

18) Why was communication through books, letters, and lectures such an important factor in the development of the cell theory? What do you think would happen if scientists today were unable to communicate with each other? **Communication through books, letters, and lectures was an important factor in the development of cell theory because scientists were able to share experimental results and opinions that could then, in turn, be assessed by other members of the scientific community. If scientists today were unable to communicate with each other, then the development of new scientific theories or laws would be hindered because of the lack of collaboration within the scientific community.**