

Dear Parent,

Your son's or daughter's science class will soon begin exploring a unit on the structure and function of cells. In this unit, students will learn about the working parts of cells and how these parts perform functions for obtaining nutrients in order to grow, reproduce, make needed materials, and process wastes. By the end of the chapter, students should demonstrate a clear understanding of and discuss the following topics:

### 1. Cell Structure and Function

- There are two basic types of cells;
  - Prokaryotic cells do not have a nucleus. (bacteria)
  - Eukaryotic cells have a nucleus. (plant and animal cells)
- Eukaryotic cells are made up of smaller parts called organelles, each having its own function within the cell. The major organelles with which students should be familiar are the cell membrane, cell wall, nucleus, cytoplasm, chloroplasts, mitochondria, and lysosome.

### 2. Cell Processes

- Diffusion is the movement of small particles such as oxygen and carbon dioxide across the cell membrane without the use of energy.
- Osmosis is the movement of water across a cell membrane without using energy.
- Active transport moves larger particles across the cell membrane and requires the use of energy. Endocytosis and exocytosis are examples of active transport.
- Photosynthesis is the process that plants use to sunlight, carbon dioxide, and water to make food in the form of the simple carbohydrate, glucose. Photosynthesis also produces oxygen. Photosynthesis occurs in a chloroplasts of plant cells.
- Cellular Respiration is the process that plants and animals use oxygen and glucose to produce energy in the form of ATP. Cellular respiration also produces carbon dioxide and water. Cellular respiration occurs in the mitochondria of plant and animal cells.
- Most cells reproduce in a process called Mitosis.

You can help your child learn about these topics by asking questions as the unit progresses or asking your child about key terms from this summary.

