

**Lesson Outline****LESSON 2****Cells****A. What are cells?**

1. All living things have \_\_\_\_\_, which are the basic unit of an organism.
2. Most cells are so small that a(n) \_\_\_\_\_ needs to be used to see them.
3. Cells have many different shapes and \_\_\_\_\_.

**B. What are cells made of?**

1. All cells are made of four types of \_\_\_\_\_—nucleic acids, lipids, proteins, and \_\_\_\_\_.
2. The \_\_\_\_\_ is an outer structure that surrounds all cells.
3. About 70 percent of the material inside a cell is \_\_\_\_\_.

**C. Types of Cells**

1. \_\_\_\_\_ cells are cells that do not have a nucleus or other membrane-bound organelles.
2. Structures in cells that carry out specific functions are called \_\_\_\_\_.
3. Cells that have a nucleus and other membrane-bound organelles are called \_\_\_\_\_ cells.
  - a. \_\_\_\_\_ include most multicellular organisms as well as some unicellular organisms.
  - b. In eukaryotes, most of the organelles, including the nucleus, are surrounded by \_\_\_\_\_.

**D. The Outside of a Cell**

1. The cell membrane is made of lipids and \_\_\_\_\_.
  - a. Lipids in the cell membrane protect the \_\_\_\_\_ of a cell from the environment outside the cell.
  - b. \_\_\_\_\_ in the cell membrane transport substances between a cell's environment and the inside of the cell and \_\_\_\_\_ with other cells.
2. A strong, rigid layer outside the cell membrane of some cells is called the \_\_\_\_\_.

**Lesson Outline continued****E. The Inside of a Cell**

1. The \_\_\_\_\_ is the liquid part of a cell inside the cell membrane.
2. The information that controls all cell activities is stored in DNA, which is the cell's \_\_\_\_\_ material.
  - a. DNA is a type of macromolecule called a(n) \_\_\_\_\_.
  - b. The function of RNA is to give cells instructions about which \_\_\_\_\_ need to be made.
  - c. In eukaryotic cells, DNA is stored in an organelle called the \_\_\_\_\_.
3. In prokaryotes, proteins in the \_\_\_\_\_ process energy.
4. Eukaryotes have organelles, called \_\_\_\_\_, which break down food and release energy.
5. Adenosine triphosphate, or \_\_\_\_\_, is a molecule that stores \_\_\_\_\_ for later use in carrying out cell functions.
6. Plants and many other autotrophs have energy-processing organelles called \_\_\_\_\_ as well as mitochondria.
  - a. Chloroplasts capture light energy and convert it into chemical energy in a process called \_\_\_\_\_.
  - b. Photosynthesis produces ATP and also \_\_\_\_\_ such as glucose that are used to store energy.
7. Proteins are made on the surface of \_\_\_\_\_, which are found in the \_\_\_\_\_ of prokaryotic and eukaryotic cells.
8. The ribosomes in eukaryotic cells are attached to an organelle called the \_\_\_\_\_.
9. After proteins are made, an organelle called the \_\_\_\_\_ packages them into tiny organelles called vesicles.
10. Water and other molecules are stored in organelles called \_\_\_\_\_.