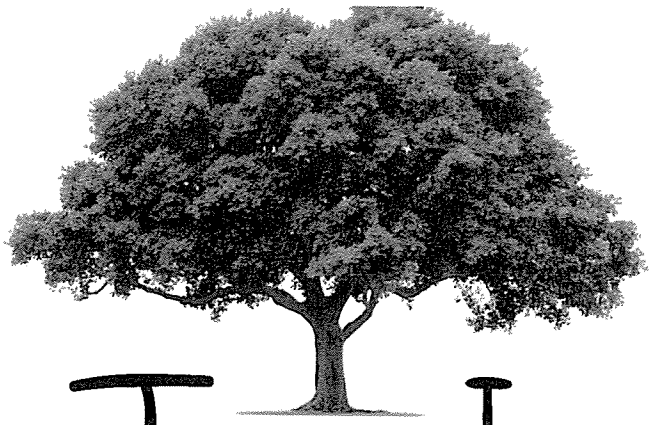
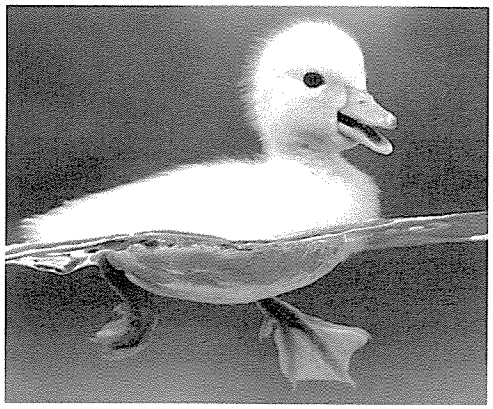
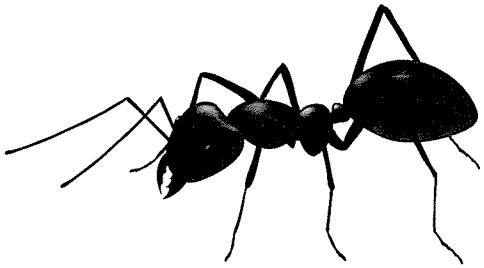




The Importance of Cells



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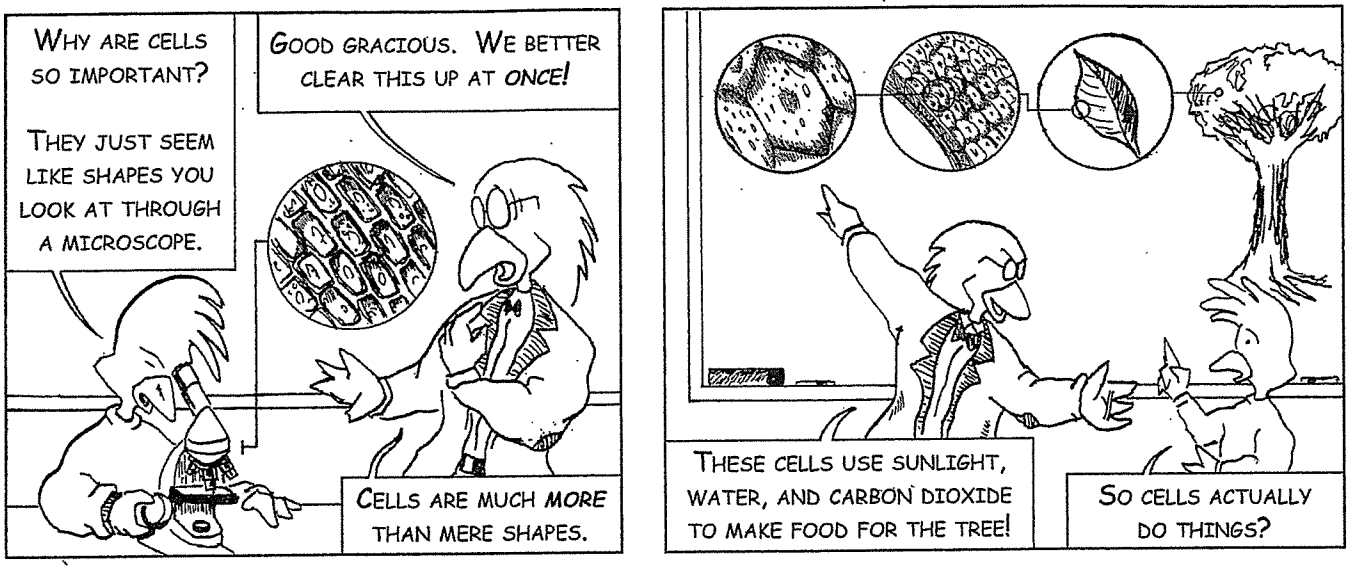
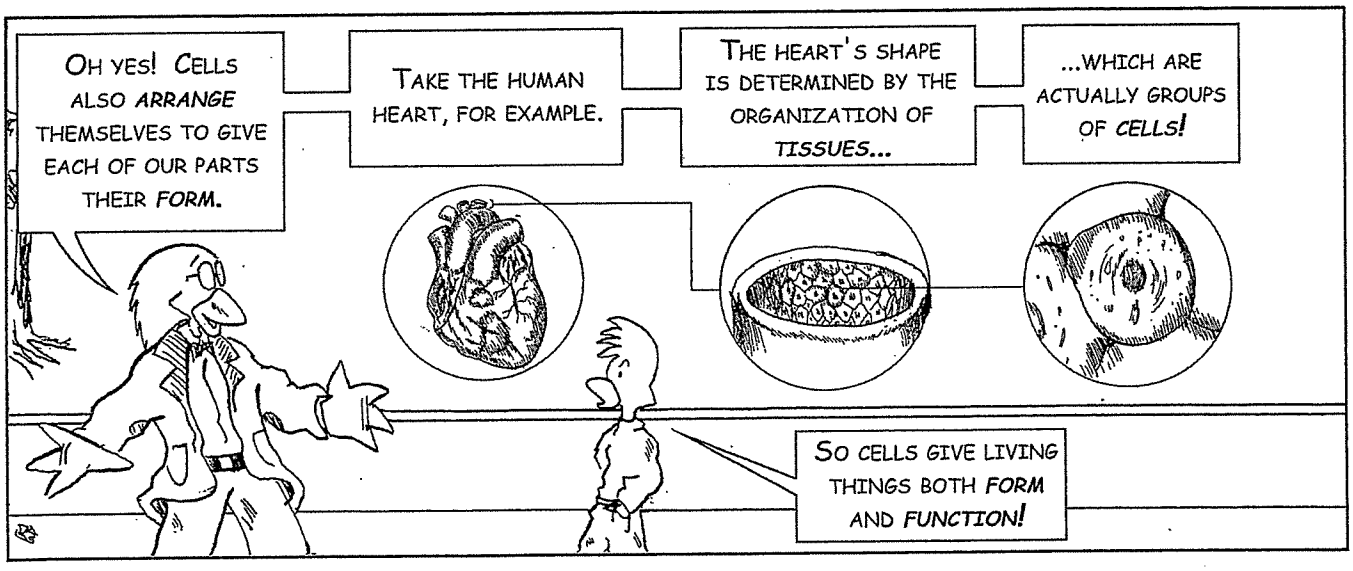
DR. BIRDLEY INVESTIGATES

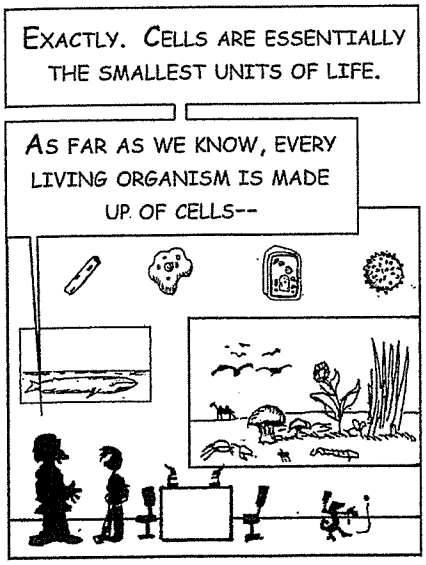
WHY CELLS?

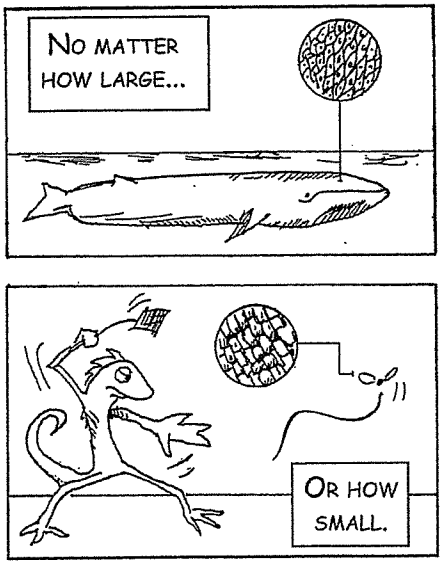
NAME:_____

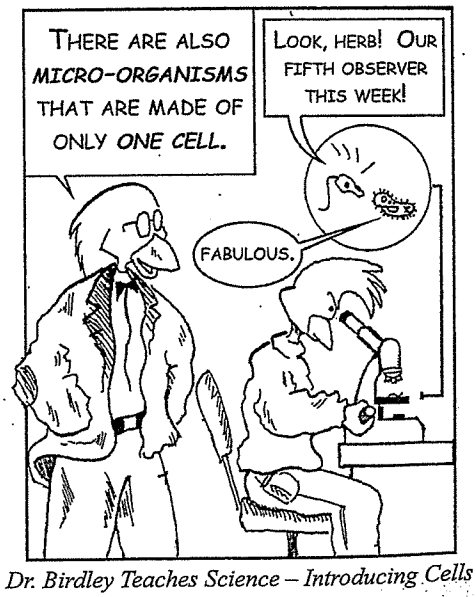
CLASS:_____ DATE:_____











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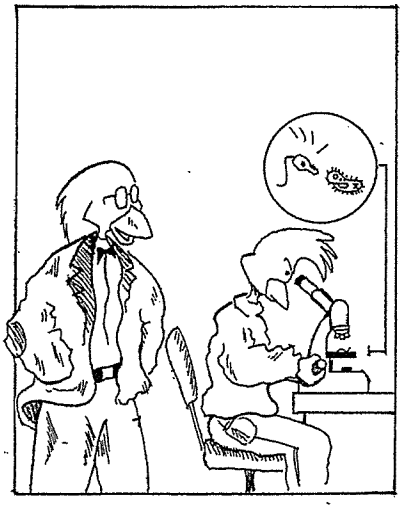
BACKGROUND: WHY CELLS?

The purpose of this cartoon is to define cells, explain why they are important, and illustrate how they relate to tissues and organs. Dr. Birdley points out four reasons cells are important:



1. For any function a living thing performs, cells are performing the underlying work. For example, the food within a plant is produced through photosynthesis, a series of chemical reactions that occur within cells.

2. Cells arrange themselves in an orderly fashion to form the parts of a living thing. Some of the heart's inner walls are made up of endothelial tissue. The structure of the tissue is determined by the collective organization of its endothelial cells.

3. Cells are the smallest units of life. While a cell contains many life-sustaining parts, no one part of the cell is considered to be alive on its own. The cell is the smallest unit that can reproduce itself.

4. All living things are made of cells, regardless of their size. Organisms that can be seen with the unaided eye, such as plants, animals, and most fungi, are typically made of many cells.

There are also living things called microorganisms, which are difficult to see with the unaided eye. Some of these are made of only one cell. Although we cannot see single-celled microorganisms with the unaided eye, they are all over the place. In fact, most living things on this planet are made up of only one cell!

Directions: Answer the following questions to the best of your ability.

1. Give an example of how the work performed by cells contributes to the life functions of the organism.

_____

_____

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2. Explain how cells relate to tissues and organs.

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NAME:_____

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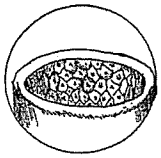
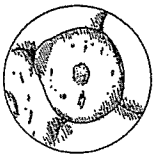
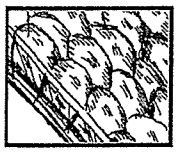


STUDY QUESTIONS



Directions: Answer the following questions to the best of your ability.



1. According to Dr. Birdley, what is one reason cells are important for a tree?

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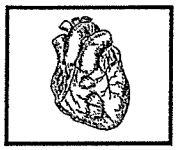
_____



2. According to Dr. Birdley, what is the connection between cells and internal organs such as the heart?

_____

_____

3. List and describe the three levels of organization discussed in the cartoon.

_____

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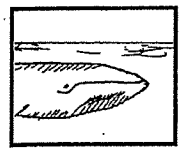


4. What point is made using the whale and the fly?

_____

_____

5. Explain three to four reasons why cells are important.

_____

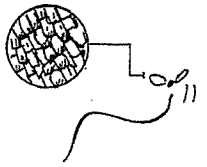
_____

DR. BIRDLEY INVESTIGATES WHY CELLS

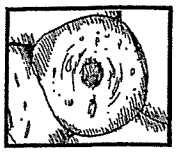
NAME:_____

CLASS:_____ DATE:_____

VOCABULARY BUILD-UP!



Directions: Read the definitions. Then, write sentences to convey the meaning of the underlined words.



1. Cells are tiny compartments that all living things are made of. They are the smallest things alive! Examples include plant cells, muscle cells, and nerve cells. Use the term cell in a sentence.

_____

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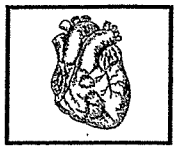
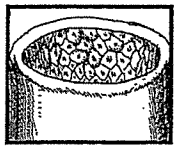


2. An organ is a major part of the body that performs a particular task. Examples include the heart, brain, stomach, liver, and intestines. Use the term organ in a sentence.

_____

_____



3. Tissues are organized groups of cells. The example here is endothelial tissue, which forms a protective inner lining within the heart's passages. Other examples include nerve and muscle tissue. Use the term tissue in a sentence.

_____

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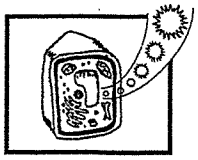

4. Photosynthesis is a process by which a plant cell uses water, carbon dioxide, and sunlight to create food and oxygen gas. This process enables the plant to maintain a steady food supply. Use photosynthesis in a sentence.

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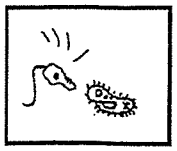

5. A microorganism is a tiny living thing that can only be seen in detail through a microscope. Many of them are made of one cell. The two pictured are a euglenoid (left) and a paramecium (right). Use microorganism in a sentence.

_____

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Name:_____ Class:_____ Date:_____

Unit 1 Quiz: The Importance of Cells

Directions: This quiz tests your knowledge of the chapter's cartoon, background article, and visual exercises. Answer the following questions to the best of your ability.

1. Cells conduct photosynthesis in order to produce:
   - (a) water
   - (b) chlorophyll
   - (c) glucose
   - (d) carbon dioxide

2. The process of photosynthesis is primarily
   - (a) chemical
   - (b) electrical
   - (c) mechanical
   - (d) technological

3. Cells arrange themselves to form:
   - (a) organelles
   - (b) tissues
   - (c) molecules
   - (d) microorganisms

4. The inner lining of the heart's passageways is made up of:
   - (a) smooth muscle cells
   - (b) nerve cells
   - (c) red blood cells
   - (d) endothelial cells

5. Microorganisms are:
   - (a) living things that are often made of one cell
   - (b) parts of the cell that perform specific functions.
   - (c) cell types within the human body
   - (d) small organs made of many cells

6. Which of the following statements is false?
   - (a) all living things are made of cells
   - (b) cells are the smallest units of life
   - (c) cells form spontaneously in between other cells
   - (d) multicellular and unicellular organisms exist

7. Explain how cells, organs, and tissues are related.

_____

_____

_____

_____