Lesson 1 Cells and Life

Skim *Lesson 1 in your book. Read the headings and look at the photos and illustrations. Identify three things you want to learn more about as you read the lesson. Write your ideas in your Science Journal.*

Main Idea	Details
Understanding Cells *I found this on page* 43.	**Explain** *why it took so long for scientists to learn about cells.* Cells are too small to see without special tools. No one knew that cells existed until the microscope was invented.
I found this on page 44.	**Summarize** *discoveries made by scientists that led to the* cell theory. Robert Hooke built a microscope and used it to study cells for the first time; used the term "cells" to describe what he saw Matthias Schleiden used one of the new microscopes to study plant cells and their features; noted similarities to animal cells Theodor Schwann used one of the new microscopes to study animal cells and their features; saw similarities to plant cells Rudolf Virchow proposed that all cells come from preexisting cells
I found this on page 44.	**List** *the 3 main principles of the* cell theory. 1. All living things are made of one or more cells. 2. The cell is the smallest unit of life. 3. All new cells come from preexisting cells.

Main Idea

Basic Cell Substances

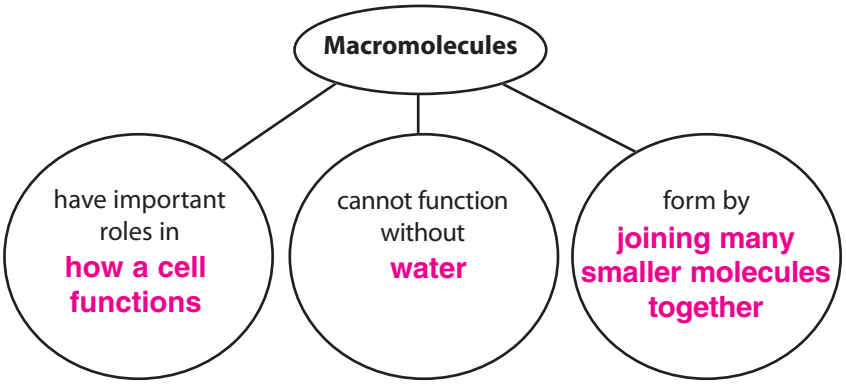
I found this on page 45 .

I found this on page 45 .

I found this on page 45 .

Details

Organize *information about* macromolecules.



Complete *the statement about basic cell substances.*

The main material inside cells is water, which makes up more than 75 percent of the cell's volume.

Draw *a water molecule in the space below. Color the oxygen red and the hydrogen blue, and label the positive and negative ends. In the space below your drawing, describe the structure of the water molecule, and explain:*

1. *how that structure helps dissolve materials;*
2. *why water's ability to dissolve materials is important to the function of a cell.*

Drawings should show a large central red oxygen atom with two smaller blue hydrogen atoms attached to it. Students should indicate that the oxygen end is negative (-) and the hydrogen end is positive (+).

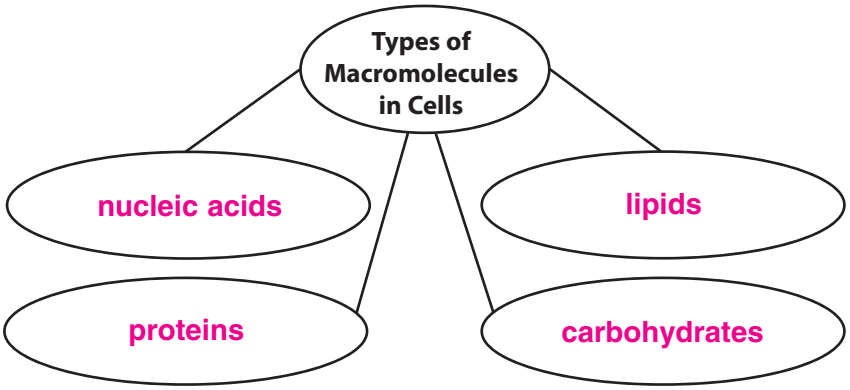
The water molecule has a positive end and a negative end. This structure makes substances dissolve easily because the positive ends of the water molecules can attract the negative parts of other substances and the positive ends can attract negative parts. Materials can only enter into and exit from cells when dissolved in water.

Main Idea

Details

I found this on page 46.

Identify *the types of* macromolecules *inside cells.*



I found this on page 46.

Distinguish *2 types of* nucleic acids *and indicate what cells make with each type.*

1. DNA is used to make RNA.
2. RNA is used to make proteins.

I found this on page 47.

Identify *4 functions of* proteins.

1. communication
2. transport
3. chemical breakdown of substances
4. structural support

I found this on page 47.

Explain *why* lipids *are able to function as protective barriers in cells.*

They do not dissolve in water.

I found this on page 47.

Summarize *information about* carbohydrates.

Carbohydrates	
that provide energy	that provide support
1. sugars	1. cellulose
2. starches	

Connect It Describe how the development of cell theory shows that scientific ideas can change over time. Use specific examples.

Sample answer: When Robert Hooke first saw cells, he did not know what they were and called them "little rooms." As scientists used better equipment, they began to see cells in greater detail and to realize that cells contained other things. They also learned that all living things are made of cells and that all cells come from other cells.