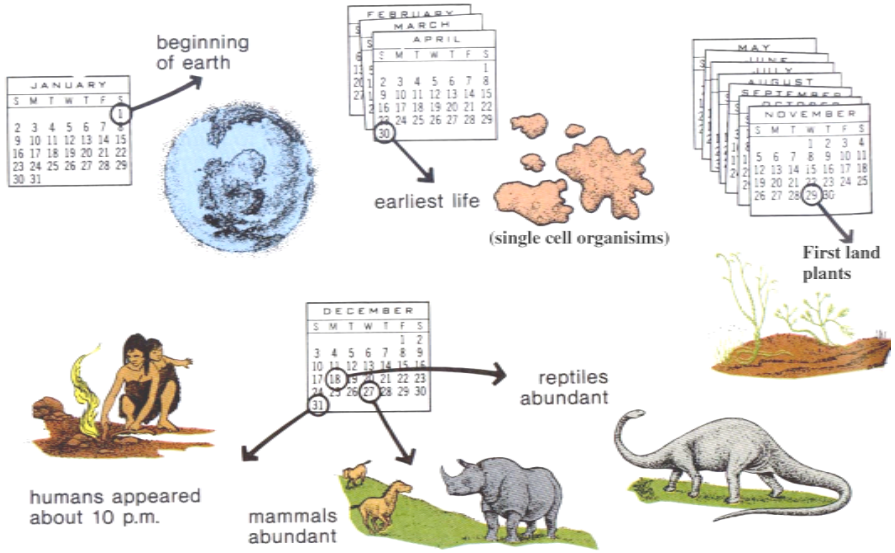
Exploring The Cell [Elephant Book Activity] *3/08*
Integrated Science 2
Redwood High School Name: Period:

■ Background

As we have seen in our study of ecology, ecosystems contain both abiotic (non-living) and biotic (living) components. As we have learned in our study of the origin of life, singled celled organisms were the first living things on Earth. Cells are the basic structural and functional units of life. Some organisms are composed of a single cell while others are composed of trillions of cells. In order to gain a complete understanding of life, one must first understand the cell. An understanding of cell function and structure is also needed in order to appreciate the impact diseases have on an individual, and the way in which genetic and chromosomal disorders occur. This activity is an introductory exploration of cells, their parts, and the some of the variations that exist.

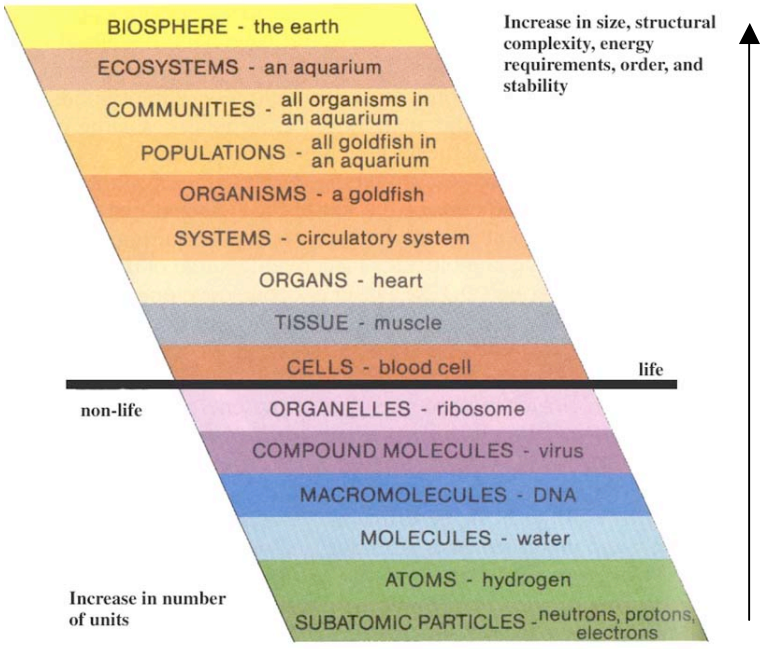
Recall earth's history expressed as a calendar year. Notice in figure 1 that the earliest life forms were single-celled organisms and that evolved a little more than 1 billion years after the earth solidified!

Figure 1



In figure 2, notice where cells are in relation to other living and non-living entities.

Figure 2



■ Procedure

Use Ch. 5: Sec. 5-1 thru 5-3 (pgs. 86-98) to complete the following.

1. What are the three statements used to express the Cell Theory?

   _____

   _____

   _____

2. A micrometer (μm) is equal to _____ of a meter.
3. Diameter of the smallest cells: _____ Example: _____
4. Diameter of the largest cells: _____ Example: _____
5. Range of diameters of most cells: _____
6. Use the space provided to draw and label (in color) a typical animal cell. [Fig. 5-3 pg. 89]

7. Use the space provided to draw and label (in color) a typical plant cell. [Fig.5-4 pg. 90]

8. Fill out the following table representing basic cellular structure.

Structure	**Function (a thorough description)**	**Colored Drawing**
Cell Membrane		
Cell Wall		
Nucleus + Nuclear Envelope **Prokaryotes vs. Eukaryotes (next table)*		
Chromosomes		No Drawing Needed
Cytoplasm		No Drawing Needed

9. Use the following table to record the differences between the two major classifications of cells.

Prokaryote	**Eukaryote**

10. Use the following table to record information about eukaryotic organelles.

a). Define organelle. _____

_____

Organelle Name	Function	Colored Drawing
Mitochondria ❒ plant ❒ animal ❒ both		
Chloroplast ❒ plant ❒ animal ❒ both		
Ribosomes ❒ plant ❒ animal ❒ both		
Endoplasmic Reticulum ❒ plant ❒ animal ❒ both		
Golgi Apparatus ❒ plant ❒ animal ❒ both		
Lysosomes ❒ plant ❒ animal ❒ both		
Vacuoles ❒ plant ❒ animal ❒ both		
Plastids ❒ plant ❒ animal ❒ both		
Cytoskeleton ❒ plant ❒ animal ❒ both		