

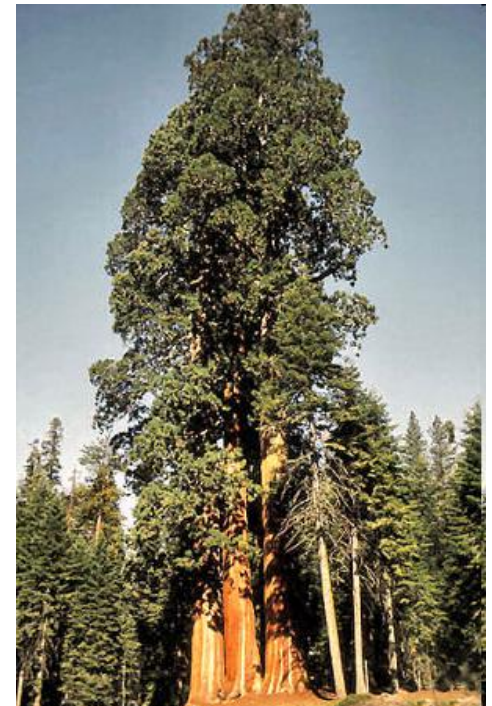
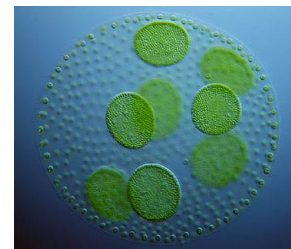
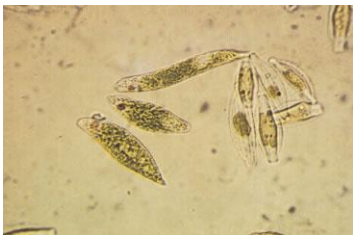
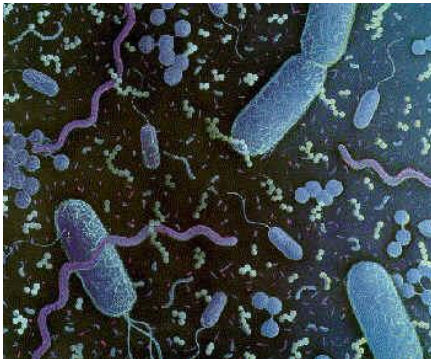
Life Science

Chapter 7 Part 1

Living Things

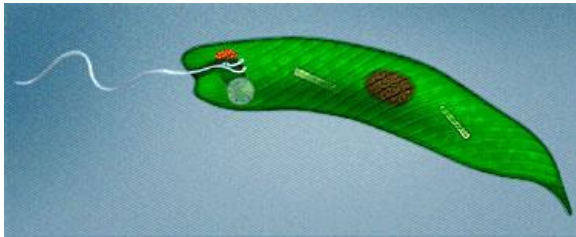
Characteristics of Living Things

- All living things are composed of cells
- All living things are composed of the four basic chemicals of life
- All living things utilize energy
- All living things grow and develop
- All living things respond to their environment
- All living things must be able to reproduce

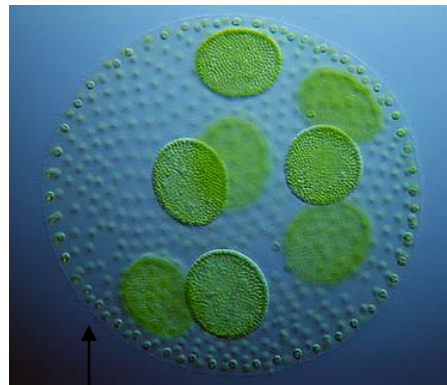


All living things are composed of cells

- **Unicellular organisms** – Microscopic, composed of a single cell include all **Archaeobacteria, Eubacteria** and most organisms from the Kingdom **Protista**.
- **Multicellular** organisms include the small microscopic colonial organism *Volvox sp.*, all the way up to the Blue whale composed of trillions and trillions of cells.



Euglena



Volvox



Paramecium

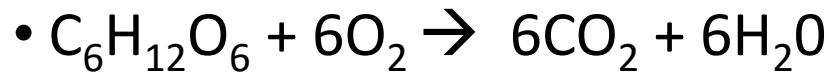
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All living things are composed of the four basic chemicals of life:

- **Proteins** which are composed of amino acids
- **Carbohydrates**: made of long chains of simple 5 and 6 carbon sugars
- **Lipids**: composed of fatty acids & glycerides
- **Nucleic Acids** which include DNA (deoxyribonucleic Acid and RNA (Ribonucleic Acid)

All living things utilize energy

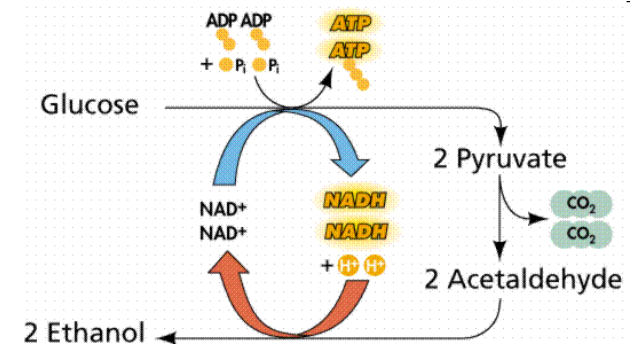
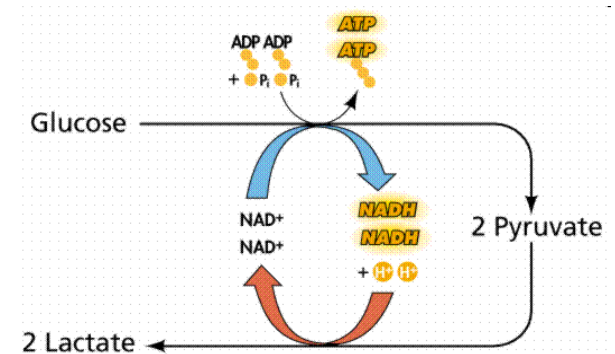
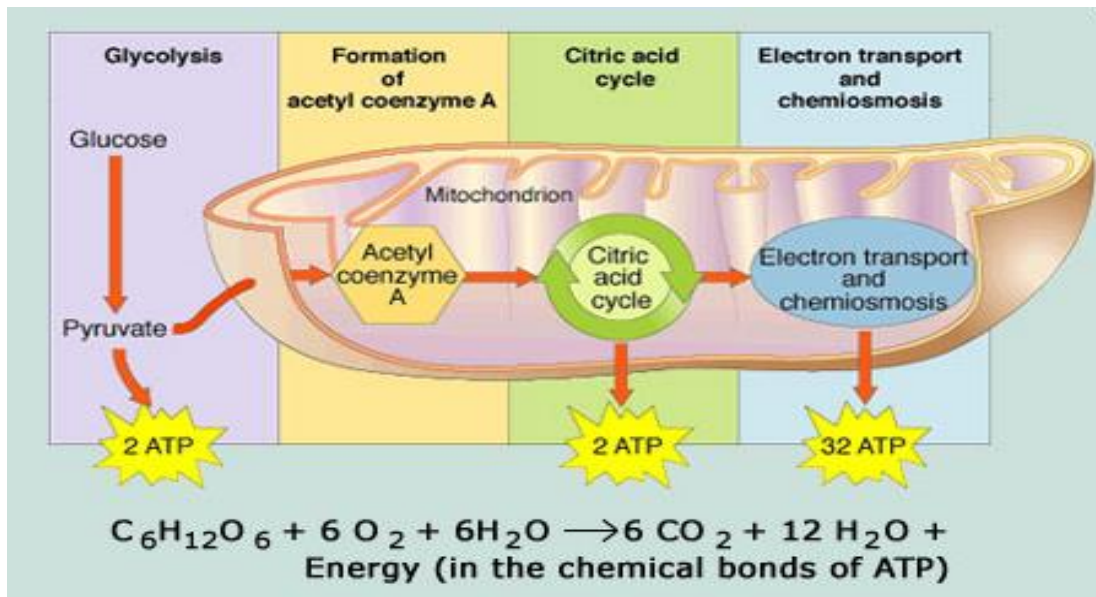
- **Aerobic respiration:**



- **Anaerobic respiration**

- a. Alcohol Fermentation:

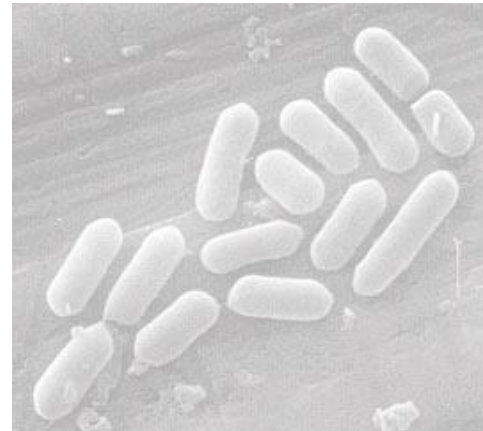
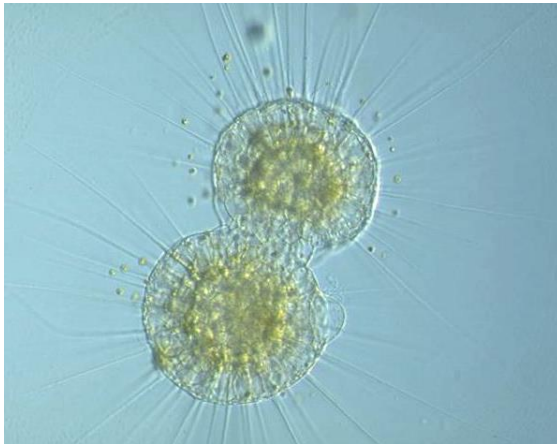
- b. Lactic Acid Fermentation



All living things grow and develop

- **Growth** is the process of an organism getting larger
- **Development** is the process a Multicellular organism undergoes when the cells specialize into specific cell types. (ie embryos developing cardiac, bone, lung and digestive cells)

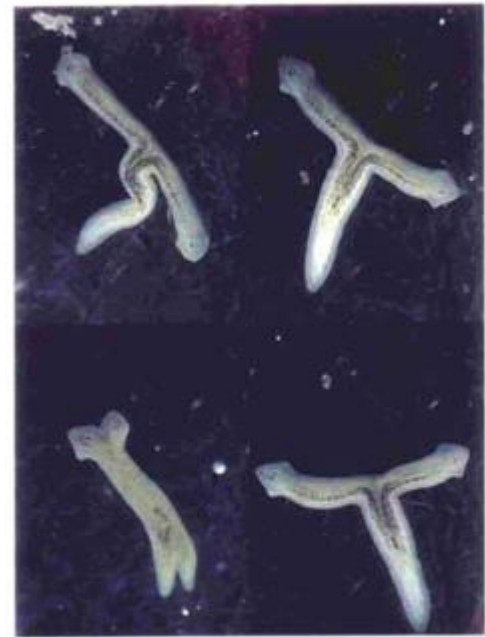
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All living things respond to their environment

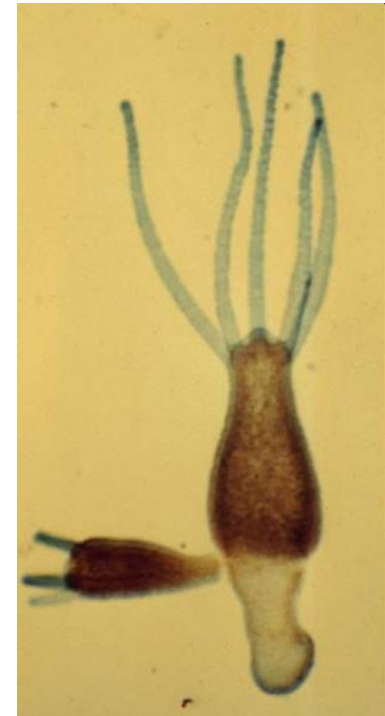
- A change in the environment which causes the organism to react is a **Stimulus**
- Its reactions to the stimulus is called a **response**

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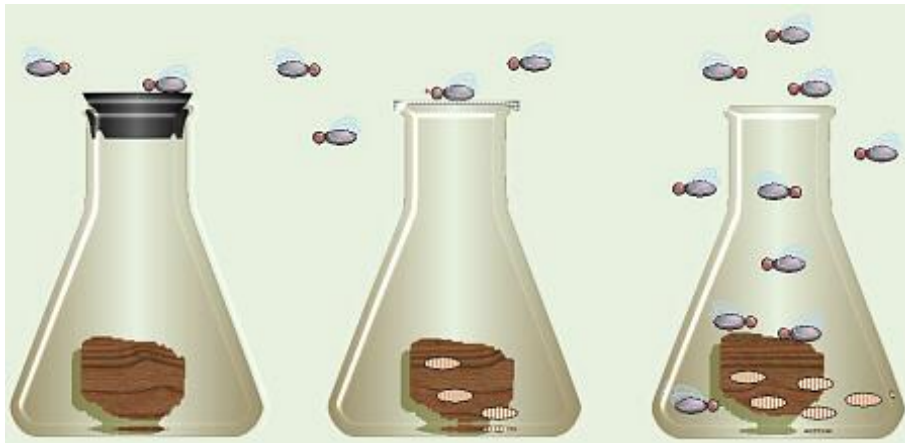
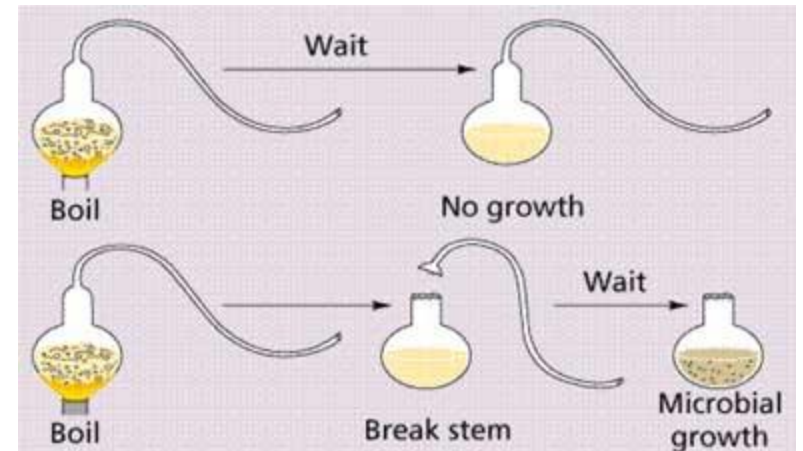
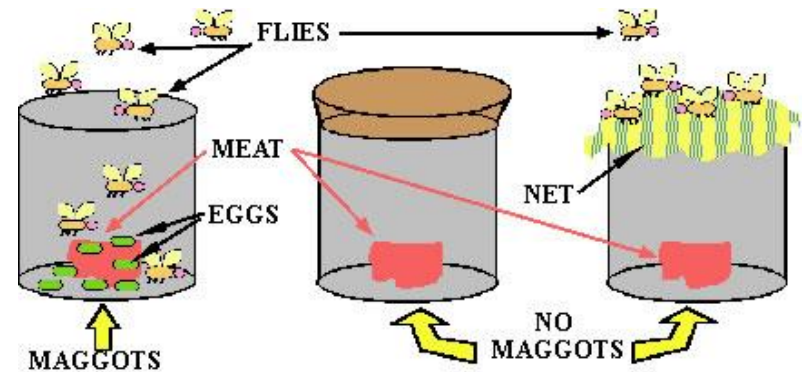
All living things must be able to reproduce

- **Asexual** reproduction – mitotic cell divisions resulting in genetically identical offspring
- **Sexual** reproduction – results in genetically diverse organisms



Life comes from Life

- **Spontaneous generation** – the believe that living things came from nonliving sources
- **Francesco Redi** helped disproved the idea w/ the experiment using decaying meat, jar, flies and cheese cloth.
- **Louis Pasteur** also helped disprove Spontaneous generation with the experiment w/ broth that was sterilized by heat and then exposed to air resulting in contamination by bacteria.



The needs of living things:

Food, Water, Shelter & Homeostasis

- **Autotrophs** – plants use chlorophyll and photosynthesis to produce their own food.
- **Heterotrophs** are unable to manufacture their own food
- **Homeostasis:** maintenance of stable internal conditions despite fluctuating environmental conditions



End of
Chapter 7
Part 1