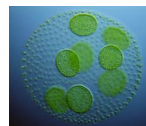
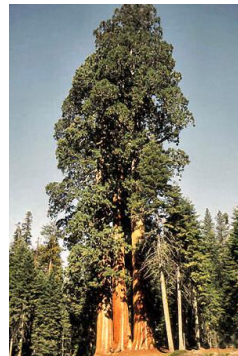


Life Science

Chapter 7 Part 1 Living Things

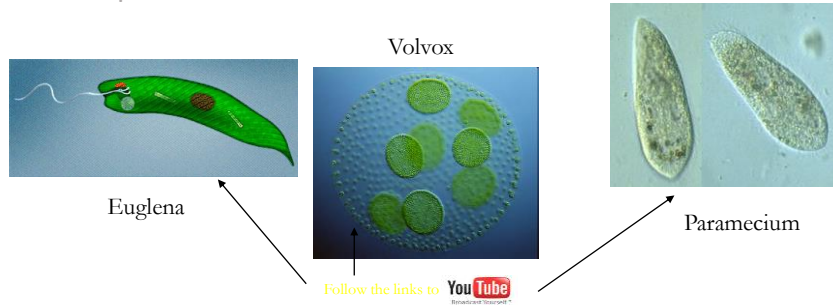
Characteristics of Living Things

- 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.

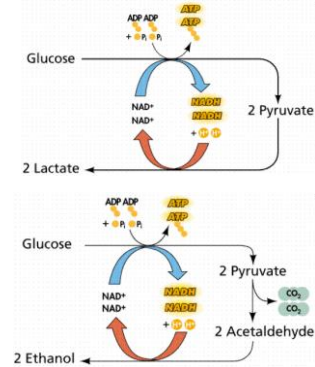
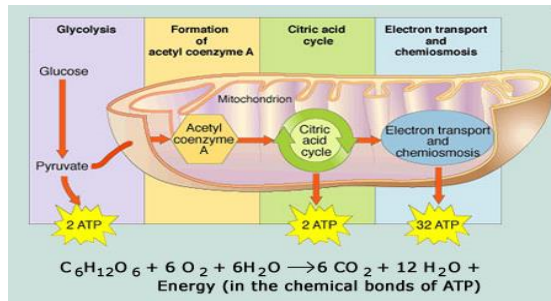


All living things are composed of the four basic chemicals of life:

- **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

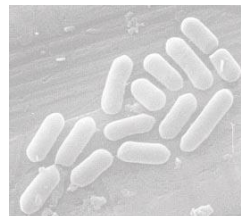
- **Aerobic respiration:**
 - $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$
- **Anaerobic respiration**
 - a. Alcohol Fermentation:
 - b. Lactic Acid Fermentation



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)

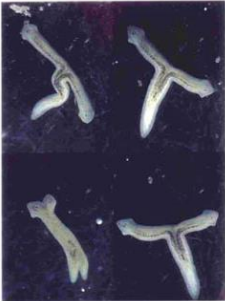
Follow the links to [YouTube](#)



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



Follow the links to 



All living things respond to their environment

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

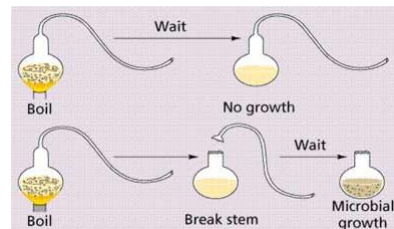
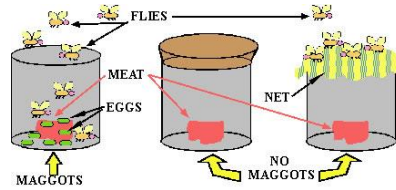
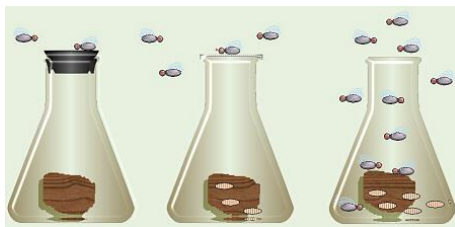


Follow the links to 



Life comes from Life

- **Spontaneous generation** – the believe that living things came from nonliving sources
- **Francesco Redi** helped disprove 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