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What is Life?

# Characteristics of Life

- reproduction
- movement
- cells
- atoms
- needs water
- exchanging gases
- Proper Environment
- Respond to Stimulus
- energy
- get rid of waste
- growth
- Development
-

Living

Non-Living

?

- cactus
- spider
- tree
- baby
- horse
- frog
- 

- Bicycle
- Rocking Horse
- Teddy Bear

- 1) Tornado - Potatoes
- 2) mushroom - Onion
- corn
- sun
- robot
- bananas
- web
- leaves
- yogurt
- rain
- eggs
- icicles
- Fire
- Jelly fish
- peas

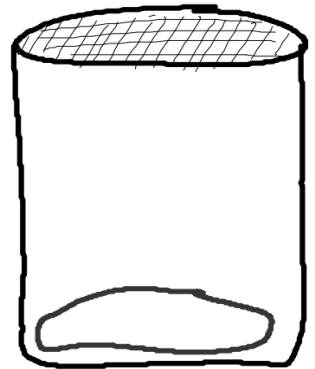
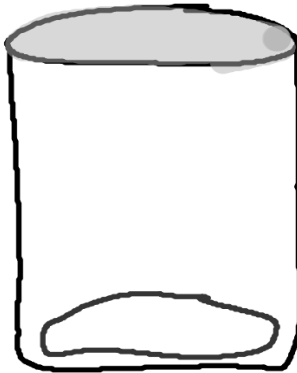
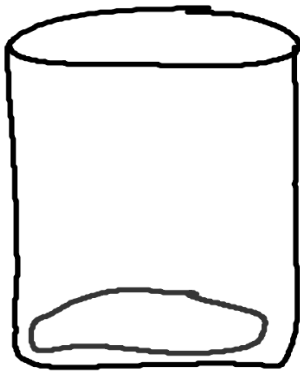
## Observation of a Pea.

Is it Alive?

- 1.) Outer layer
- 2.) Ball
- 3.) a line in middle
- 4.) Hard
- 5.) Un cooked
- 6.) Bouncy
- 7.) Smooth
- 8.) circle / round / sphere
- 9.) Red

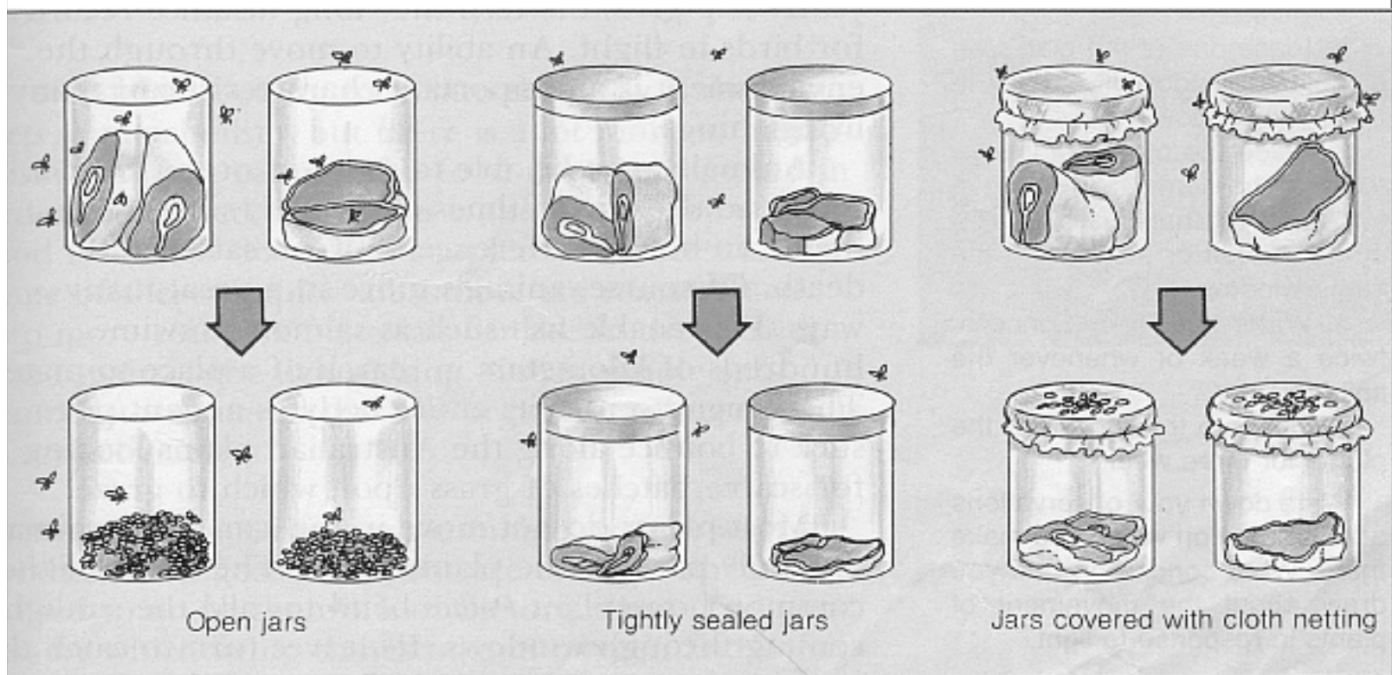
# Spontaneous Generation

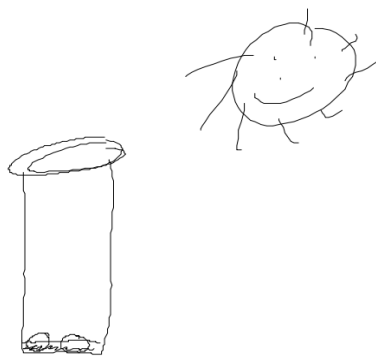
Hypothesis: If we keep flies from the meat then there will be no maggots because flies make maggots.



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List at least 5 Characteristics of Life. without the help of your notes.



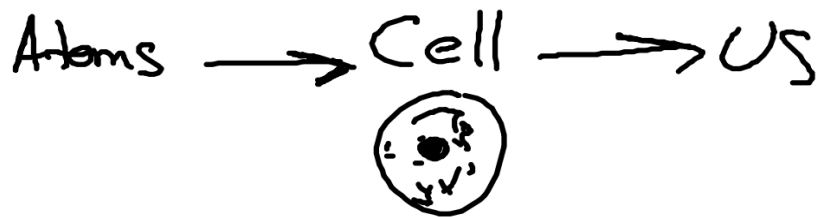




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All Living Things are made of cells.



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**The Cell Theory states:**

**All living organisms are composed of cells.**

They may be <sup>1</sup>unicellular or <sup>>1</sup>multicellular.

**Cells arise from pre-existing cells.**  
(Life comes from other Life)

**The cell is the basic unit of life.**

**The modern version of the Cell Theory includes the ideas that:**

**Energy flow occurs within cells.**

**Heredity information (DNA) is passed on from cell to cell.**

**All cells have the same basic chemical composition.**

## How are Organisms Structured To ensure efficiency and survival?

Organism - a Living Thing

Structured - How you are put together  
(organized)

efficiency - without waste.

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List the 4 parts of the  
Cell Theory.

## Cell Types

### Prokaryotic



**Cells without a membranes around the inner structures**

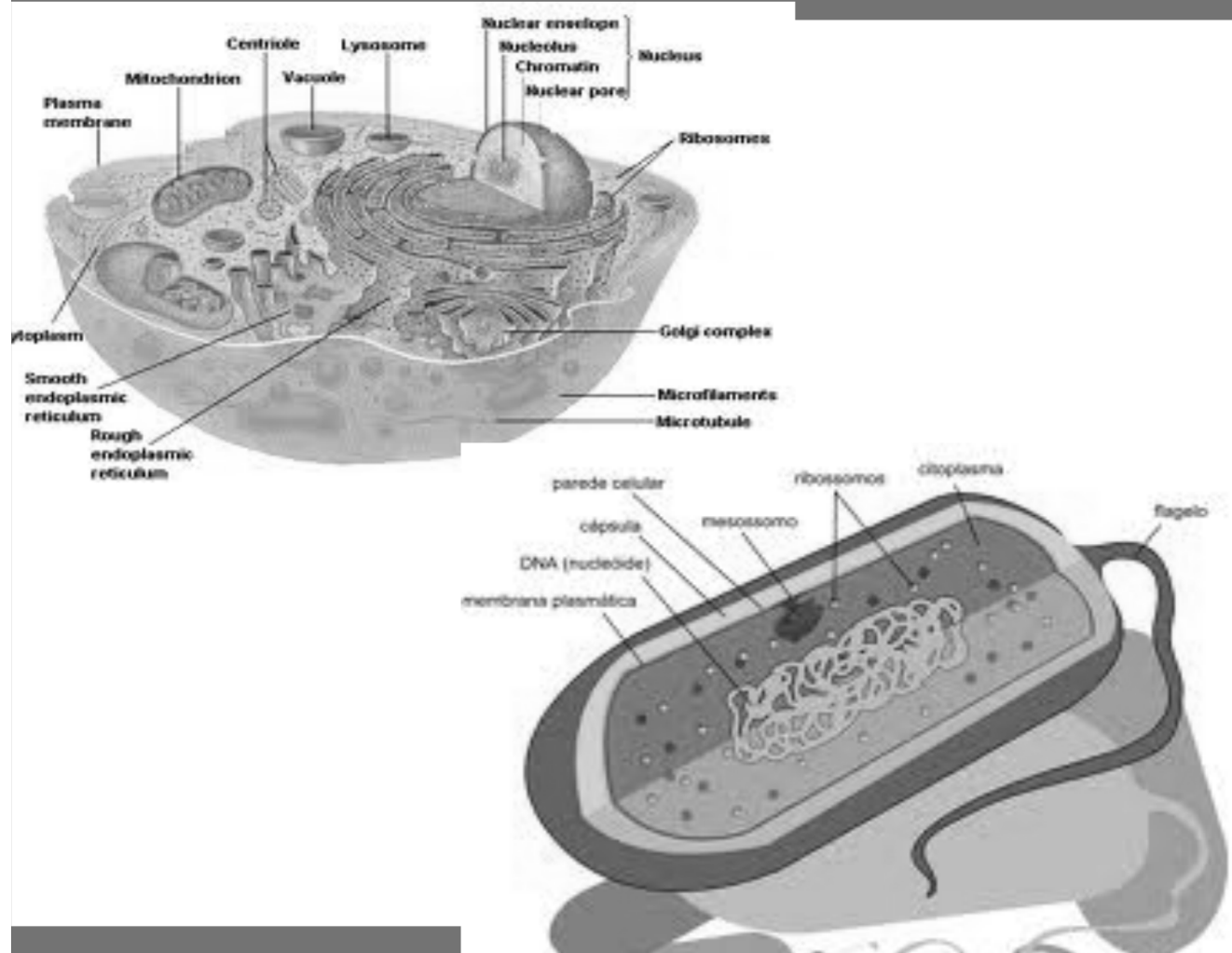
ex) Bacteria all unicellular

### Eukaryotic

**Cells with a membrane around the inner structures**

ex) you, cat, Rotifers, Dogs, Plants, Fish

Both unicellular or multicellular







# **How are Organisms Structured To ensure efficiency and survival?**

# Cell Types

## **Prokaryotic**

**Cells without a membranes around the inner structures**

## **Eukaryotic**

**Cells with a membrane around the inner structures**

## Cell Organization and Structure

### **Cell Membrane**

- **a protective layer around cells**
- **regulates interactions between the cell and its environment**

## **Cytoplasm**

- **a gelatin like substance that fills the cells and is constantly flowing**
- **most chemical reactions within a cell take place in the cytoplasm**

Organelles = (Little organs)

- **structures within the eukaryotic cells**
- **these structures aid in the processes that keep the cell alive.**

## Nucleus


Like The Brain of The cell  
Director of all activities.

- **Directs cell activities**
- **Contains DNA, the cells instruction guide**  
Like Blue Prints

## Mitochondria

- release energy from the breakdown of food
- this energy is in the form of ATP

Chemical Energy



# Cellular Respiration



# Cellular Respiration & Photosynthesis

