

# Unit 1 Notes: Levels of Organization, MR. ROUGH, Domains/Kingdoms, & Biomolecules

**What does Biology mean?** Biology is the study of life.

Bio means '\_\_\_\_\_ ' and -ology means '\_\_\_\_\_ ' ,



## Goals of Science

- Provide \_\_\_\_\_ explanations about events in the \_\_\_\_\_ world
- Use \_\_\_\_\_ to explain patterns in nature
- Make \_\_\_\_\_ about natural events
- Science is continuously changing based on advancements in \_\_\_\_\_ and new evidences discovered

Scientific Theory: A \_\_\_\_\_, highly reliable scientific \_\_\_\_\_ of the natural world based on repeated \_\_\_\_\_, and a well-\_\_\_\_\_ hypothesis.

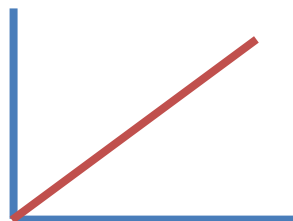
\* Theories are subject to revision and correction upon new scientific data. \*

## Setting up a Scientific Experiment

- 1) Problem – Based on \_\_\_\_\_ What do you want to better understand?
- 2) Hypothesis- \_\_\_\_\_ scientific explanation from observation(s) What are you going to test?  
-Always written as IF (something happens), THEN (something else happens) (Cause & Effect)  
**Example: If homework is not turned in on time, then late points will be taken off the assignment.**
- 3) Background – What \_\_\_\_\_ will help you do the experiment?
- 4) Procedure – What \_\_\_\_\_ will you take to perform the experiment? What materials do you need?
  - a. Independent Variable- \_\_\_\_\_ by the researcher
  - b. Dependent Variable- \_\_\_\_\_, collected as \_\_\_\_\_
  - c. Control Variable(s)- remains the \_\_\_\_\_, \_\_\_\_\_ to testing groups
- 5.) Observations/ \_\_\_\_\_ Collection- What happened during the experiment?
- 6.) Results/Conclusion- What does your data mean? What \_\_\_\_\_ can you draw from this information? What did you learn about your original \_\_\_\_\_?
  - Remember science is \_\_\_\_\_!
  - Repeated, highly tested, reliable results help form a \_\_\_\_\_.

When graphing variables

- D      
    R      
    Y-axis  
(What you MEASURE)



- M      
    I      
    X-axis

(What you CHANGED)  
~TIME is placed here

## Levels of Organization

- Atom-** An atom is the smallest \_\_\_\_\_ of a substance Ex: Carbon, Hydrogen, Nitrogen
- Molecule-** Molecules are made when atoms \_\_\_\_\_ together Ex: Proteins, Nucleic Acids
- Organelle-** An organelle is found \_\_\_\_\_ of cells; performs a specific \_\_\_\_\_ Ex: Nucleus
- Cell-** The cell is the \_\_\_\_\_ unit of \_\_\_\_\_ matter
- Tissue-** Tissues are a group of \_\_\_\_\_ working together to perform a \_\_\_\_\_ function
- Organ-** An organ is a group of \_\_\_\_\_ working together. Ex: Brain, Lungs, Leaves
- Organ System-** Organ systems are groups of \_\_\_\_\_ working together to ensure the body keeps functioning
- Organism-** An organism is an \_\_\_\_\_ composed of one or more cells. Some organisms are pathogenic (Cause harm or disease)
- Population-** Groups of individuals of the same species that \_\_\_\_\_ and live in the \_\_\_\_\_ at the \_\_\_\_\_
- Community-** Collection of \_\_\_\_\_ of species that live in a defined area
- Ecosystem-** All the \_\_\_\_\_ (living) factors together in their \_\_\_\_\_ (non-living) environment
- Biome-** Group of \_\_\_\_\_ that share similar \_\_\_\_\_ and typical organisms
- Biosphere-** Part of the \_\_\_\_\_ in which \_\_\_\_\_ including land, water, and air

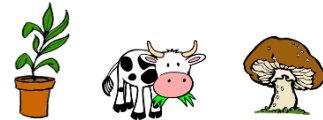
### Characteristics of Life (MR. ROUGH)

**M -** \_\_\_\_\_ (Energy Usage) Can be:

-*autotrophic* makes own energy... ex: *plants*

-*heterotrophic* must consume energy... ex: *animals*

-*decomposer* obtains energy from dead organic remains... ex: *mushrooms*



**R -** \_\_\_\_\_ Can be:

-*asexual* Single parent

-*sexual* Two different parents



**R -** \_\_\_\_\_ Organisms detect stimuli (signals) and then respond

Ex: Migration of birds due to change in weather

**O -** \_\_\_\_\_ Can be:

-*unicellular* One single cell

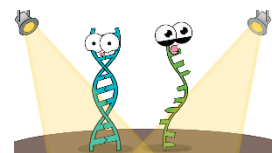
-*multicellular* Two or more cells -Have cell specialization (each cell has a different function)



**U -** \_\_\_\_\_ ALL organisms share the same genetic code

-*DNA* (Deoxyribonucleic Acid)

-*RNA* (Ribonucleic Acid)



**G -** \_\_\_\_\_







*Unicellular* – grows in size/mass

*Multicellular* – changes through size AND shape

**H -** \_\_\_\_\_ Process by which organisms keep their internal conditions fairly constant

Ex: Body temperature staying at (approx.) 98.6°F

## Domains and Kingdoms Chart

Domain:	Archaea	Bacteria	Eukaryota			
	-Live in extreme environments  -Thought to be the ancestors of Eukaryotes	-Live in common, every day environments	-All organisms in this domain have a nucleus in their cell(s).			
Kingdom:	Archaeobacteria	Eubacteria	Protista	Plantae	Fungi	Animalia
						
Prokaryote or Eukaryote?						
Unicellular or Multicellular?			MOST unicellular *can be multicellular*		MOST multicellular *can be unicellular*	
Autotroph or Heterotroph?						
Cell Wall?	Present  Contains NO Peptidoglycan	Present  Contains Peptidoglycan				
Asexual or Sexual Reproduction?						
Examples of organisms:						

## Biomolecules (or Macromolecules) \*ALL are organic, meaning they all contain Carbon

- Formed by a process called \_\_\_\_\_, in which large compounds are \_\_\_\_\_.
- The small compounds are called \_\_\_\_\_, which join together to form \_\_\_\_\_.
- 4 groups of biomolecules: Carbohydrates, Lipids, Proteins, Nucleic Acids

	DNA	RNA
Structure		1 strand
Sugar		
Bases	Adenine (A) Thymine (T) Cytosine (C) Guanine (G)	Adenine (A) Uracil (U) Cytosine (C) Guanine (G)
Base Pair Rule	A --- T C --- G	A --- U C --- G
Location in cells		

