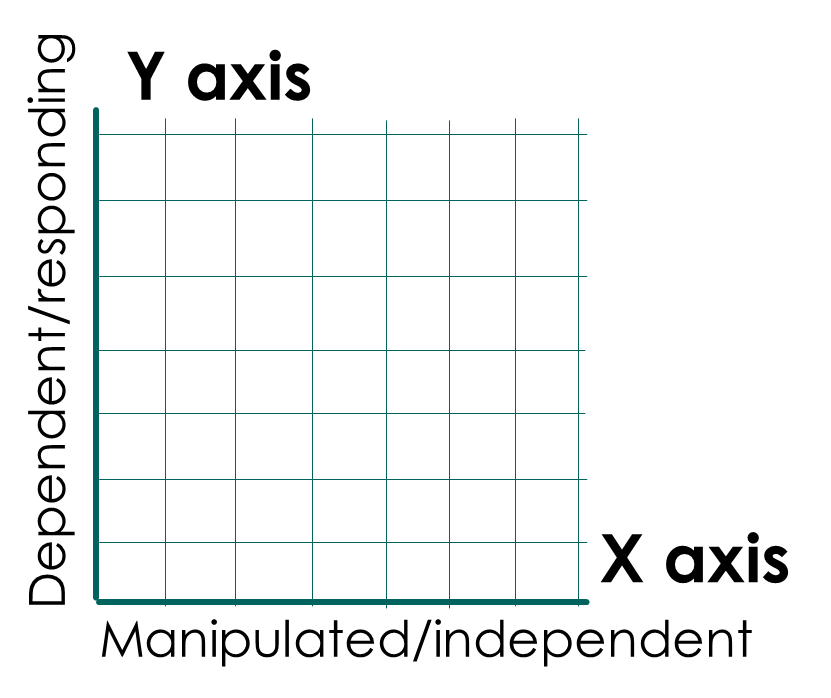
**Biology Unit 1 Notes Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* **Skepticism**-being doubtful about the truth of something
* What is science?
  + Testable
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (disprovable)
  + Observable
  + Limited to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Objective
  + Verifiable
  + Open to change
  + Skeptical
  + Made stronger by more evidence
  + A search for understanding
* Research
  + \_\_\_\_\_\_\_\_\_\_-reviewed journals are the most reliable resource
* **Biology**- the study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Many different fields and disciplines:
    - Cytology- the study of \_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- heredity
    - Evolution- \_\_\_\_\_\_\_\_\_\_\_\_ over time
    - \_\_\_\_\_\_\_\_\_\_\_\_\_- classification of living things
    - Anatomy- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Physiology- function of parts
    - Microbiology- very small organisms
    - Zoology- animals
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- plants
    - Ecology- organisms and their \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Characteristics of living things
  + - Growth
    - Reproduction
    - Respond to stimuli
    - DNA
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Homeostasis**
    - Evolve
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Levels of organization (***Green Reindeer Run Down My Hall Every Christmas***)
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the smallest functional unit of life
  + Atoms 🡪 molecules 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 tissues 🡪 organs 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 community 🡪 ecosystem 🡪 biosphere
  + **Population**-
  + **Community**- populations that live together in a set area
  + **Ecosystem**-
  + **Biosphere**- all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on earth
* Scientific method- a \_\_\_\_\_-step process to answer questions scientifically
  + **Observation**- use your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to gather information
    - **Data**- evidence collected from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- logical interpretation based on observations and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Step 1**-
* **Step 2**-
* **Step 3**- form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Step 4**- design an experiment
  + Must include:
    - **Control group**- factors that you \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **group**- change only what you are testing
    - **Controlled variables**- variables that are constant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Manipulated/independent variable**- the factor that you **do** change
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **/responding variable**- what you measure, what is affected by the change
* **Step 5**-
  + Manipulated variable goes on the \_\_\_-axis
  + Dependent variable goes on the \_\_\_-axis
  + **Line graph**- shows \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ data
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- good for comparing things
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- good for looking at percentages, showing parts of a whole
* **Step 6**- form conclusion(s)
  + Hypothesis cannot be proven
  + Should be supported by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

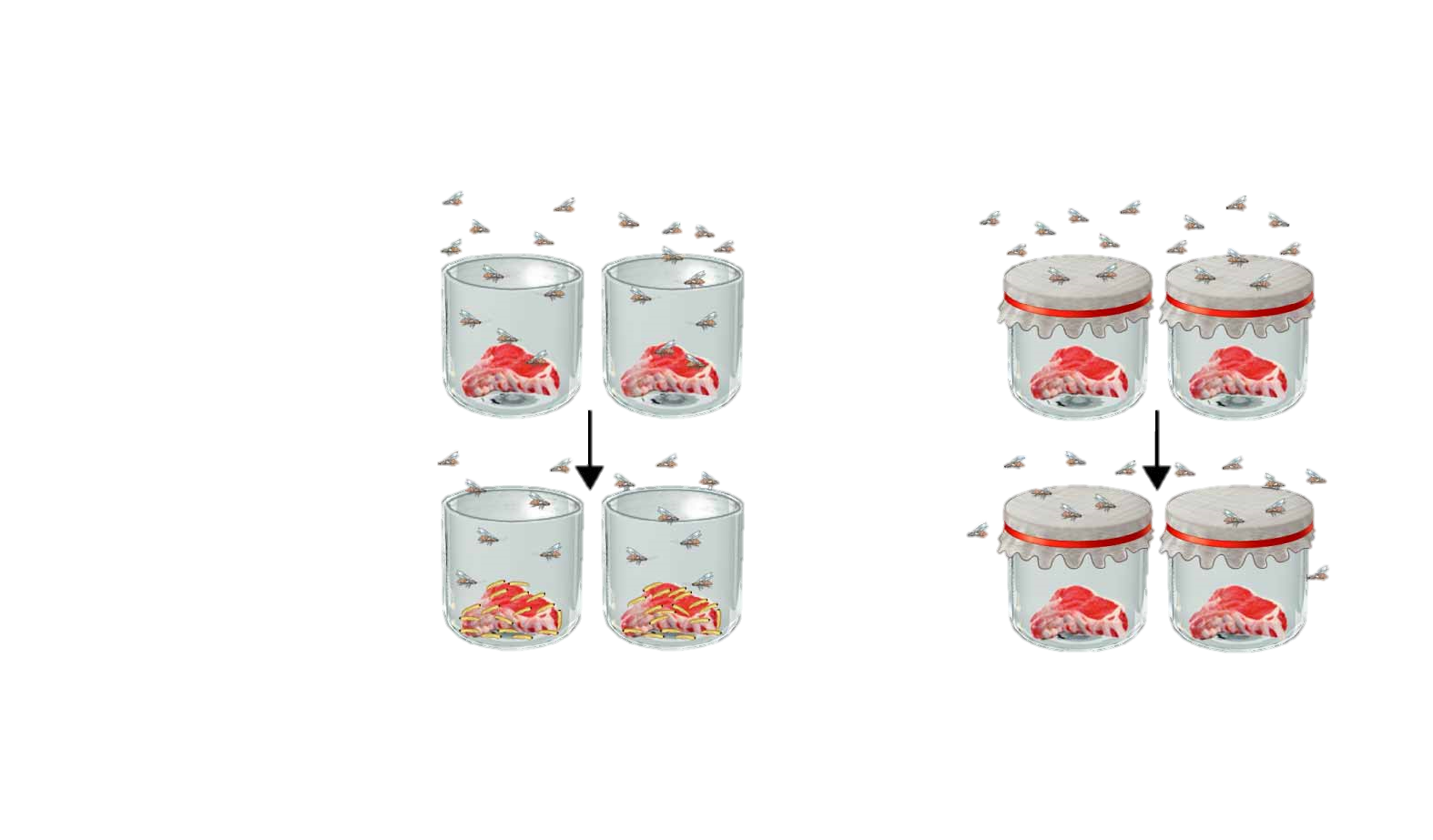
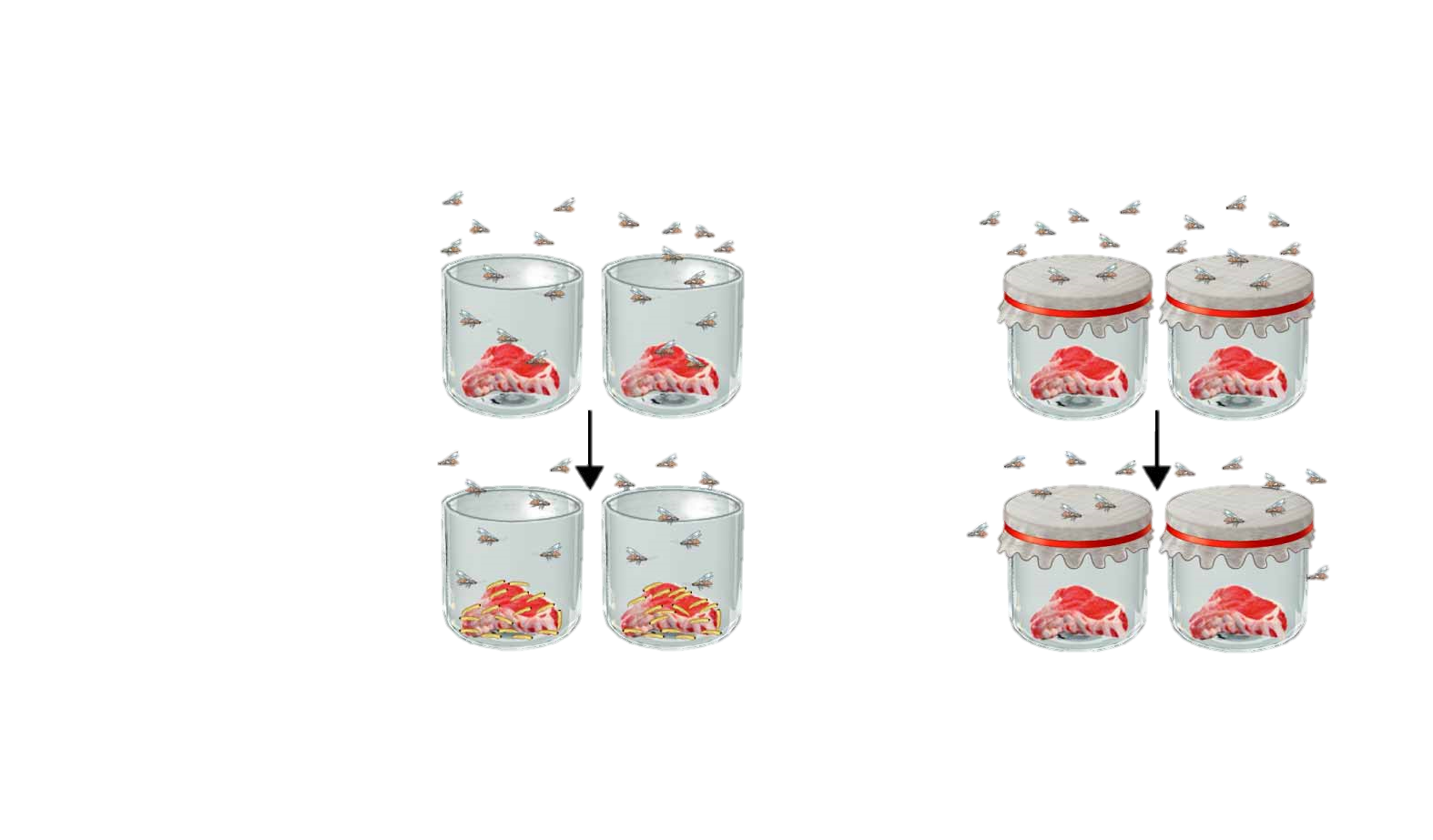
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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

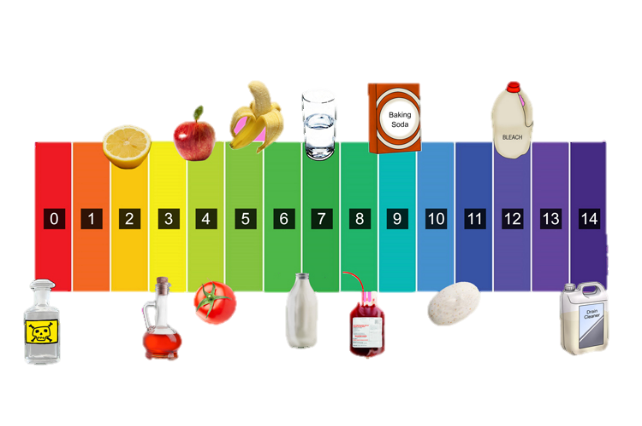
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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

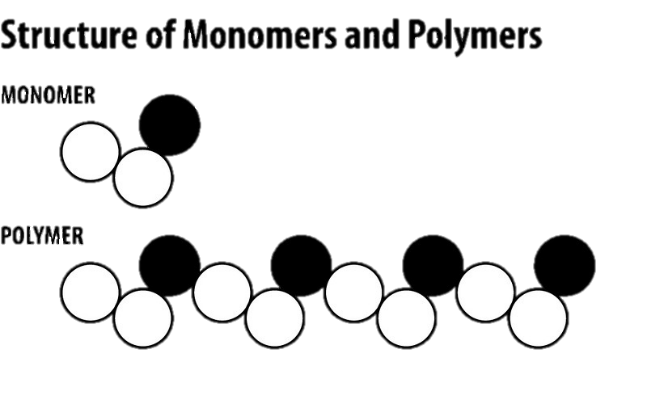
* **Step 7**- Publish
  + Usually done in **scientific** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Theory vs. hypothesis
  + **Theory**- broad statement, links many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ together
* History of the scientific method
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- idea that living organisms came from non-living ones
  + **Redi**- put meat in covered and non-covered jars
    - **Results**:
  + **Spallanzani**- boiled broth in sealed and unsealed containers
    - **Results**:
  + **Pasteur**: boiled broth in curved flask left open, then broke neck of flask
    - **Results**:



* Tools of science
  + **Microscopes**
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **light**- uses 2 lenses and light, good for looking at living specimens
      * Contrast:
      * Magnification:
    - **Electron**- uses electrons for greater magnification, can’t use on living things
    - **Dissecting**- low magnification, also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Chemistry
  + **Matter**- anything with mass that takes up space, composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Element**- can’t be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ any further
  + Atomic structure
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- center of the atom
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- positively charged particles, located in nucleus
    - **Neutrons**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ particles, located in nucleus
    - **Electrons**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged particles, located \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- formed by 2 or more **atoms**
    - **Molecule**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unit of a compound
  + Water- known as the **universal** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Solution**- made of solute and solvent, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mixture
      * **Solute**-
      * **Solvent**-
      * **Saturated**- when no more solute can be dissolved
      * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- when more solute can be dissolved
    - Water is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecule, has a slight charge on both ends
      * Allows water to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds
        + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- water bonds to itself with a hydrogen bond



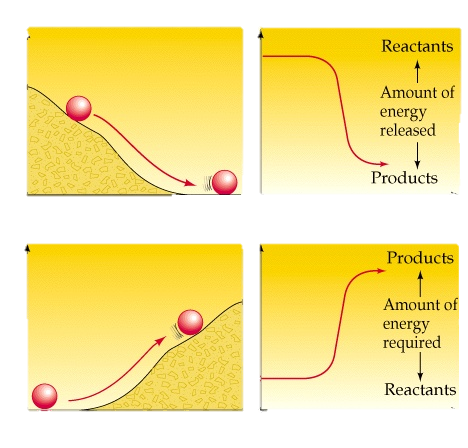
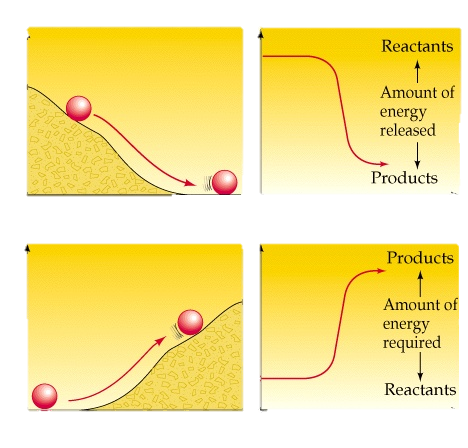
* + - * + **Adhesion**- water bonds to another polar molecule with a hydrogen bond
  + Acids and bases
    - Measured on a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scale
      * Acids- low number
      * Bases- high number
      * Neutral- in the middle
* Macromolecules- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ compounds, make up all living things
  + Always contain the elements \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- the backbone of life



* + Terminology
    - **Monomer:**
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- repeating monomers
    - **Polymerization**- process of combining \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + 4 macromolecules
    - **Carbohydrates**- sugars, come from breads, fruits
      * Function: quick \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Building block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Form: polysaccharides
    - **Lipids**- commonly called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, come from oils, nuts, meats
      * Function: \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_, storage
        + Found in cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Building blocks: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Proteins**- comes from animal products and nuts
      * **Functions**:
        + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- speed up biological reactions
        + **Building blocks** of organisms
        + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ substances
        + Regulate cellular processes
        + Help fight disease
      * Building block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **Nucleic acids**- Blueprint of life
      * Function: carries \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Building blocks: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
        + Nucleotides: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, A, T, G, C, U

|  |  |  |  |
| --- | --- | --- | --- |
| **Organic compounds** | **Building blocks** | **Functions** | **Examples** |
| **Carbohydrates** (sugars) |  |  |  |
|  | Fatty acids |  |  |
| **Proteins** |  |  |  |
|  | Nucleotides |  | DNA, RNA |

* **Chemical reaction**- process of changing 1 set of elements or compounds into another by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds
  + **Reactants**:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: elements or compounds **produced** by a reaction



* + Energy
    - **Exergonic**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy
    - **Endergonic**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy
* **Enzymes**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that act as biological **catalysts**
  + **Catalyst**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reactions
  + Speed up reaction by lowering \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy
  + Use the \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ model
    - **Substrate**- compound going through the reaction, actually binds to the enzyme
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- area where substrate binds to the enzyme
  + Enzymes are
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, can be used again
    - Often have the ending -\_\_\_\_\_\_\_
    - Affected by extreme changes in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_