Ch 2

2.2 Properties of water

* Life depends on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ in water.
* Water is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Hydrogen bonds are responsible for three important properties of water.
  + High Specific Heat =
  + Adhesion=
  + Cohesion =
* Many compounds \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in water.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is formed when one substance dissolves in another.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dissolve other substances.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dissolve in a solvent.
* “Like dissolves \_\_\_\_\_\_\_\_\_\_\_.”
  + Polar Solvents dissolve \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dissolve nonpolar solutes.
* Some compounds form \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* An acid releases a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when it dissolves in water.
  + high H+ concentration - \_\_\_\_\_\_\_\_\_\_\_\_\_ pH
* Bases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hydrogen ions from solution. – Low \_\_\_\_\_ conc., \_\_\_\_\_\_ pH
* A neutral solution has a pH of \_\_\_\_\_\_\_.

2.3 Carbon Based Molecules

* Carbon forms \_\_\_\_\_\_\_\_\_\_\_\_ bonds with up to \_\_ other atoms, incl. other C atoms.
* 3 Possible structures: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, & \_\_\_\_\_\_\_\_.
* Many molecules are made of many small \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonded together.
  + Mono = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ - Poly = \_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_ main types of carbon-based molecules are found in living things:
* Carbohydrates are made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Simple sugars = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Polysaccharides = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, & \_\_\_\_\_\_\_\_\_\_.
* Carbohydrates, like \_\_\_\_\_\_\_\_\_\_, can be broken down to provide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for cells; and those like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Lipids are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules that include fats, oils, & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They consist of chains of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_.
* Difference between the f.a.s of saturated and those of unsaturated fats is
* The Phospholipid bilayer:
* Proteins are polymers of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ monomers.
  + a.a’s differ in side/\_\_\_\_\_ groups, & are linked by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds.
  + a.a.s gives shape & structure, incorrect a.a. means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Proteins differ in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of amino acids.
* Nucleic acids are polymers of monomers called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Nucleotides are made of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ group, and a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ base.
  + DNA = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, & stores \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ info.
  + RNA = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, &builds \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2.4 Chemical Reactions

* Bonds \_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_ during chemical reactions, & thus change substances into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are changed during a chemical reaction into\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = #’s in front in a chemical equation.
* Bond energy is the amount of energy that \_\_\_\_\_\_\_\_\_\_\_\_ a bond. Forming bonds \_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy, breaking them \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = when a rxn’s reactants and products form at the same rate.
* Chemical reactions \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy is the amount of energy that needs to be absorbed to start a chemical reaction.
* Exothermic reactions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy, and thus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have higher bond energies than the products .
* Endothermic reactions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy, and thus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have lower bond energies than products.

2.5 Enzymes = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lowers activation E.
* Catalysts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ chemical reactions, by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ activation E & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rxn rate
* Enzymes = catalysts in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, needed for almost \_\_\_\_\_\_\_\_\_\_\_.
* Disruptions in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can prevent enzymes from functioning.
* Enzymes function best in a \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of conditions.
* An enzyme’s function depends on its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Its structure allows only certain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_ to the enzyme.
* Draw 2 parts / lock & key: (label)