Vocabulary: Collision Theory

Vocabulary

- Activated complex – an unstable structure that persists while old bonds are broken and new bonds form during a *chemical reaction*.
- Catalyst– a substance that increases the rate of a chemical reaction without being altered by the reaction.
  - A catalyst usually lowers the energy required to initiate the reaction.
  - Because the catalyst is unchanged by the reaction, it can be recovered from the reaction and reused.
- Chemical reaction – a process in which one or more substances are transformed into others.
  - In a chemical reaction, bonds between atoms are broken and new bonds are formed, joining atoms into different combinations.
- Concentration – a measure of how much of a given substance is mixed with another substance.
  - In the *Collision Theory* Gizmo™, concentration is measured in moles per liter.
- Enzyme – a protein that acts as a catalyst for chemical reactions.
  - Most enzymes work on the "lock and key" model.
    - *Reactants* bind to *active sites* on the surface of the enzyme *molecule.* The active site has a unique shape that only binds to certain reactants.
    - The chemical reaction occurs on the active site. After the reaction, the *products* are released and new reactants can bind to the active site.
- Half-life – the time required for one half of the reactant molecules to react.
  - Half-life also can refer to the time required for half of the radioactive atoms in a radioactive sample to decay.
- Molecule – a stable particle made of two or more atoms.
  - A water molecule (H_2O) is made of two hydrogen atoms and one oxygen atom.
- Product – a substance that is formed in a chemical reaction.
- Reactant – a substance that takes part in a chemical reaction.
- Surface area – a measure of how much exposed area an object has.
  - The surface area of a solid can be increased by cutting the solid into pieces or grinding it into a powder.