

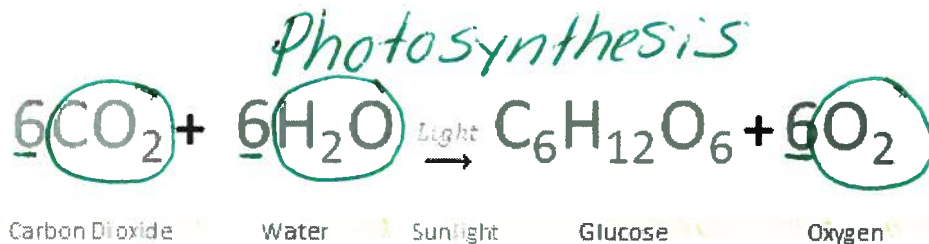
Guided Notes - Chemical Reactions & Enzymes

Physical Change - changes **shape** or **appearance** but **not** what it is made of.

Example: water and ice both are H₂O

Chemical Change - involves chemical reactions that **breaks** the **chemical bonds** of reactants to rearrange and **make new products**.

Example: carbon dioxide and water react to form glucose (sugar) and oxygen

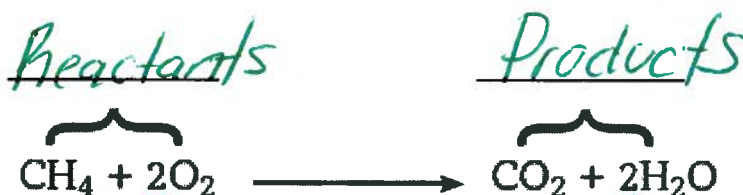


Chemical Reactions

- Written as chemical formulas using symbols
- **Atoms** from the **reactants** are the **atoms** that form the **products**
 - Reactions must be balanced to **show conservation of matter**
- An **arrow** shows the **reaction** (breaking and making chemical bonds)
- **Activation energy** is needed for reactants to become **products**
- Reactions are either endothermic (absorb energy) or exothermic (release energy)



Label Diagram below



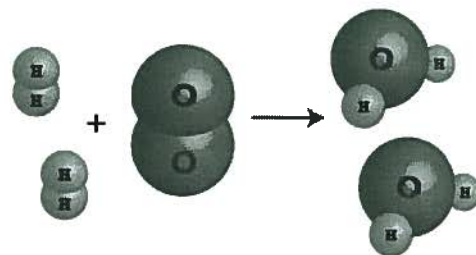
WHAT DO THE NUMBERS MEAN IN A CHEMICAL FORMULA????

Subscripts identify how many of that **atom** are in the **compound**.

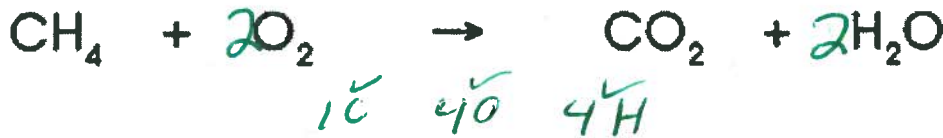
never change subscripts



Coefficient identify the **quantity** of the **compound**

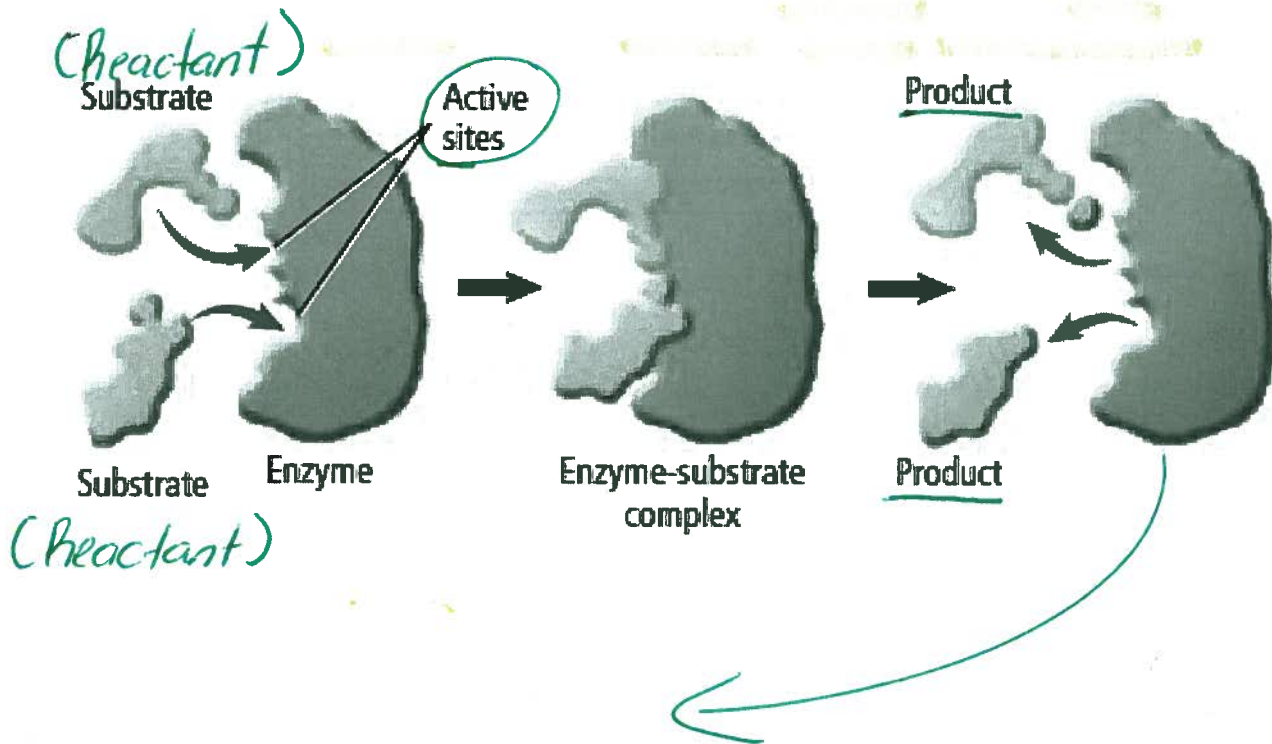


Practice - Add the correct coefficient to balance the equations below.

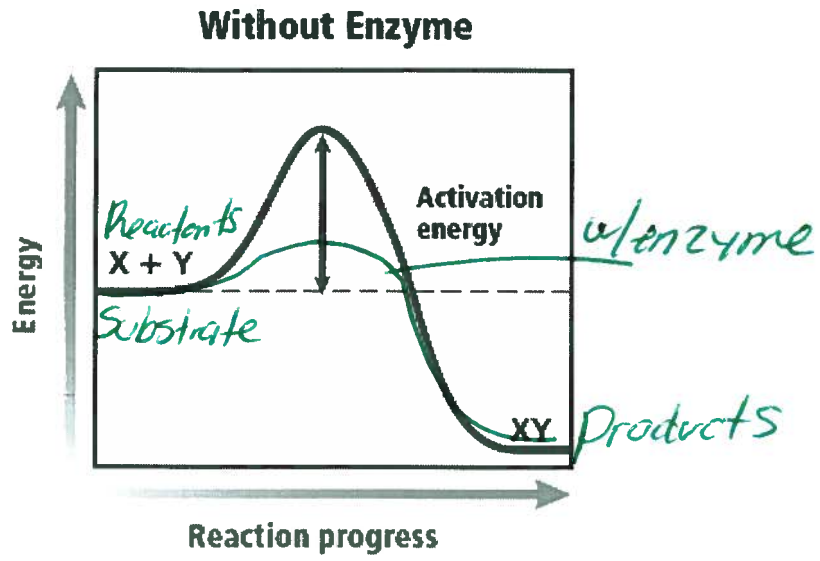


Enzymes

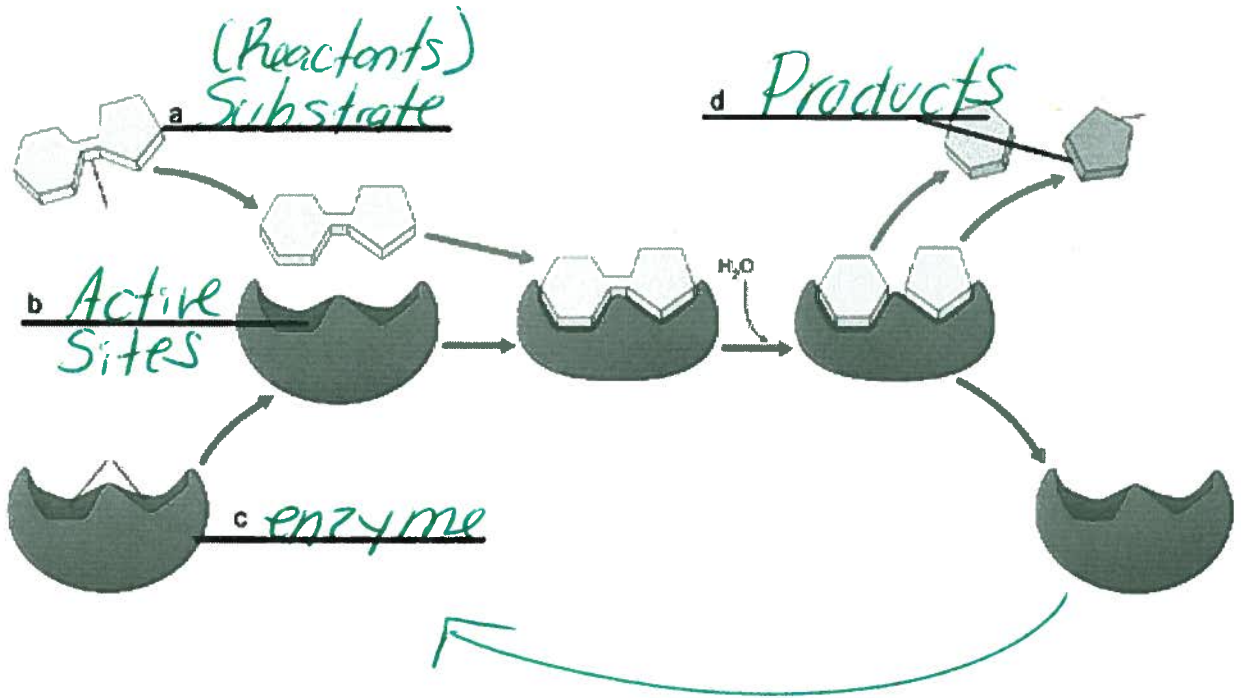
- Proteins that speed up chemical reactions by lowering the activation energy
- Biological catalysts ending in -ase
- Involved in metabolism (energy needed for all the chemical reactions in your body)
- Are NOT used up in the reaction
- Sensitive to pH and temperature changes (denatures protein changing shape and losing function)



DRAW line to represent reaction WITH an ENZYME.



Label the diagram below.





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