Class Notes Name: Period: Topic: Enzymes Date: Questions/Main Idea: **Notes:** Enzymes are proteins that help molecules react with one What are **enzymes**? another Their monomers are amino acids. Enzymes are used by cells to trigger and control chemical reactions. Without enzymes, several reactions in cells would never occur or happen too slowly to be useful. In digestive enzymes, often end in "-ase" It is the process of changing one set of chemicals (reactants) into another set of chemicals (products) by What is a **chemical** rearranging the atoms. reaction? Reactants' bonds are broken and new ones are formed in the products. It is a substance that speeds up the rate of a chemical What is a **catalyst**? reaction. It lowers the activation energy. It participates in the reaction but doesn't change itself; therefore it can be used over and over. What is **activation** It is the amount of energy needed to start a chemical energy? reaction. Catalysts speed up chemical reactions by lowering their Uncatalyzed activation energy. Enzymes are catalysts because they lower the activation energy by holding molecules together to either help them bind (synthesize) or help them break apart (decompose). Enzymes bind to or break molecules called **substrates**. What is a **substrate**? These substrates are the reactants that are catalyzed by the enzyme. Each substrate and enzyme has a specific shape, What is the **active site**? therefore enzymes bind to substrates based on shape. The site on the enzyme where the substrates bind is called the active site. What is the Lock and Key Enzymes bind to the substrates based on their complementary shape. Hypothesis? The fit is so exact that the active site and substrates are compared to a lock and key. Most digestive enzymes are named for the foods (molecules) they help react—lactase helps break down lactose (milk sugar)

What are other examples of enzymes and what they break down? Sucrase or "sugar-clipper" Fructose Glucose	 Lactase breaks down lactose into glucose and galactose Sucrase (the "sugar-clipper"): breaks down sucrose (common table sugar) into glucose and fructose Amalyse breaks down starch in your mouth and stomach Lipase breaks down ats Pepsin breaks down proteins
How are enzymes affected by the reaction?	Enzymes are NOT changed by the reactions they catalyze, therefore they are reusable!
How can enzymes be affected?	 Enzymes each work best at a specific temperature and pH. Temperatures outside the correct range can cause enzymes to break down or change shape. This break down is called denaturation.
Why are enzymes considered the body's "workers"?	 Nearly every reaction in your body is helped by an enzyme! Remember—enzymes are proteins!
Summary:	
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