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| **Chapter 3** |
| 1. **Solution** – a liquid that is a homogeneous mixture of two or more substances  2. **Solvent** – the dissolving agent of a solution  3. **Solute** – a substance that is dissolved in a solution  4. **hydrophobic** – repelled by water  5. **hydrophilic** – attracted to water  6. **pH** – a measurement of the hydrogen ion concentration in a solution  7. **acid** – a substance that releases hydrogen ions into the solution  8. **base** – a substance that takes up hydrogen ions from the solution  9. **non-polar bond** – bond in which the electrons are shared equally  10. **polar bond** – bond in which the electrons are shared unequally |
| **Chapter 5** |
| 1. **list the four macromolecules in a living cell** – carbohydrates, lipids, proteins, nucleic acids  2. **polymer** – a molecule consisting of many subunits bonded together  3. **Saturated fatty acid** – a long chain lipid with no double bonds  4. **Unsaturated fatty acid** - a long chain lipid with one or more double bonds  5. **Phospholipid** – the most abundant component composing cellular membranes  6. **Steroid** – a lipid composed of four fused carbon rings  7. **What are the monomers of protein called?** – amino acids  8. **Enzyme** – a biological catalyst  9. **Polypeptide** – a polymer of amino acids  10. **What is a nucleotide?** – a monomer of DNA and RNA |
| **Chapter 7** |
| 1. **Integral proteins –** a protein that penetrates the hydrophobic core of cellular membranes  2. **Diffusion –** the movement of solute from an area of high solute concentration to low solute concentration  3. **Osmosis** – the movement of water from an area of low solute concentration to an area of high solute concentration  4. **hypertonic environment** – environment in which there is more solute outside the cell than inside the cell  5. **hypotonic environment** - environment in which there is less solute outside the cell than inside the cell  6. **concentration gradient** – a range of concentration from high solute concentration to low solute concentration  7. **Active transport** – when a substance is transported across a membrane from low concentration to high concentration  8. **electrochemical gradient** – a concentration gradient consisting of ions |

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| **Chapter 8** |
| 1. **phosphorylation -** when a phosphate is added to another molecule  2. **enzyme -** protein that catalyzes chemical reactions  3. **substrate -** reactant that the enzyme acts upon  4. **active site -** region on the enzyme where the substrate binds and the chemical reaction takes place  5. **Name two things that an enzyme’s active site does that helps lower the activation energy barrier –**  1. Orients substrates correctly. 2. Strains substrate bonds.  3. Provides a favorable microenvironment.  6. **Cofactor -** organic or inorganic, non-protein enzyme helper  7. **Noncompetitive inhibitor -** enzyme inhibitor that binds to a site on the enzyme other than the active site.  8. **feedback inhibition -** when the endproduct of a biochemical pathway shuts down the pathway.  9. **Name two conditions critical for an enzyme’s functioning -** pH and temperature |
| **Chapter 11** |
| 1. **Synaptic signaling** – signaling across the synapse from one brain cell to another  2. **ligand** – a signaling molecule  3. **Transduction** – in cellular communication, the conversion of a signal from outside  the cell to a form that can bring about a specific cellular response  4. **Phosphorylation** – when a phosphate is added to another molecule  5. **Second messenger** – a small, water soluble, non-protein signaling molecule  6. **transcription** – the process whereby DNA is used as a template to make RNA  7. **Name the 3 stages in cell signaling:**  a. reception  b. transduction  c. response  8. **Name the three main types of membrane receptors:**  a. G protein-coupled receptors  b. Receptor tyrosine kinases  c. Ion channel receptors |
| **Chapter 12** |
| 1. **genome** – all of the genetic material in a cell  2. **chromosome** – a complex of protein and DNA  3. **sister chromatids** – a pair of genetically identical chromosomes  4. **Mitosis** – a process of nuclear division, consisting of prophase, metaphase,  anaphase and telophase  5. **Cytokinesis** – division of the cytoplasm  6. **centrosome** – microtubule organizing center; involved in cell division  7. **kinetochore** – region of a chromosome where microtubule attaches  8. **cleavage furrow** – structure formed in animal cells during cytokinesis  9. **cell plate** – structure formed in plant cells during cytokinesis  10. **metastasis** – when cancerous cells break free of a tumor and spread to other parts of the body |