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| **Chapter 3** |
| 1. **Solution** – a liquid that is a homogeneous mixture of two or more substances2. **Solvent** – the dissolving agent of a solution3. **Solute** – a substance that is dissolved in a solution4. **hydrophobic** – repelled by water5. **hydrophilic** – attracted to water6. **pH** – a measurement of the hydrogen ion concentration in a solution7. **acid** – a substance that releases hydrogen ions into the solution8. **base** – a substance that takes up hydrogen ions from the solution9. **non-polar bond** – bond in which the electrons are shared equally10. **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 acids2. **polymer** – a molecule consisting of many subunits bonded together3. **Saturated fatty acid** – a long chain lipid with no double bonds4. **Unsaturated fatty acid** - a long chain lipid with one or more double bonds 5. **Phospholipid** – the most abundant component composing cellular membranes6. **Steroid** – a lipid composed of four fused carbon rings7. **What are the monomers of protein called?** – amino acids8. **Enzyme** – a biological catalyst9. **Polypeptide** – a polymer of amino acids10. **What is a nucleotide?** – a monomer of DNA and RNA |
| **Chapter 7** |
| 1. **Integral proteins –** a protein that penetrates the hydrophobic core of cellular membranes2. **Diffusion –** the movement of solute from an area of high solute concentration to low solute concentration3. **Osmosis** – the movement of water from an area of low solute concentration to an area of high solute concentration4. **hypertonic environment** – environment in which there is more solute outside the cell than inside the cell5. **hypotonic environment** - environment in which there is less solute outside the cell than inside the cell6. **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 molecule2. **enzyme -** protein that catalyzes chemical reactions3. **substrate -** reactant that the enzyme acts upon4. **active site -** region on the enzyme where the substrate binds and the chemical reaction takes place5. **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 helper7. **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 another2. **ligand** – a signaling molecule3. **Transduction** – in cellular communication, the conversion of a signal from outside the cell to a form that can bring about a specific cellular response4. **Phosphorylation** – when a phosphate is added to another molecule5. **Second messenger** – a small, water soluble, non-protein signaling molecule6. **transcription** – the process whereby DNA is used as a template to make RNA7. **Name the 3 stages in cell signaling:**  a. reception  b. transduction  c. response8. **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 cell2. **chromosome** – a complex of protein and DNA3. **sister chromatids** – a pair of genetically identical chromosomes4. **Mitosis** – a process of nuclear division, consisting of prophase, metaphase, anaphase and telophase 5. **Cytokinesis** – division of the cytoplasm6. **centrosome** – microtubule organizing center; involved in cell division7. **kinetochore** – region of a chromosome where microtubule attaches8. **cleavage furrow** – structure formed in animal cells during cytokinesis9. **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 |