**Study Checklist for Biology Test 3: Cells – Standard 2, Objectives 1-2**

* Know the six main elements found in cells. What is the acronym for these elements? Which three elements are found in **all** cells?
* What is the difference between atoms and elements? Between atoms and molecules?
* What is a macromolecule? Name the four macromolecules. What elements are in each macromolecule (use the acronyms to help you)?
* What is the smallest unit of a macromolecule called? What are multiple units, joined together, called?
* What are the monomers of carbohydrates called? Proteins? Nucleic Acids?
* How are lipids constructed? Do they have monomers?
* What is a carbohydrate? What is the function of a carbohydrate?
* In what ratio are carbohydrates constructed? What is a carbohydrate monomer called? When two carbohydrate monomers are joined, what is that called? More than two?
* Be able to recognize a simple structure of a carbohydrate. Give some examples of carbohydrates.
* What is a lipid? What is the function of a lipid?
* Be able to recognize a simple structure of a lipid. Give some examples of lipids. When is phosphorous a part of the lipid molecule?
* What is a protein? What are some functions of proteins? Give some examples of proteins. Be able to recognize a simple structure of a protein.
* What is a nucleic acid? What is its function? Give two examples of nucleic acids. Be able to recognize the structure of a nucleic acid.
* What is the monomer of a nucleic acid called? What three parts make up each monomer?
* What does it mean to be a “polar” molecule? Define “polarity”.
* Define “universal solvent”, “cohesion”, “adhesion”, “capillary action” and “surface tension”. Give examples of each.
* What is an enzyme? Enzymes are composed of which macromolecule? What do enzymes do?
* What do the prefixes “auto”, “hetero” and “trophic” mean? Autotrophic? Heterotrophic?
* What kinds of organisms are autotrophic? What kinds of organisms are heterotrophic?
* Describe the three kinds of energy reactions. What are the relationships between these reactions?
* Know the chemical equations for photosynthesis and cellular respiration. What gases are **used** in each reaction? What gases are **produced** in each reaction? What other products are produced in each reaction?
* Where does photosynthesis take place within the cell (which organelle)? Where does the majority of cellular respiration take place within the cell (which organelle)?
* What are the differences between aerobic and anaerobic respiration? What are the advantages of aerobic respiration over anaerobic respiration?
* What is another name for anaerobic respiration?
* Know the three parts of the cell theory.
* Be able to recognize the following organelles and know what their function is: nucleus, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi apparatus, mitochondria, vacuole, cell membrane, cytoplasm, ribosome, centriole, lysosome, chloroplast, cell wall.
* Know the difference between diffusion and facilitated diffusion.
* What is passive transport? What are some examples of passive transport? Which molecules can use passive transport?
* What is active transport? What are the four requirements of active transport?
* What is osmosis? What is isotonic? Hypertonic? Hypotonic? How does water travel during osmosis – toward what?
* What is mitosis? What are the stages of mitosis? What are the stages of the cell cycle? Which stages of the cell cycle are not a part of mitosis?
* What activities are taking place during each stage of mitosis and the cell cycle? In which stage of the cycle does the cell spend the most time?
* Be able to recognize the cell cycle stages from diagrams and photographs.