DAY 2 Review

Cell Communication

What You Must Know:

1. The three stages of cell communication: reception, transduction and response
2. How a receptor protein recognizes signal molecules and starts transduction
3. How a cell signal is amplified by a phosphorylation cascade
4. An example of a second messenger and its role in a signal transduction pathway
5. How a cell response in the nucleus turns on genes, whereas in the cytoplasm it activates enzymes
6. What apoptosis means and why it is important to normal functioning of multicellular organisms
7. Be able to describe a model that expresses the key elements of a signal transduction pathway leading to a cellular response: G-protein receptors, tyrosine kinase receptors and ligand gated ion channels
8. Describe examples of cell communication from the nervous and endocrine systems
9. Mechanisms by which plant cells communicate with other distant cells

Cell Cycle

What You Must Know:

1. The structure of a duplicated chromosome
2. The events that occur in the cell cycle (G1, S and G2)
3. The role of cyclins and cyclin-dependent kinases in the regulation of the cell cycle
4. Ways in which the normal cell cycle is disrupted to cause cancer, or halted in certain specialized cells
5. The features of mitosis that result in the production of genetically identical daughter cells including replication, alignment of chromosomes (metaphase), and separation of chromosomes (anaphase)
6. Describe the key characteristics of normal cell division: density-dependent inhibition and anchorage dependency
7. Compare the process of meiosis with mitosis
8. Describe the change in chromosomal number through the cell, the purpose of each process and starting material and product for each