EOC Cells Review - key

1. What is the cell theory? Which statements make up the cell theory?

***The cell theory describes the properties of cells. Cells are the basic unit of life. All living things are made up of cells. Cells come from pre existing cells.***

1. Define the following terms:
	1. Prokaryotic – ***cells without a nucleus***
	2. Eukaryotic – ***cells with a nucleus***
	3. Unicellular – ***made up of one cell***
	4. Multicellular – ***made of many cells***



***Chloroplast***

***Light***

1. Fill-in the blanks in the diagram:

***Oxygen & Glucose***

***Carbon Dioxide & Water***

1. Describe the transport of materials through cell membranes using the table below. Give 2 examples of each type of transport.

***Energy***

***Mitochondria***

|  |  |
| --- | --- |
| **Passive Transport** | **Active Transport** |
| ***Movement of materials without the use of energy.******Osmosis, Diffusion, Facilitated Diffusion*** | ***Movement of materials that requires the use of energy.******Endocytosis and Exocytosis*** |

1. Describe what happens to a cell in each of the osmotic conditions – (where is water moving)
	1. Hypotonic – ***Water moves into the cell, cell swells***
	2. Hypertonic – ***Water moves out of the cell, cell shrivels***
	3. Isotonic – ***Water moves in and out of the cell in equal amounts***
2. Fill-in the following chart on the four biological macromolecules

|  |  |  |  |
| --- | --- | --- | --- |
| Macromolecule | Function | Monomer | Example |
| ***Carbohydrates*** | ***Main source of energy*** | ***Sugar (Monosaccharides)*** | ***Breads, starches, fruits*** |
| ***Lipids*** | ***Stores energy, provides insulation*** | ***No true monomer*** | ***Waxes and oils*** |
| ***Proteins*** | ***Structure, support, cell processes, building muscles, speeding up reactions*** | ***Amino Acids*** | ***Chicken, Eggs, Insulin, Enzymes*** |
| ***Nucleic Acids*** | ***Store Genetic Information*** | ***Nucleotides*** | ***DNA and RNA*** |

1. An enzyme is an example of a \_\_\_***protein***\_\_\_\_. Describe the function of enzymes.
***Enzymes are protein catalysts that speed up reactions and lower activation energy (the energy required to begin a chemical reaction).***
2. Compare and contrast Mitosis and Meiosis in the Venn Diagram below. You must list at least 5 characteristics that Mitosis and Meiosis each have. You must list at least 3 characteristics that they share.

***Produces somatic cells***

***1 nucleus division***

***1 cell 🡪 2 cells***

***Diploid 🡪 Diploid***

***Cells genetically identical***

***Produces gametes (sex cells)***

***2 nucleus divisions***

***1 cell 🡪 4 cells***

***Diploid 🡪 Haploid***

***Cells genetically different***

**Meiosis**

**Mitosis**

***Produce more cells***

***DNA duplicates only once***

***Sequential process***

1. Identify each of the following images as the proper stage of mitosis



***Prometaphase***

***Telophase***

***Anaphase***

***Metaphase***

***Prophase***

***Interphase***

1. Identify each of the following images as the proper stage of meiosis



***Metaphase II***

***Metaphase I***

***Cytokinesis***

***Prophase II***

***Telophase I***

***Prophase I***

***Anaphase II***

***Anaphase I***

1. **Label the organelles in the following cell diagrams.

***Mtochondria***

***Rough ER***

***Cell membrane***

***Ribosomes***

***DNA***

***Flagella***



***Nucleus***

***Cytoplasm***

***Cytoplasm***

***Cell Wall***

***Pili***

***Cilia***

***Cell Wall***

***Lysosome***

***Cell Membrane***

***Vacuole***

***Rough& Smooth ER***

***Nucleus
Nucleolus
Membrane***

***Golgi Body***

***Ribosomes***

***Mitochondria***

***Cloroplast***

|  |  |  |
| --- | --- | --- |
| **Cell Structure** |  **Found in Bacteria, Plant or Animal cells?** | **Organelle Function** |
| ***Cell Wall*** | ***Bacteria & Plant*** | ***Structure and support*** |
| ***Cell Membrane*** | ***All*** | ***Controls what goes in and out of the cell*** |
| ***Nucleus*** | ***Plant & Animal*** | ***Control’s the cell’s activities.*** |
| ***Mitochondria*** | ***Plant & Animal*** | ***Produces energy for the cell through cellular respiration*** |
| ***Chloroplast*** | ***Plant*** | ***Location of photosynthesis (produces food – glucose – for the plant)*** |
| ***Cytoplasm*** | ***All*** | ***Gel-like fluid that holds everything in place and allows for transport of materials*** |
| ***Golgi Apparatus*** | ***Plant & Animal*** | ***PACKAGES and transports materials*** |
| ***Ribosome*** | ***All*** | ***Builds proteins for the cell*** |

12. Fill-in the table below with the appropriate information.