Biology Goal 1Guided Notes Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the function of the following organelles?
	1. Nucleus: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Plasma membrane: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Cell wall: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. Mitochondria: cellular respiration; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	5. Vacuoles: stores \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	6. Chloroplasts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	7. Ribosomes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Label the cell below



1. The structure of the organelle determines it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Example: folded inner membrane in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for energy production during \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. These organelles interact to carry out functions such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, transport of molecules, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and synthesis of new molecules. (Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which are assembled by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and used as enzymes for energy production at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,).
3. Microscopes
	1. Total Magnification = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ X \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. If eyepiece is 10x and the objective is 40 x then the total magnification is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Electron Microscopes have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ magnification than light microscopes.
	4. They allow one to see the organelles and viruses
	5. Two types: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. How to use a microscope
5. **Place \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
6. **Move to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
7. **Move the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ until you see the object.**
8. **Use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to focus**
9. **If you wish to see on high power, move to high and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
10. Prokaryotic Cells
	1. Prokaryotic cells are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than eukaryotic cells.
11. Compare the structure of prokaryotic and eukaryotic cells :
	1. Presence of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are not present in prokaryotes.
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are found in both.
	3. \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ are present in both, but are not enclosed by a membrane in prokaryotes.
	4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_DNA strands called plasmids are characteristic of prokaryotes.
	5. Prokaryotic cells are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. Plant Cells vs. Animal Cells

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| Plant Cell | Animal Cell |
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1. Cell Differentiation
	1. Multicellular organisms begin as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ masses of cells
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ determines the differentiation of cells and ultimately their specialization.
	3. During the process of differentiation, only\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ parts of the DNA are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; the parts of the DNA that are activated determine the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and specialized \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a cell.
	4. Because all cells contain the same DNA, all cells initially have the potential to become any type of cell; however, once a cell differentiates, the process cannot be reversed.
	5. Nearly all of the cells of a multicellular organism have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the same chromosomes and DNA.
	6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ parts of the genetic instructions are used in different types of cells, influenced by the cell's \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Cell Specialization
	1. Red blood cells carry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. White blood cells fight \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Muscle cells \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. Nerve cells carry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	5. Xylem carries \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	6. Phloem carries \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	7. Label the pictures





1. Cell communication
	1. Do cells communicate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ may be released by one cell to influence the development and activity of another cell.
2. Stem Cells
	1. Stem cells :
		1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that continually reproduce themselves**
		2. **Have, under appropriate conditions, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into one or more types of specialized cells.**

* 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which have not yet differentiated into various cell types are called embryonic stem cells.
	2. Stem cells found in organisms, for instance in bone marrow, are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Scientists have recently demonstrated that stem cells, both embryonic and adult, with the right laboratory culture conditions, differentiate into specialized cells.
1. Homeostasis
2. Cells use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to regulate cell pH . Buffers are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Cells can respond to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, glucose levels, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in organisms.
4. Active and Passive Transport

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1. Osmosis: Movement of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	1. If you place a cell into a very salty or sugary solution, the water will move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This makes the cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. If you place a cell into a solution that has less solute than the cell has, then water will move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and the cell will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	3. Freshwater moves towards \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Plasma Membrane
	1. The plasma membrane has a double layer of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The membrane controls what \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the cell.
3. Cell Cycle
	1. Label the cell cycle



* 1. Cell Cycle: A series of events in the life of a cell
		+ Interphase: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		+ Mitosis: Prophase, Metaphase, Anaphase, Telophase
		+ Cytokinesis
	2. Cells spend the majority of their life in\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. Mitosis
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells use mitosis for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Unicellular organisms use mitosis for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	3. One cell makes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Identical daughter cells
	4. Diploid cell🡪 2 diploid cells
2. Structures of unicellular organisms help that them survive



* 1. Contractile Vacuole: regulates amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Cilia: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for movement
	3. Flagella: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for movement
	4. Eyespots: Detect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	5. Pseudopods: “ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. Adaptive Bahaviors
	1. Chemotaxis: Response to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Phototaxis : Response to\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Geotaxis : Response to\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_