Study Guide:

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| A NUCLEUS | B CHROMATIN |
| C NUCLEOLUS |  D. NUCLEAR PORE |
| E. ROUGH E. R. | F SMOOTH E.R. |
| G. VACOULE | H. CYTOPLASM |
| 1. CHLOROPLAST
 | J. CELL WALL |
| K. CELL MEMBRANE | L. MITOCHONDRIA |
| M. VESICLE | N. GOLGI COMPLEX |

1. Identify each part of the cell pictured and labeled below.



1. Fill out the chart below

|  |  |  |
| --- | --- | --- |
| Organelle | Function | Cells it’s found in |
| Nucleus | Holds and protects DNA | All eukaryotes |
| Ribosomes | Builds proteins | All cells |
| Nucleolus | Builds ribosomes | All eukaryotes |
| Rough E.R. | Helps build proteins and transport them throughout the cell | All eukaryotes |
| Smooth E.R. | Builds lipids and detoxifys  | All eukaryotes |
| Golgi complex | Sorts and packages proteins | All eukaryotes |
| mitochondria | Creates energy, cell respiration | All eukaryotes |
| chloroplast | Creates sugar | Plant cells: eukaryotes |
| Cytoplasm | Chemical reactions, holds organelles in place | All cells |
| Cell membrane (plasma membrane) | Controls homeostasis | All cells |
| Vacuole  | Stores water, food, and waste | All eukaryotes |
| Lysosome | Breaks down waste material | All eukaryotes |
| Cell Wall  | Extra support and structure | Prokaryotes and plant cells |
| Centriole | Helps with mitosis | Eukaryotic animal cells |

1. Differentiate between eukaryotic and prokaryotic cells.

Eukaryotes have a nucleus, membrane bound organelles, are larger, more complex, can be multicellular and prokaryotic cells are not. Prokaryotic cells evolved first.

1. Fill out the chart below

|  |  |  |  |
| --- | --- | --- | --- |
| Types of Transport | Direction of molecules | Uses proteins | Uses energy |
| Simple diffusion | High to low | No | No |
| Facilitated diffusion | High to low | Yes | No |
| Osmosis | High to low | Yes | No |
| Active Transport | High to low | Yes  | yes |

1. How does the cell membrane control homeostasis?

It controls what enters and leaves a cell since it is semi-permeable.

1. For each picture indicate which part is hypotonic, hypertonic, and isotonic. Draw an arrow showing the direction of water movement and describe what will happen to the cell in each.

Cell: hypertonic Cell: hypotonic cell: isotonic

Solution: hypotonic solution: hypertonic solution: isotonic

Water: moves into the cell water: move out of cell Water: both ways





1. Which solution, hypertonic, hypotonic, or isotonic, has the most solutes? Which solution has the most water?

Hypertonic has the most solute

Hypotonic has the most water

1. How do enzymes speed up a chemical reaction

Lowers the activation energy to start a chemical reaction

1. What could change the shape of an enzyme?

pH, temperature, salinity, inhibitors

1. Why are enzymes specific to one type of substrate?

Because substrates have to fit into the active site, which has a specific shape for one type of molecule.

**11.** According to the figure below:

* 1. Which enzyme (X or Y) would you expect to find in a bacterium growing in a hot spring? Explain your rationale.

Y, because it has a higher optimum temperature

* 1. According to the figure below, what are the optimum temperatures for each enzyme(X and Y)? How do you know?

x=42 degrees C

Y=88 degrees C

It’s the highest peak of

Enzyme activity