Study Guide for the Test on Cells

What are the three parts of the cell theory?
1. All living things are made of cells
2. The cell is the basic unit of structure & function in living things
3. Living cells only come from other living cells

What is an example of a cell with no nucleus? Red Blood Cell

The movement of molecules from areas of high concentration to low concentration is called? Diffusion And if those molecules are water it is called: Osmosis.

How would a cell pull in a molecule if the molecule won't diffuse across the cell's membrane? Active Transport

Mitosis results in how many daughter cells? 2 Are they identical? Yes

If a cell went through mitosis 4 times how many cells would be produced? 16

What is the major event of each step of mitosis? Why is each important?

Prophase: Chromatin condenses & forms chromosomes, nuclear membrane breaks down

Metaphase: Chromosomes line up down the middle

Anaphase: Chromatids get pulled apart, one to each pole of the cell

Telophase: Nuclear membrane reforms, chromatids jumble back into chromatin

Is Interphase a part of mitosis? No – it's "in-between" phases

What happens during Cytokinesis? The actual splitting of a cell into two daughter cells

How many chromosomes does a normal somatic cell have? 46

Explain how chromosome, chromatin, and chromatid are related: Chromatin is the jumbled up mass of DNA and protein. Chromosomes are condensed, X-shaped chromatin that forms during prophase. Chromatids are the individual legs or half of a chromosome that get split during anaphase. They are all made of DNA and protein

Vocabulary words to know and understand: *Key phrases listed here – see your graphic organizer for more specific definitions!*

1. Nucleus – "Brain" Controls the cells processes and stores genetic information
2. Mitochondria – "Powerplant" Produces energy by breaking down sugar
3. Chloroplast – "Solar Panel" Uses sunlight to make sugar in plant cells
4. Cell Wall – "Armor" Rigid outer layer of plant cell. Keeps invaders out and nutrients in.
5. Ribosomes – "Factory" Responsible for protein production
6. Endoplasmic Reticulum – "Highway" Transports proteins and cell parts around the cell
7. Vacuole – "Storage Unit" Stores water, nutrients, and food for a cell. Larger in plants
8. Lysosome – "Junk Yard" Breaks down or digests food and other things in animal cells
9. Cell Membrane – "Skin" Selectively permeable membrane that allows certain things in or out
10. Cytoplasm – "Jelly Fluid" Found between cell membrane & nucleus
11. Diffusion – molecules going from a high concentration to a low concentration
12. Osmosis – the Diffusion of water
13. Active Transport – An energy-requiring way for a cell to move molecules through a membrane
    Can be used to move large molecules or move molecules against the concentration gradient
14. Mitosis – Process where a cell's DNA is split in preparation for cell division. One nucleus becomes two.
15. Chromosome – Condensed, X-shaped chromatin (DNA & protein)
16. Chromatin – Jumbled mess of DNA & Protein
17. Chromatid – ½ or "arm" of a chromosome