

Cells

- Two types
 - Prokaryotic – bacteria – no true nucleus
 - Eukaryotic – most plants and animals – true, membrane bound nucleus and other organelles

Cell Theory

1. All living things are made of cells
2. Cells are the smallest working units of life
3. All new cells come from pre-existing cells

Cell Organelles – know what they do

- | | |
|---------------------|--------------------------|
| 1. cell membrane | 7. Endoplasmic reticulum |
| 2. cytoplasm | 8. Ribosome |
| 3. nucleus | 9. Golgi body |
| 4. nucleolus | 10. Vacuole |
| 5. nuclear membrane | 11. Chloroplast |
| 6. mitochondria | 12. Lysosome |

Plant and animal cell differences

- *Plant cells have:* Chloroplasts, large vacuoles, square or rectangular shape, cell wall.
- *Animal cells have:* smaller vacuoles, roundish shape, lysosomes
- Animal cells use glucose for energy...plants make glucose during photosynthesis

Transport

1. Active transport – cell uses energy to move materials in and out of cell.
2. Passive transport – no energy required to move materials in or out.
 - a. Diffusion – materials move from a high concentration to a low
 - b. Osmosis – the movement of water across a membrane (a type of diffusion)

Cell Division

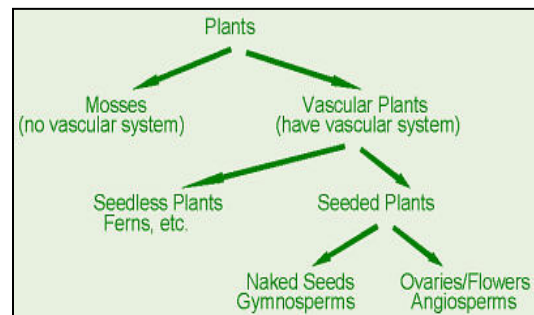
1. Occurs for growth and repair
2. Mitosis – results in two daughter cells; each with 46 chromosomes. Stages are interphase, prophase, metaphase, anaphase, telophase. This is the cell cycle where most of the time the cell is in interphase. IPMAT
3. Meiosis – results in four daughter cells; each with 23 chromosomes. Only occurs in sex cells (sperm and egg cells).

Classification

- Aristotle – Early Greek philosopher - plants and animals
- Based on comparative embryology, DNA, type of cells, homologous structures, vestigial structures and how organism obtains food.
- Carolus Linnaeus – 1700's – bi-nomial nomenclature – Father of Taxonomy -
- King Philip Cries Out For Greasy Sausage

Plants

- First appeared on land 420 MYA
- First trees- conifers – 350 MYA
- First flowering plants – 120 MYA
- 3 main types of plants
 - vascular seeded
 - non- vascular seeded
 - seedless



- Only green parts of a plant perform photosynthesis – leaves
- Stem is for support and transport of water from roots
- Roots absorb water and minerals from soil
- Plants reproduce both sexually and asexually
 - Sexual = seeds and pollen – results in greater genetic diversity = different types of flowers/flowering plants
 - Asexual = cuttings, bulbs, eyes on a potato, etc

