

1st Semester Finals Review

- Given a scenario of an experiment, can you identify the parts of the scientific method?
 - Hypothesis, observations, data, procedures experiment), conclusions
- Can you define a controlled experiment?
- Can you convert measurements from one metric unit to another?
- Can you identify the boiling and freezing points of water on the Celsius scale?
- Given data, can you identify the independent variable and the dependent variable?
- Given data, can you make a graph correctly?
 - Title, labels, correct axis scaling, plotting two sets of related data on one graph, finding the best fit line
- Can you predict a measurement from a graph using extrapolating or interpolating?
 - Extrapolate – extending the graph, along the same slope, above or below the measured data
 - Interpolate – predicting data between two measured points on the graph
- Can you identify the 3 parts of an atom? – Their location in the atom, their charge
- Can you explain what particles make up the atomic mass of an atom?
- Can you explain what an isotope of atom is?
- Can you explain what an ion of an atom is?
- What is the difference between an element and a compound?
- What does it mean that water is a polar molecule?
- What is a hydrogen bond?
- What is an ionic bond?
- What is a covalent bond?
- What is the difference between an acid and a base?
- Given a pH measurement, can you identify if a solution is an acid, base or neutral?
- What is a buffer?
- What happens when you combine an acid and a base of similar strengths?
- What is the difference between cohesion of water and adhesion of water?
- Can you draw the atomic structure of a atom (from the 1st three rows of the periodic table)?
- Can you draw the electron dot diagram of the following elements & compounds? O₂ NH₃ H₂O
- Can you draw the structural formulas of the following compounds? O₂ NH₃ H₂O
- Given the elemental notation of an atom, could you identify the following? # of protons, # of neutrons, charge (if it is neutral or an ion)
- Can you write the elemental notation of an atom is you are given the following information? # of protons, # of neutrons, #of electrons
- What is the shape of most carbohydrate carbon skeletons?
- What do we need carbohydrates for?
- What is the difference in the structure of mono-, di-, and polysaccharides?
- What are the differences between glycogen and cellulose and starch? Where is each type found? What is the Function of each?
- Are lipids hydrophilic or hydrophobic? (what do these two words mean?)
- What is the difference between saturated and unsaturated fat?
- What do all steroids have in common? How do various steroids differ from each other? What are examples of steroids and their functions?
- What is the name of the monomer that makes up proteins?
- Describe the factors that cause denaturation.
- Describe what happens to protein shape and function with denaturation.

37. Explain what activation energy is.
38. Describe the problem with using heat to provide activation energy for chemical reactions in body.
39. What is the role of catalysts in chemical reactions.
40. Explain how enzymes affect activation energy.
41. Discuss how enzymes work, incorporating active sites and substrates.
42. State what nutrition is.
43. List the six types of nutrients found in food and give their general functions.
44. Summarize the four stages of food processing and state where each occurs in the digestive system.
45. Trace the path of food through the organs of the digestive system and explain what happens to the food in **each** organ of the alimentary canal.
46. Explain what peristalsis is and state which organs it occurs in.
47. Describe the role of the salivary glands, pancreas, gallbladder, and pancreas in the digestive system.
48. Discuss how the small intestines are specialized for absorption. (think about the villi & their purpose)
49. State what a calorie is and how it differs from the Calories on food labels.
50. Discuss the significance of the specific types of essential nutrients (essential fatty acids, essential amino acids, vitamins, and minerals).
51. Describe the information provided by the Food Guide Pyramid and food labels.
52. Contrast malnutrition and undernutrition.
53. Differentiate between anorexia, bulimia, and bingeing.
54. Can you describe the difference between an animal cell and a plant cell?
55. Can you describe the difference between a prokaryotic cell and an eukaryotic cell?
56. Describe the location (plant or animal cell) and function of the following organelles: nucleus, cell wall, cell membrane, mitochondrion, chloroplast, ribosome, smooth endoplasmic reticulum, rough endoplasmic reticulum, golgi body, lysosome,
57. Describe what passive transport is in relation to the cell membrane.
58. Describe what active transport is in relation to the cell membrane.
59. Explain what diffusion is.
60. Explain what osmosis is.
61. Describe the four main organs of the excretory system and the function of each. (kidneys, ureter, bladder, urethra)
62. Explain how the structure of the kidney is suited to its function of removing wastes from blood.
63. Can you describe six points of the Cell Theory?
64. Describe the contributions of Robert Hooke and Anton van Leeuwenhoek to the study of cells.
65. Could you identify the following parts of a microscope on a diagram? Eyepiece, objective, arm, stage, coarse adjustment knob, fine adjustment knob, diaphragm, base