Membranes and Transport Test OVERVIEW – Biology 12

B9 – CELL MEMBRANE – I can analyze the structure and function of the cell membrane.

B9.1 – I can apply knowledge of organic molecules – including phospholipids, proteins, glycoproteins, glycolipids, carbohydrates, and cholesterol – to explain the structure and function of the fluid-mosaic membrane model.

1. Draw a cell membrane and **label** the location of the following organic molecules: phospholipids, proteins (3 major types), glycoproteins, glycolipids, carbohydrates, cholesterol.
2. Describe the structure of each of the following and relate it to its function: Phospholipids, integral transmembrane proteins, glycoproteins, glycolipids, carbohydrates, cholesterol.

B9.2 – I can identify the hydrophobic and hydrophilic regions of the phospholipid bilayer.

3. Draw a phospholipid bilayer and label its hydrophilic and hydrophobic regions. Include proteins.

B9.3 – I can explain why the cell membrane is described as "selectively permeable".

4. Why is a cell membrane described as "selectively permeable"?

B9.4 – I can describe passive transport processes including diffusion, osmosis, and facilitated transport.

5. Describe how the following occur across a cell membrane: diffusion, osmosis, active transport. 2. Include the idea of a concentration gradient and energy in your explanation. 3. Give an example of at least ONE type of particle moved across the cell membrane by each mechanism.

B9.5 – I can predict the effects of hypertonic, isotonic, and hypotonic environments on osmosis in animal cells.

6. Describe what occurs in terms of osmosis to animal cells placed into each of the following solutions: hypertonic to the cell, hypotonic to the cell, and isotonic to the cell.

B9.6 – I can describe active transport processes including active transport, endocytosis (phagocytosis and pinocytosis), and exocytosis.

7. Describe how the following occur across a cell membrane: Active transport, phagocytosis, pinocytosis, receptor mediated pinocytosis, exocytosis. 2. Include the idea of a concentration gradient and energy in your explanation. 3. Give an example of at least ONE type of particle moved across the cell membrane by each mechanism.
8. A higher level thinking question about the sodium potassium pump. Make sure you understand how it works and why it exists. <u>Not rewriteable.</u>
9. A higher level thinking question about the sodium potassium pump. <u>Not rewriteable.</u>

B9.7 – I can compare specific transport processes – including diffusion, osmosis, facilitated transport, active transport, endocytosis, and exocytosis – in terms of

Concentration gradient, Use of channel or carrier protein, Use of energy, Types and sizes of particles transported

10. Compare diffusion, osmosis, facilitated transport, active transport, endocytosis, and exocytosis in terms of concentration gradient, use of channel or carrier proteins, and use of energy.

B9.8 - I can devise an experiment using the scientific method (ex. To investigate the tonicity of cells)

Lab quiz.