3D Cell Membrane Modelling & Video Rubric

You have learned about the structures that make up the cell membrane and how their individual properties help them carry out the important functions of the cell membrane. Your job is to show these individual parts and how they work together to carry out these main functions: to create a barrier between the outside and inside of the cell and control what can enter and leave the cell.

Part A

- Create 1 model showing **EACH** of the structures listed in the chart.
- Structures should represent actual shape & function
    o Specific molecules being transported (or not) should be included
- Clearly label structures
- Take **ONE photo** that includes **ALL** structures & molecules.
    - Upload image to OneNote Assignments
    - Be sure image can be seen when page is opened (do not insert as a file)

| Part A: Structures & Processes	Part B: Transport Processes for Video
o Phospholipid ➤ Polar head (hydrophilic region) ➤ Nonpolar tails (hydrophobic region) o Cholesterol o Aquaporin o Protein channel o Protein carrier (active transport type) o Antiporter o Symporter o Glycoprotein o Glycolipid	o Passive transport ➤ Facilitated diffusion o Active transport ➤ Anti-porter ➤ Symporter ➤ Coupled transport ➤ Receptor mediated endocytosis

Part B

Pick **ONE** of the **transport processes** listed above and create an animation with 8-10 images showing how the process works using a specific example.

Take the photos

Arrange your membrane model in the best way to illustrate your chosen transport process.

- Take a photo of the model, or a simplified version of it.
- Add a few molecules of one type
- Take a photo
- Move the molecules a little
- Take another photo
- Continue until you have about 10 photos

- Be sure images have labels
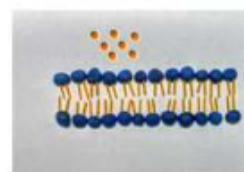
Make the animation

Go to https://gifmaker.me OR a program of your choosing

- Upload images
- **Create Video animation**
- Download this video
- Upload video into OneNote Assignment
    o Insert → File → select video file → Insert as attachment
- Include a brief description of the process below the video – using the specific example.

Criteria	Emerging/ Beginning	Developing	Proficient	Advanced
Structure *Part A* /10	Model does not accurately depict the required components of the cell membrane. All structures are minimally detailed.	Model accurately depicts some of the required components of the cell membrane. All structures are fundamentally detailed.	Model accurately depicts most of the required components of the cell membrane. All structures are adequately detailed.	Model accurately depicts *all* required components of the cell membrane. All structures are thoroughly detailed. *(structures suit function, orientations…)*
Labels *Part A* /5	The model has no labels or molecules.	The model has *some* of the labels and molecules needed in order for the structure to be understood.	The model has *many* of the labels and molecules needed in order for the structure to be understood.	The model has *all* of the labels and molecules needed in order for the structure to be understood.
Animation *Part B* /10	Process includes no key labels and is not illustrated through the images.	Process includes few labels and is illustrated incompletely using images.	Process includes some labels and is illustrated proficiently using images.	Process includes labels and is illustrated thoroughly using images.
Knowledge *Part B* /5	Student was unable to explain the process shown. No example used	Student used an example (unclear or incorrect) to explain the process with some knowledge and understanding.	Student used an example to explain the process with sufficient knowledge and understanding.	Student used a specific example to explain the process with thorough knowledge and understanding.

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