

Cell Membrane Diagram

DIRECTIONS:

Imagine that you are an artist that has been hired by a college textbook company to produce a detailed diagram of an animal cell membrane for the cover of a new textbook titled Cell Biology. Prepare yourself for this task by learning about the FLUID MOSAIC MODEL of cell membrane structure as you study membrane pictures in your textbook located on the following pages: 58, 67, 74, 77, 79 (additional membrane pictures on pages 220, 226, 519, & 566-569). Your diagram should be drawn on a separate piece of blank paper (or several taped together) and stretch across the entire width of the paper and be large enough to clearly show all of the required details. Begin your diagram by outlining all your required membrane features in **PENCIL** and then **COLOR CODE** the membrane features using colored pencils, pens, crayons or markers, etc. Your diagram will be evaluated for neatness, originality (DO NOT copy the book diagrams exactly), organization, and your ability to accurately draw and correctly identify the following **12** membrane features.

Draw and Label:

- 1) **Lipid Bilayer** (use a bracket or parenthesis to identify both layers)
- 2) **INSide** Cell Environmentalso label **cytoplasm**, **cytoskeleton**, and **3** other favorite organelles
- 3) **OUTside** Cell Environment ... also label several **collagen** fibers of the ECM (see page 67)
- 4) **Vesicle** fusing with the membrane and releasing its contents OUTside the cell (**EXOCYTOSIS**) (see page 79 and use an \rightarrow to show the particles going OUT of the cell)

Draw and then COLOR CODE or NUMBER:

COLOR CODE KEY

- 5) Hydrophilic Phospholipid head
- 6) Hydrophobic Phospholipid tail
- 7) Cholesterol (see page 74)

Proteins: (see pages 74 & 77)

- 8) **Enzyme**
- 9) **Receptor**
- 10) **Integrin**
- 11) **Glycoprotein** ... AKA “ marker or antigen” (with attached carbohydrate "antler" which sticks up to the OUTside of the cell)
- 12) **Transport Proteins:**
 - Label a particle moving across the membrane using Passive Transport (H \rightarrow L)
 - Label a particle moving across the membrane using Active Transport (L \rightarrow H)

** Please SELF-GRADE using the scoring guide (on back) before turning in your diagram **

Name _____

MEMBRANE DIAGRAM SCORING GUIDE

Membrane Diagram CRITERIA	AWESOME 5 points	FAIR 3 points	FLAWED 1 point	Oooooops !! 0 points
1. Followed Directions 1-12? <ul style="list-style-type: none"> • Draw & label all parts • Color code or # 5-12 • Draw 5 inside organelles • Draw collagen fibers • Draw exocytosis • Self-grade? 	ALL	MOST	SOME	NONE
2. Accurate & Realistic? <ul style="list-style-type: none"> • Correct shapes? • Correct sizes? • Correctly identify parts? • Glycoprotein faces OUT? • Show H → L & L → H 	ALL	MOST	SOME	NONE
3. Creative & Unique?	FULL Brain Power	50% Brain Power	1 Brain Cell	Coma
4. Visually Clear? <ul style="list-style-type: none"> • Neat? • Organized? 	HD	DVD	VCR	Smoke Signal

Cell Membrane Diagram **SCORE** → **/20** points