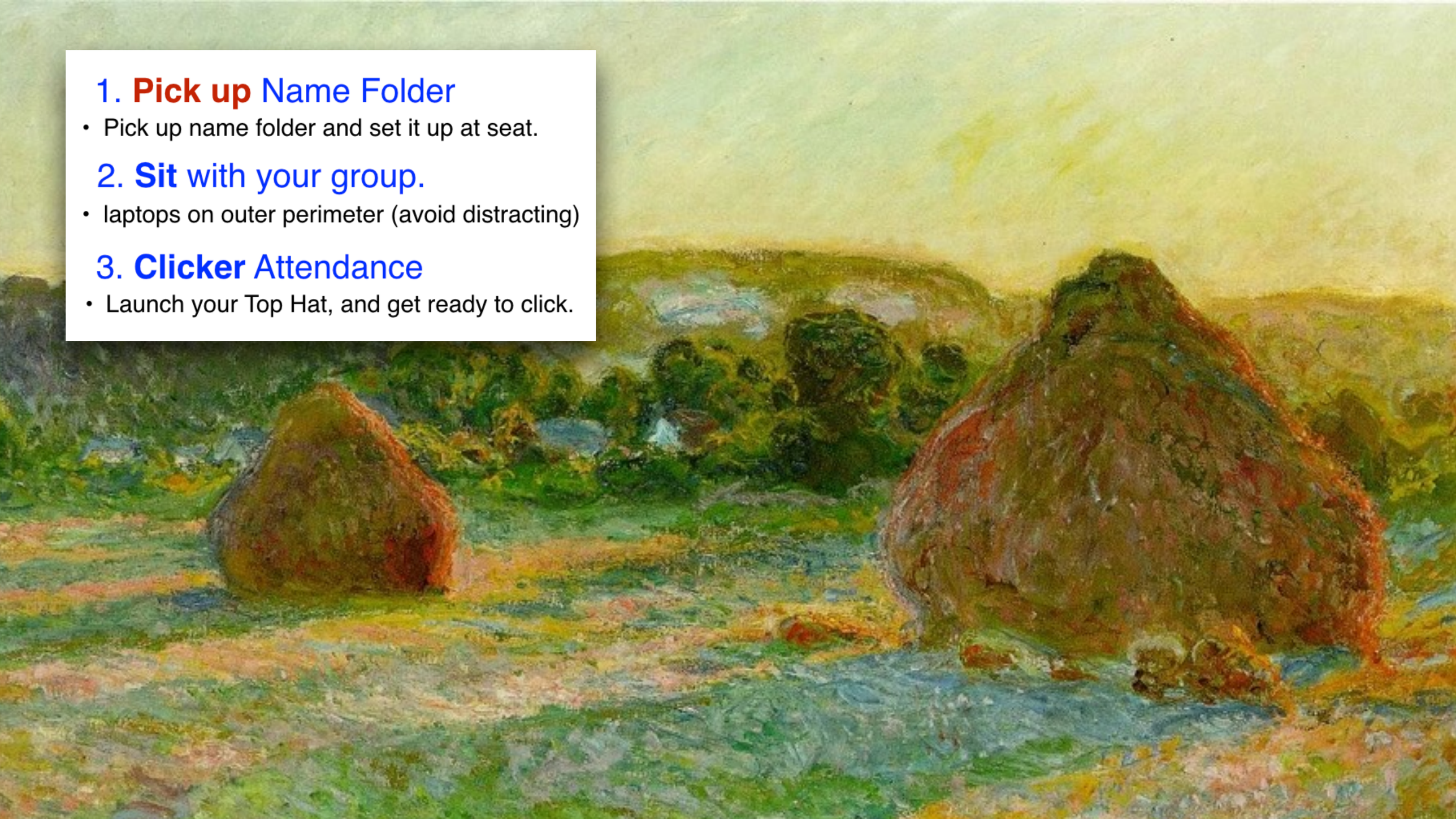


1. **Pick up** Name Folder

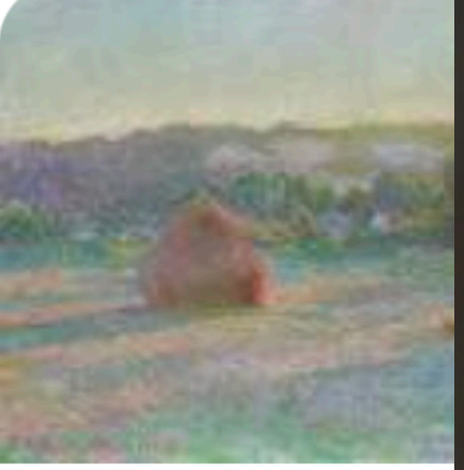
- Pick up name folder and set it up at seat.

2. **Sit** with your group.

- laptops on outer perimeter (avoid distracting)

3. **Clicker** Attendance

- Launch your Top Hat, and get ready to click.

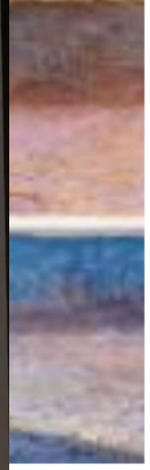


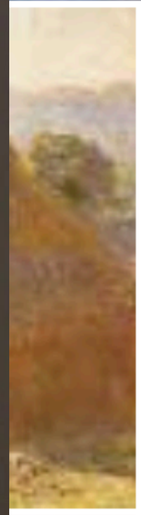
Claude Monet (1840–1926)
Getreideschober *Grainstacks*, **1890**
Sammlung Hasso Plattner Collection

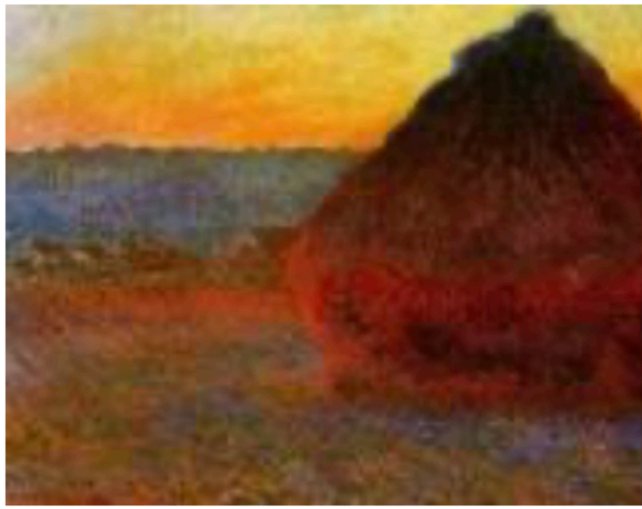
In einer umfangreichen Serie von 25 Gemälden widmete sich Monet den Getreideschobern, die in der Nähe seines Hauses in Giverny auf den Feldern standen. Systematisch nahm er sie bei unterschiedlichen Licht- und Witterungsverhältnissen in den Blick. Hier führt Monet den Blick diagonal entlang einer Reihe von Schobern in die Bildtiefe. Die Sonnenstrahlen kreuzen diese Diagonale. Die leuchtende Farbigkeit kulminiert an den Rändern des vorderen Schobers.

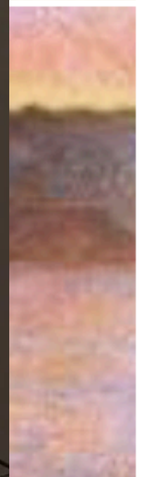
In an extensive series of twenty-five paintings Monet focused on the grainstacks that stood in the fields near his house in Giverny. He examined them systematically in different light and weather conditions. In this composition Monet directs the gaze diagonally along a row of grainstacks into the depth of the picture space. The rays of sunshine cut across this diagonal. The bright play of colors culminates on the edges of the grainstack in the foreground.

110









Announcements

1. Exam **#2**: Review instructions/expectations (why we do it this way). Avoid turnitin.com problems.

LB-145 *Exam II* has two parts (Part 1 is worth 33%)

*Part 1 of your exam is an open-book, open library, and open internet, and you are encouraged to discuss these questions with members of your lab group. *But* write your answers on your own, in your own words, as described below.*

- You have until midnight Sunday, March 19th to compose answers to all questions listed. You will turn in your answers by uploading them to turnitin.com by midnight (11:59pm) Sunday night and then submitting a hard copy by 12:40pm at the start of the lecture meeting the next day, Monday, March 20th.
- For blind-grading purposes be sure to only list B-PIDs on any pages.
- Note: skipping a required question means you haven't yet completed the exam.
- The text of your answer must be submitted to http://turnitin.com/ by the deadline, yet since this is an exam, only submit your final answers, not drafts, and be aware you will not be able to view the "similarity report." *Be careful to not insert photos that are high-resolution because turnitin.com may reject your exam when you attempt to submit it (file must be less

Announcements

1. Exam **#2**: Review instructions/expectations (why we do it this way). Avoid turnitin.com problems.
2. Mid-semester check, what is working for you?

Feedback: What helps your learning?

GROUPS: Does working in a group help you LEARN?

(compared to solo)

A. Yep, a bunch!

B. Yep somewhat, working with others helped me learn some more

C. Neutral, I think either way I'd learn just as much and as well.

D. Not really that often, not with my group

E. No, I would have learned better solo

EXAM: Does having a take-home open book Exam II help you LEARN?

(compared to only a regular multiple choice test)

A. Yep, taking it in advance with my group and the internet definitely helps me!

B. Yep somewhat, thinking about the questions ahead of time, with others, helps me.

C. Neutral, I think either way I'd learn just as much and as well.

D. Not really, I don't think I'll learn much

E. No, I would have greatly preferred a simple multiple choice test

WRITING: Does writing multiple drafts of one paper help you LEARN to write?

(compared to weekly "lab reports")

A. Yep, a bunch!

B. Yep somewhat

C. Neutral, I think either way I'd learn just as much and as well.

D. Not really, it's OK but reports are better

E. No, I would have learned far better with weekly lab reports

RESEARCH: Does independent PCR research in lab help you LEARN?

(compared to weekly cookbook labs)

A. Yep, a bunch!

B. Yep somewhat, designing our own plan is good

C. Neutral, I think either way I'd learn just as much and as well.

D. Not really that often, I was too confused

E. No, I would have learned better with traditional cookbook labs each week

VERBAL: Do you think the VF option is a good idea for learning?

(compared to the regular final exam approach)

A. Yep, a bunch! I'm jumping in the front of line.

B. Yes somewhat, the option is good

C. Neutral, I think either way I'd learn just as much and as well.

D. Not really, I don't see it as helpful

E. No, it's far too much to expect from someone at our level in this class.

ONLINE SURVEY: Would you like to have an online survey to give more feedback (with essay responses etc)?

A. Yep, that would be good.
B. Not really, I don't have the time

Back to Biology...

Week 9

(Preparing for) **Monday's lecture:**

Budgeting homework time (70 min): Section 5.2 of **Structure and Function of Plasma Membranes (OSB)** is 3856 words in length with a number of art figures (yet no data figures for trifectas). Reading at 200 words per minute would mean the section might take 20 minutes to read. But the two videos are 6 & 8 minutes each, and when done properly, when you pause to review figures and take careful notes, this assignment should take you more like 70 minutes.

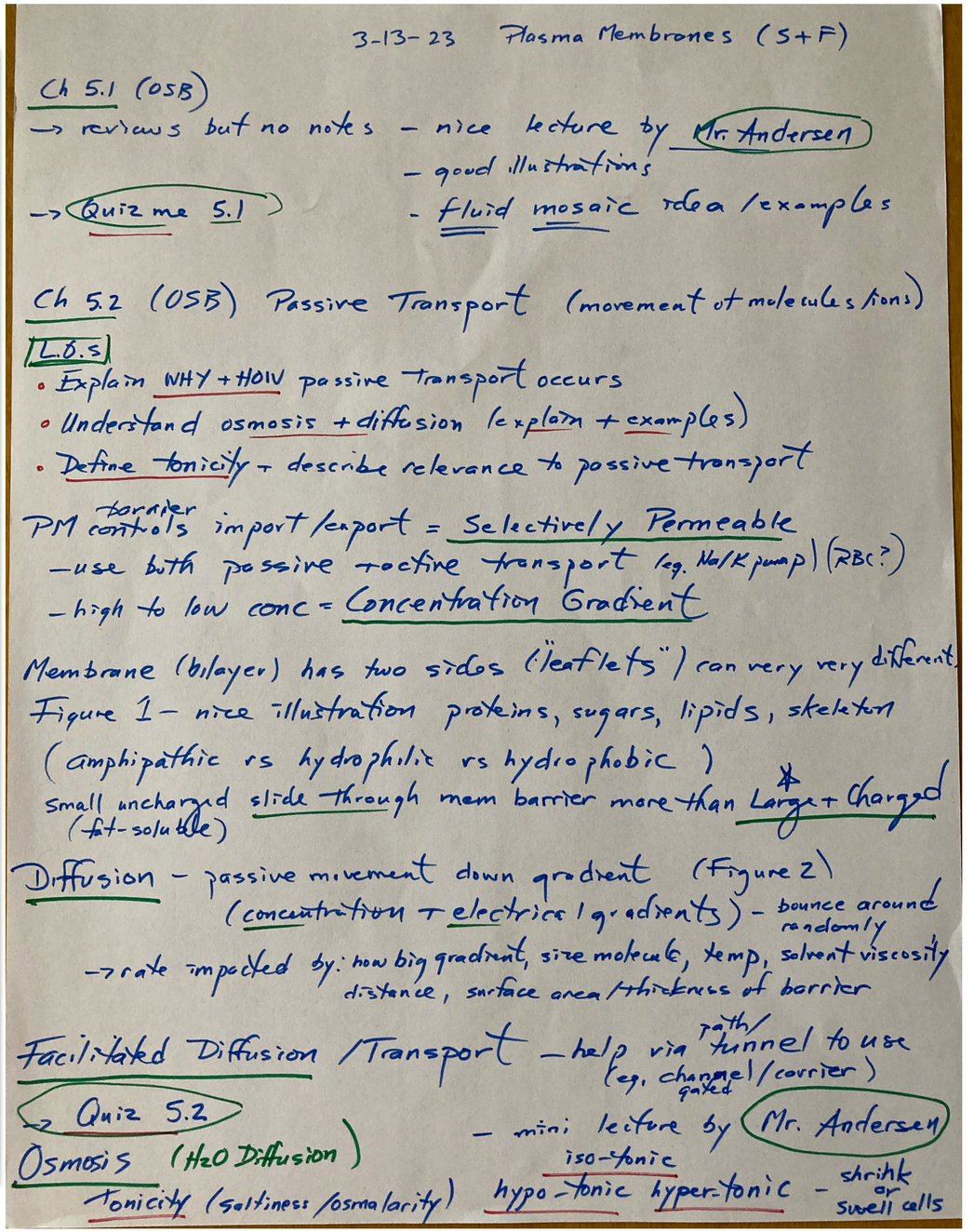
1. _____ **For Monday's lecture,** skim section 5.1 "Components and Structure" in the chapter **Structure and Function of Plasma Membranes (OSB)** then carefully and slowly read section 5.2 "Passive Transport" (3856 words) and for that one please take handwritten notes in your lecture notebook.

2. _____ (flipped classroom) Watch the **6-min lecture by Mr. Andersen** on membrane structure. You do not need to take notes on this.

3. _____ Then review section 5.2 again, now focus and take notes regarding **Figures 1, 2, 3 and 5.** We will discuss these in class.

4. _____ (flipped classroom) Watch the **8-min lecture by Mr. Andersen** provided where he gives you an explanation of the topics: diffusion and osmosis. Add to your notes any interesting points he makes that helped you better understand what they are all about.

5. _____ **Advanced**: Take a sneak peek at the next section 5.3, in particular Figure 1.



Structure and Function of Plasma Membranes (OSB)

Edit Tools

5.1 Components and Structure

Structure and Function of Plasma Membranes (OSB)

Quiz Me 5.1 > Components and Structure

Use Flash Cards as Student

Summary: By the end of this section, you will be able to:

- Understand the fluid mosaic model of cell membranes
- Describe the functions of phospholipids, proteins, and carbohydrates in membranes
- Discuss membrane fluidity

Structure and Function of Plasma Membranes (OSB)

Edit Tools

5.2 Passive Transport

Structure and Function of Plasma Membranes (OSB)

Quiz Me 5.2 > Passive Transport

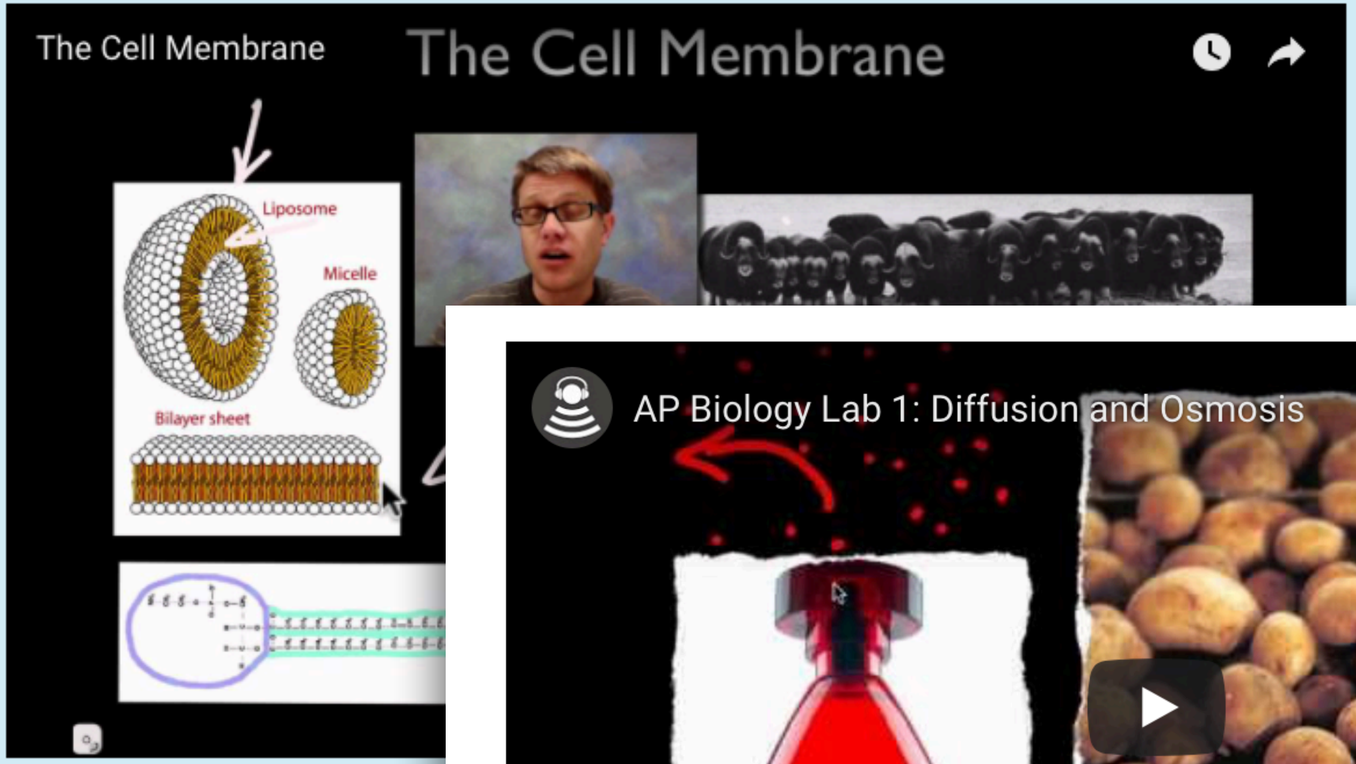
Use Flash Cards as Student

Summary: By the end of this section, you will be able to:

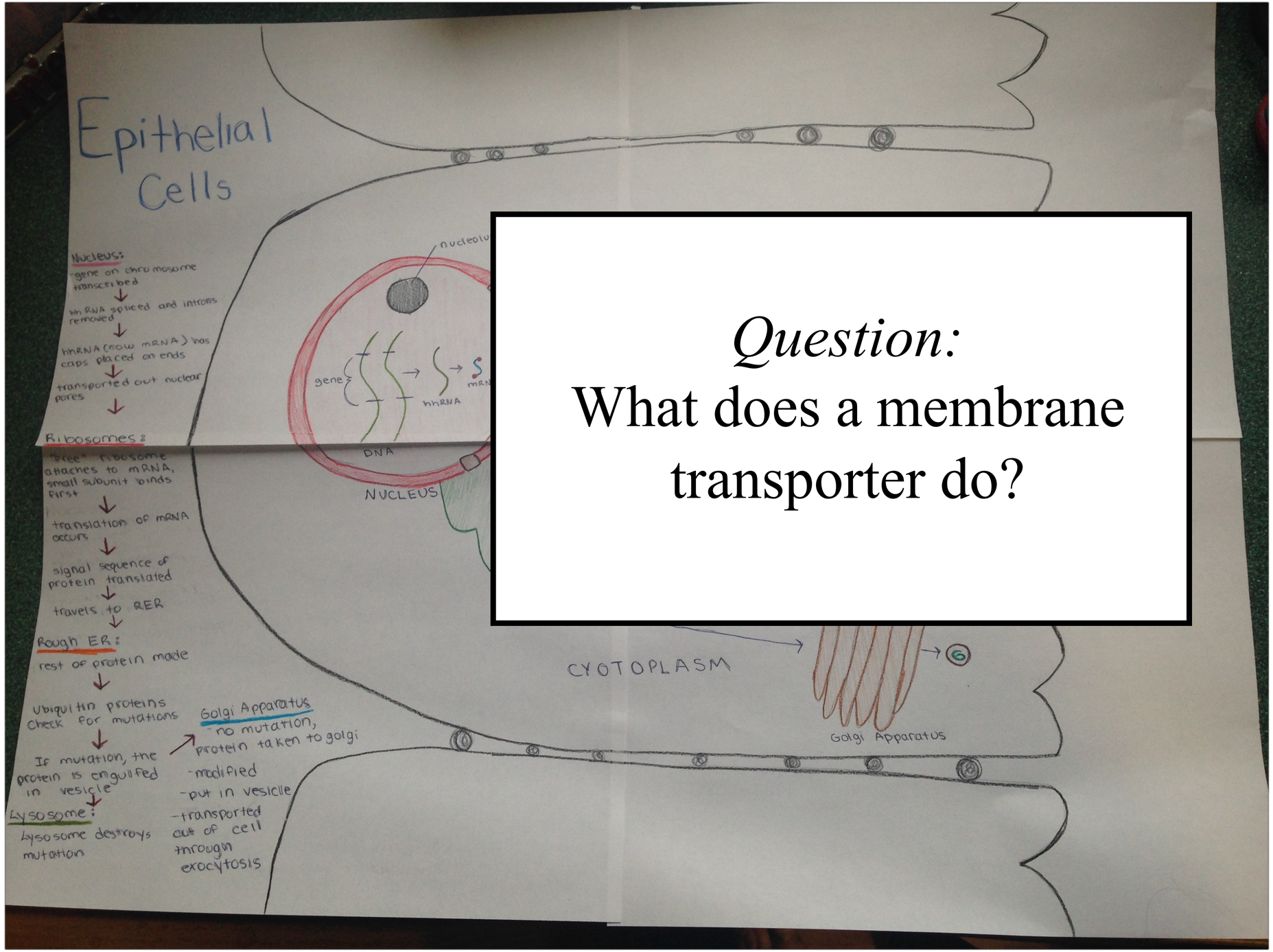
- Explain why and how passive transport occurs
- Understand the processes of osmosis and diffusion
- Define tonicity and describe its relevance to passive transport

Link to Learning

A brief introduction to the cell membrane.



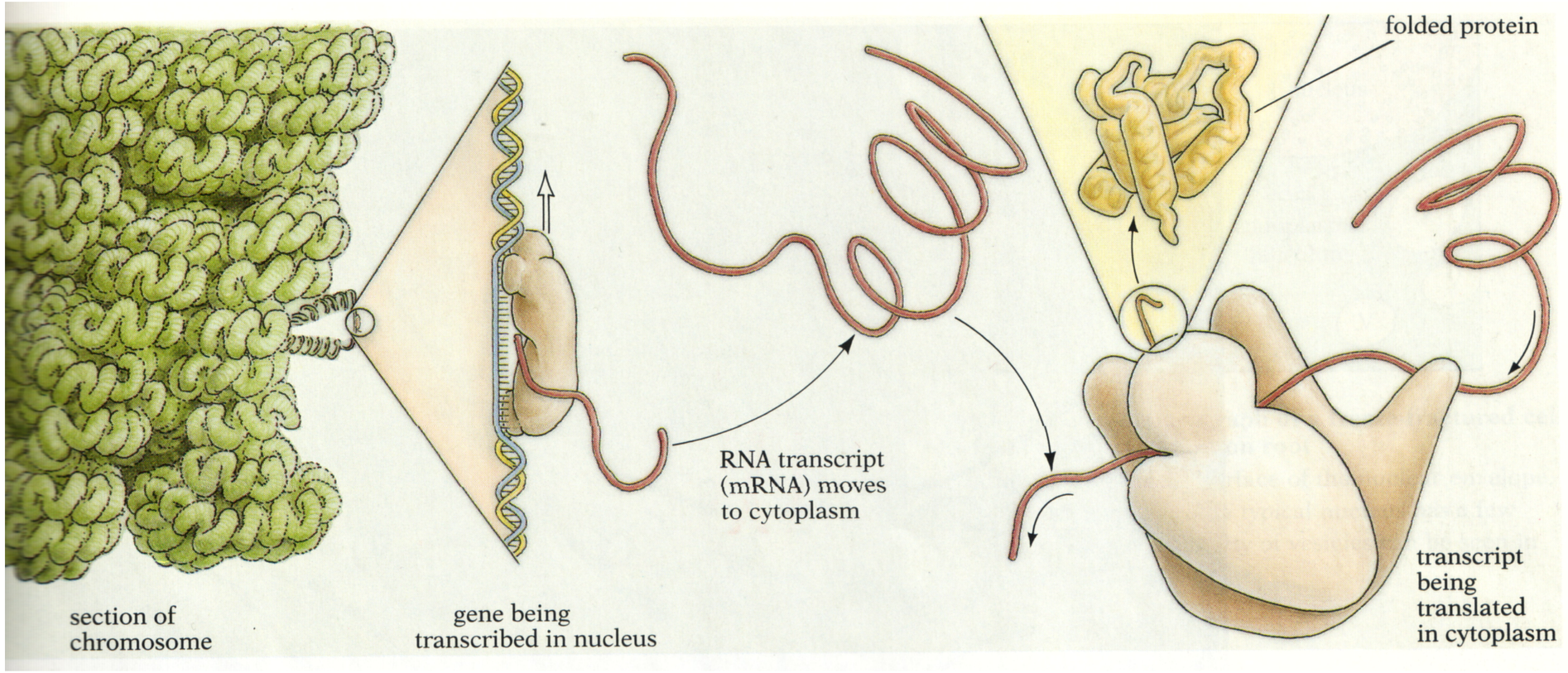
A brief description of diffusion and osmosis.



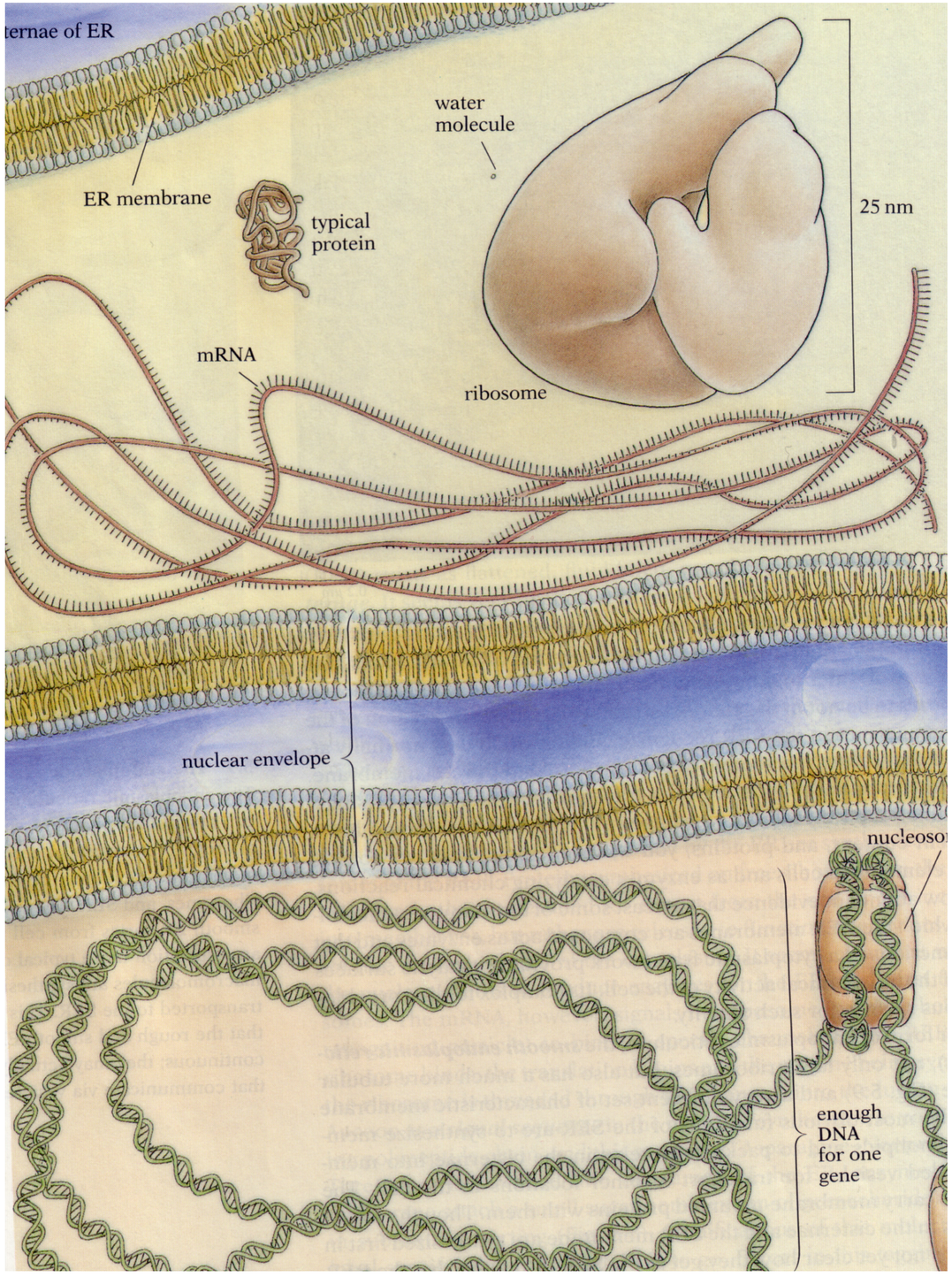
Question:
What does a membrane transporter do?

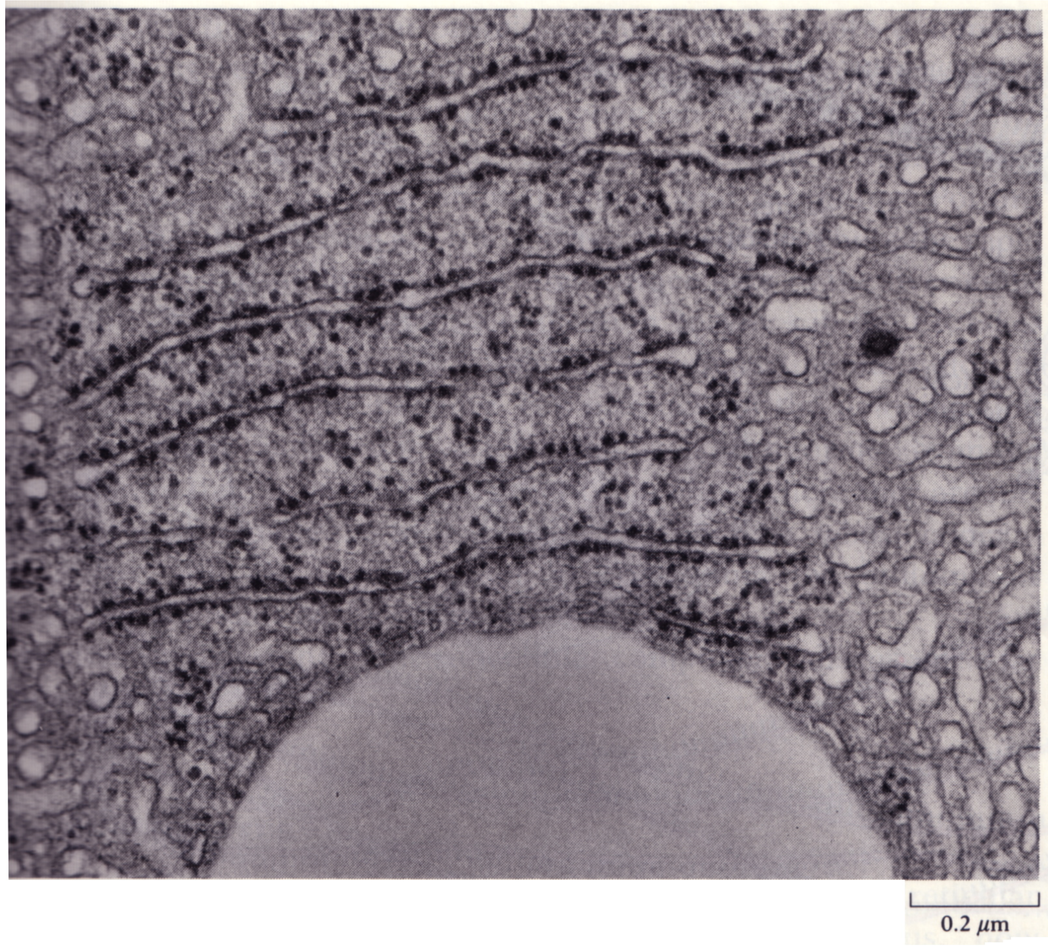
Art History

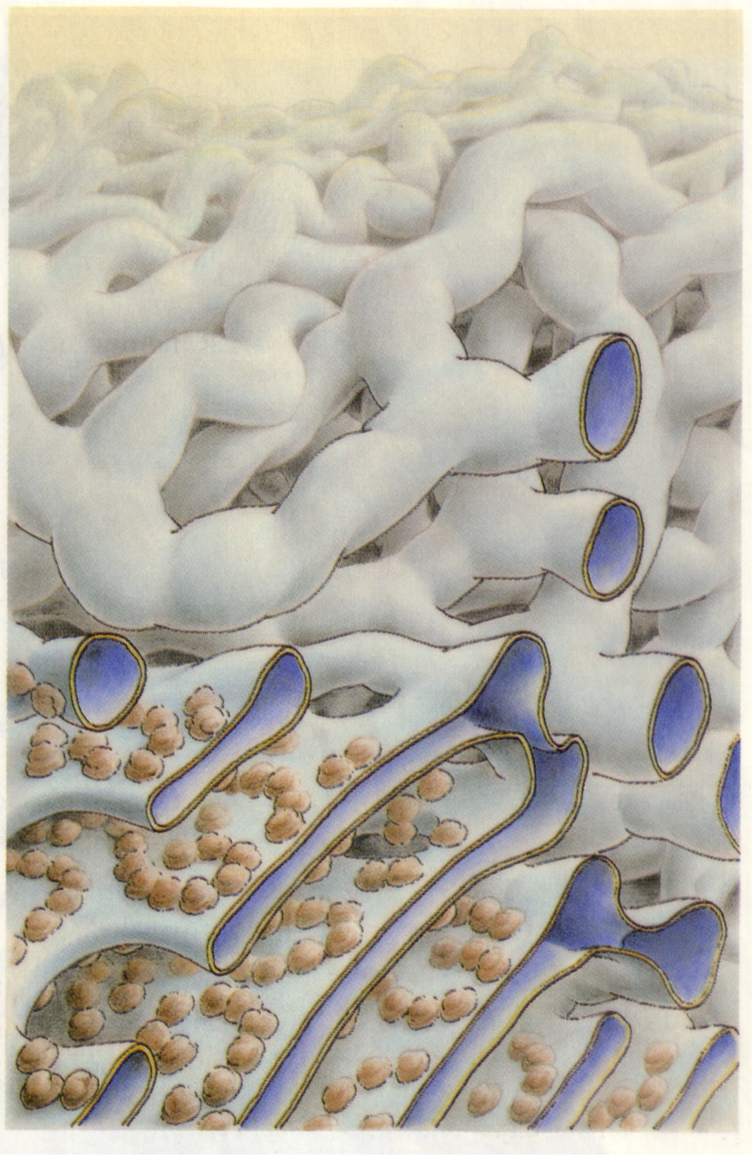
Impressionism



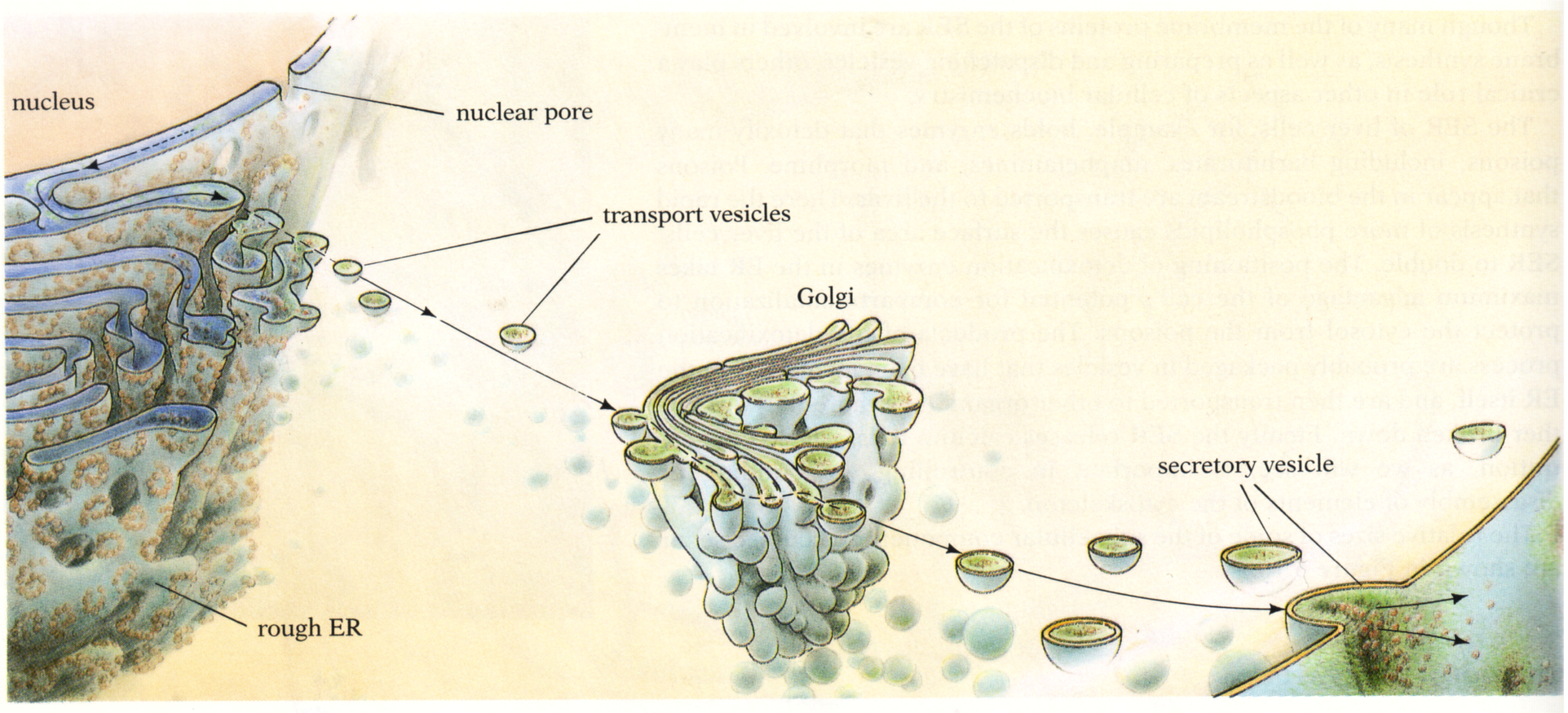
Expressionistic period


ternae of ER
water molecule
ER membrane
typical protein
25 nm
mRNA
ribosome
nuclear envelope
nucleoso
enough DNA for one gene

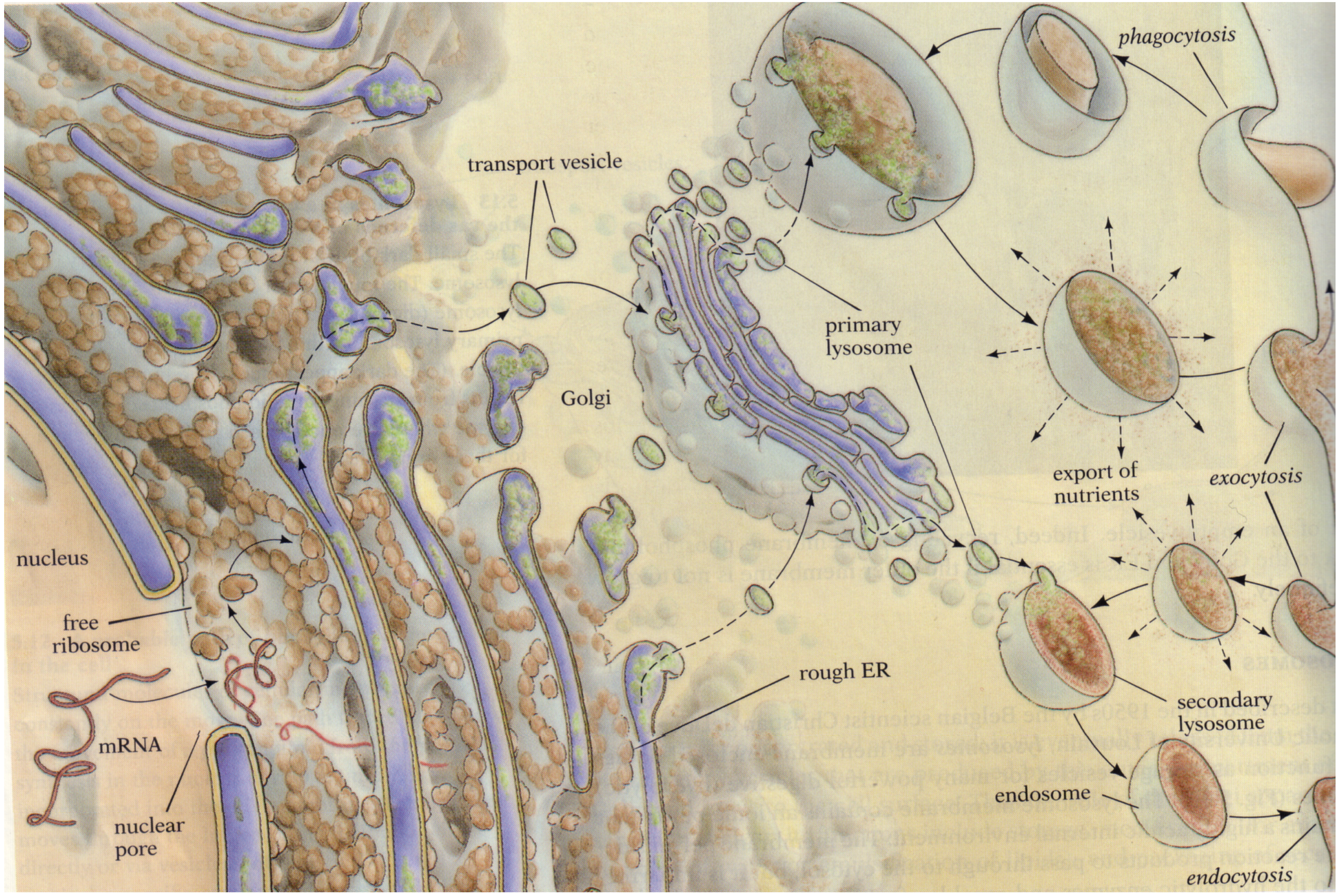


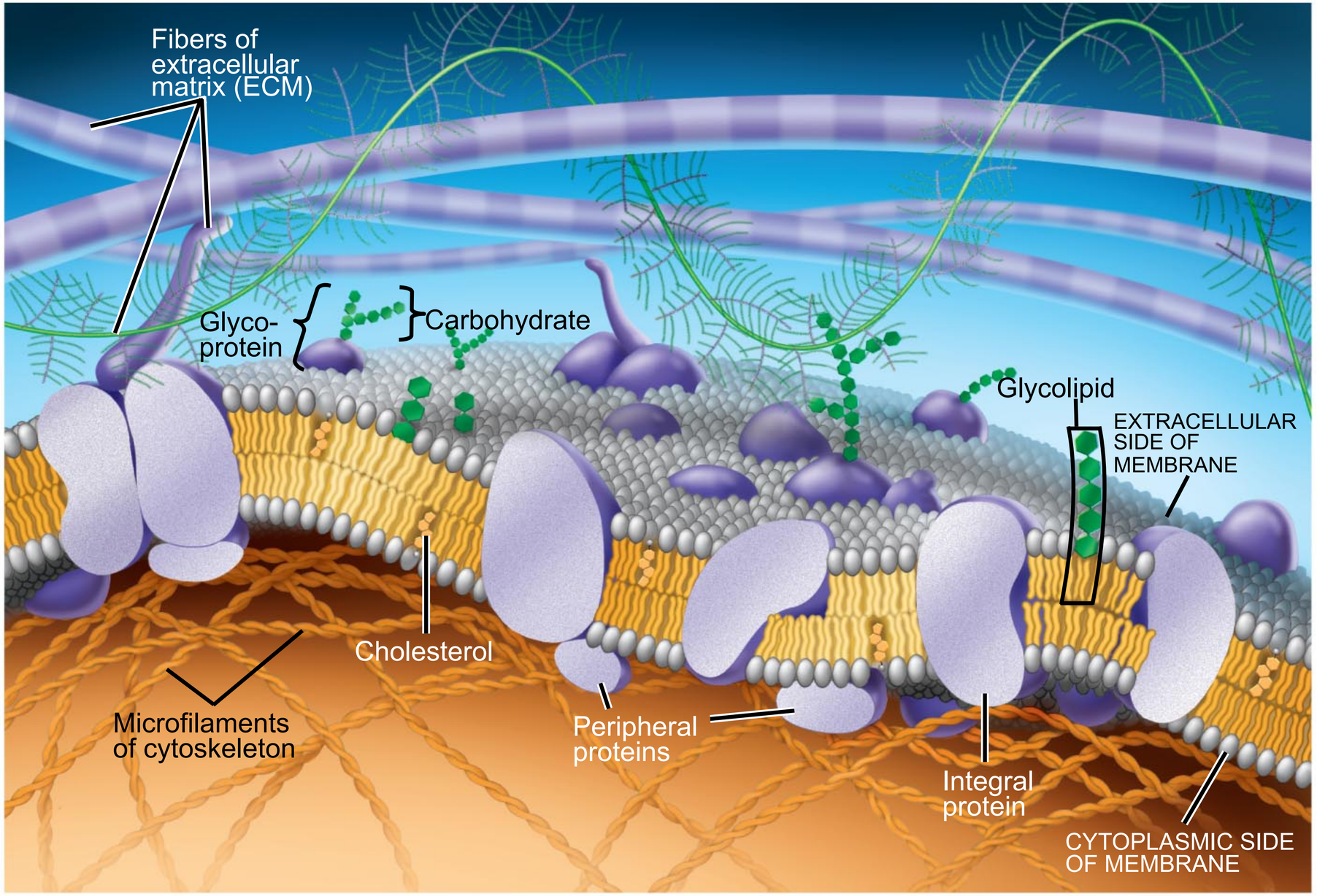


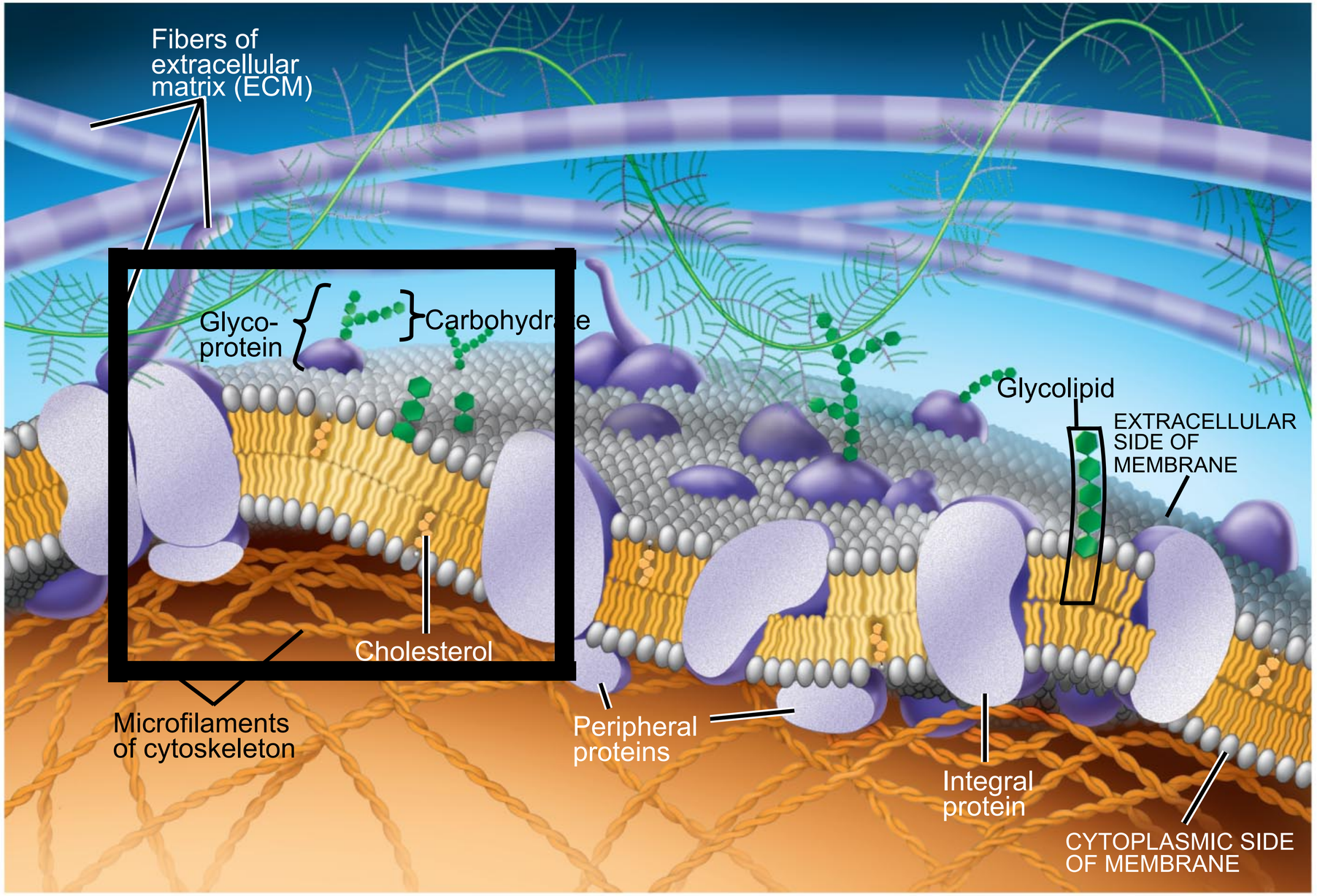
Endoplasmicisme



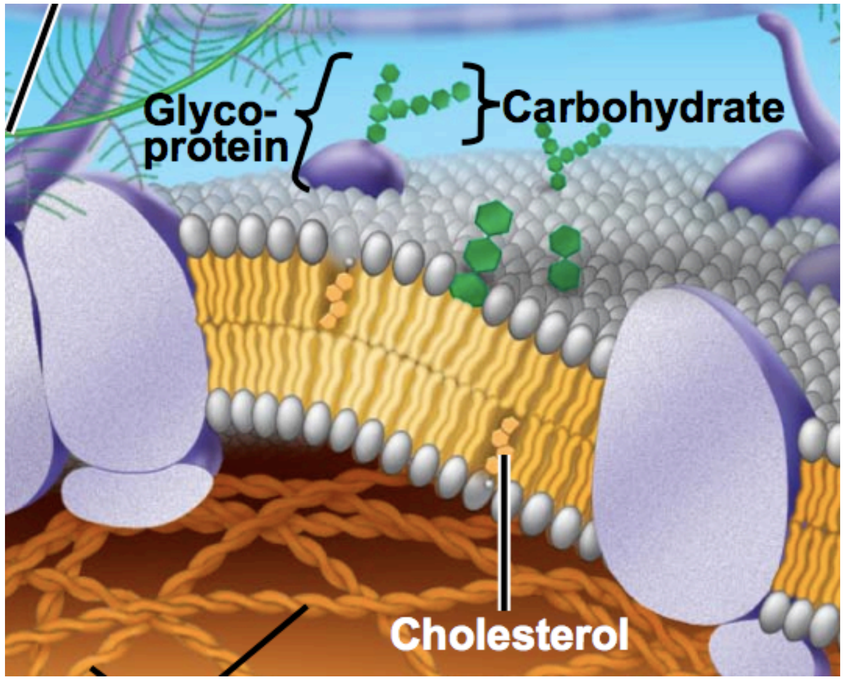
Build 3D visual models in your head

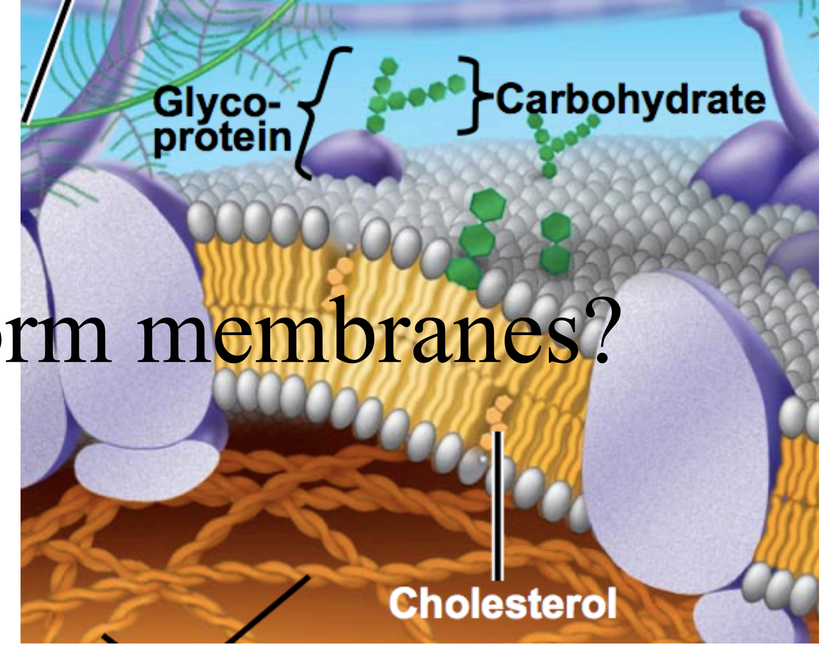

phagocytosis
transport vesicle
primary lysosome
Golgi
export of nutrients
exocytosis
nucleus
free ribosome
rough ER
secondary lysosome
mRNA
endosome
nuclear pore
endocytosis


Fibers of extracellular matrix (ECM)
Glyco-protein
Carbohydrate
Glycolipid
EXTRACELLULAR SIDE OF MEMBRANE
Cholesterol
Microfilaments of cytoskeleton
Peripheral proteins
Integral protein
CYTOPLASMIC SIDE OF MEMBRANE



Why do phospholipids form membranes?

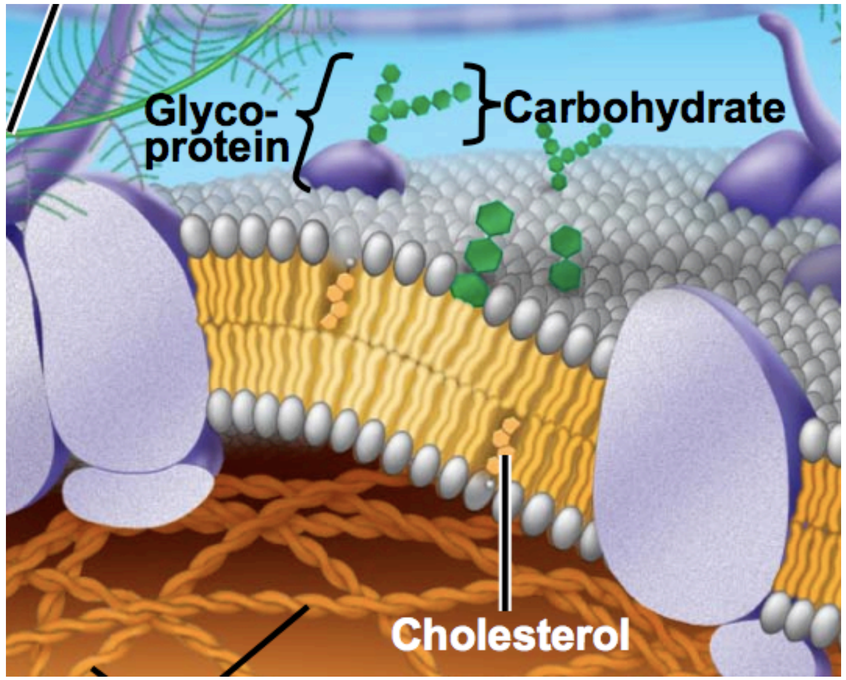


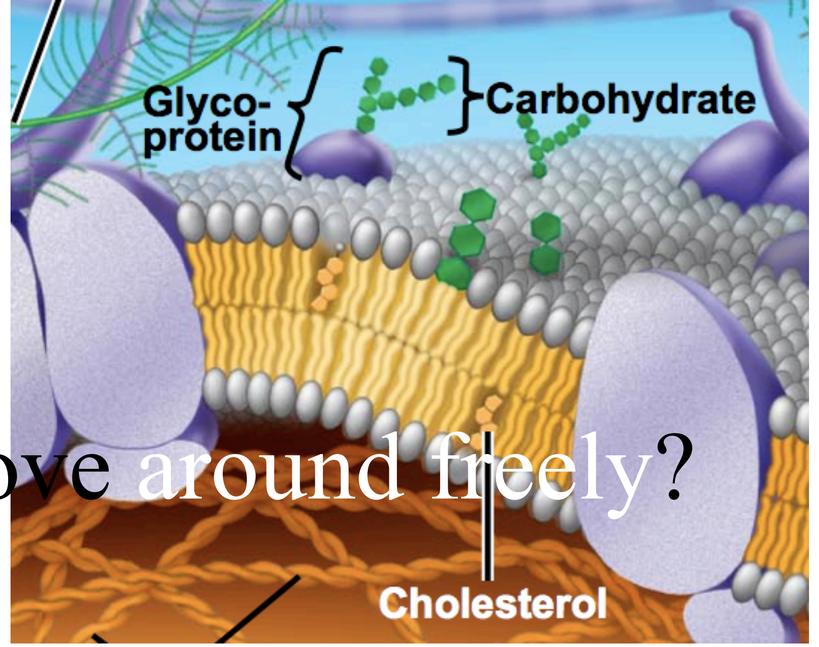


Why do phospholipids form membranes?

A. yellow tails fear water
B. yellow tails are bound together
C. gray heads are bound together
D. SER makes membranes that way
E. ER makes membranes that way

Can phospholipids move around freely?

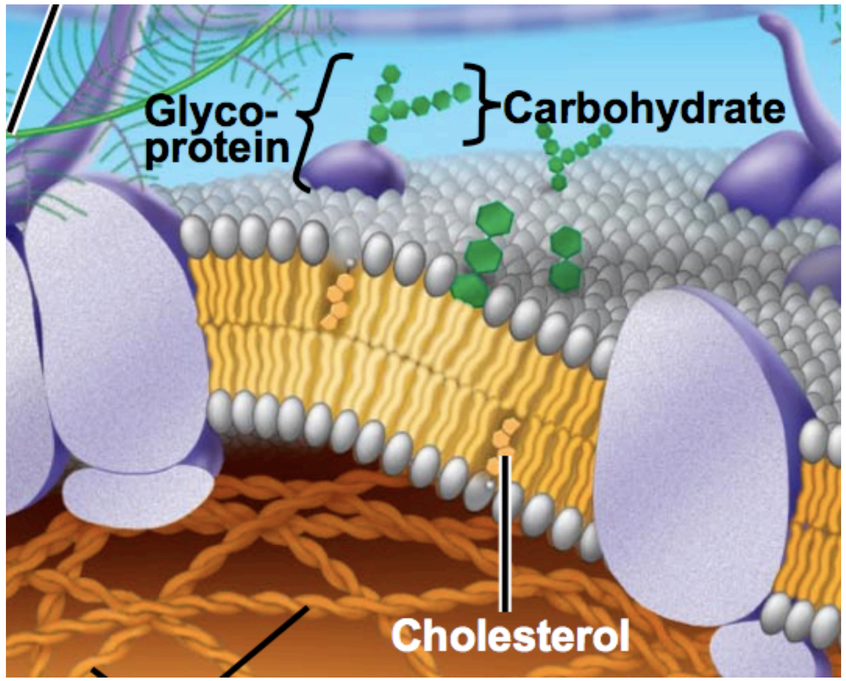




Can phospholipids move around freely?

A. yes, they can join or leave the membrane at will
B. kinda, they can move side to side but not flip flop.
C. no, they are often bound to the cytoskeleton.
D. yes, they can move side to side or flip flop easily.
E. yes, but the purple proteins cannot move.

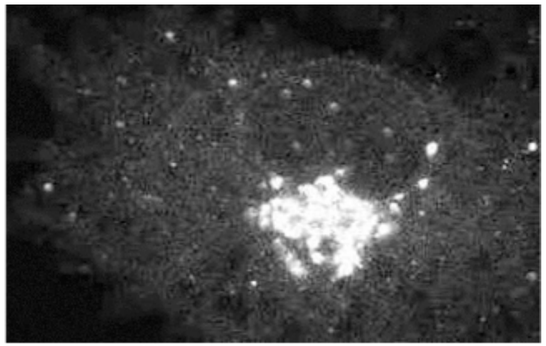
Glycoproteins are proteins + sugar

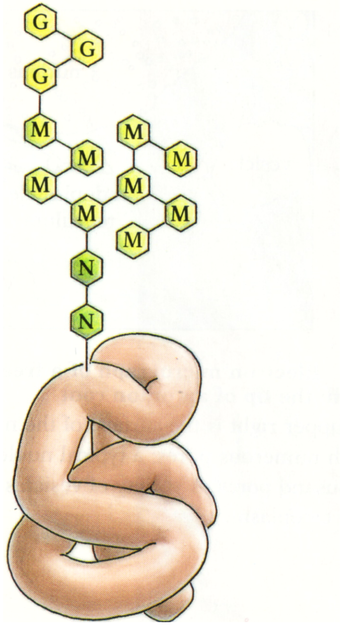


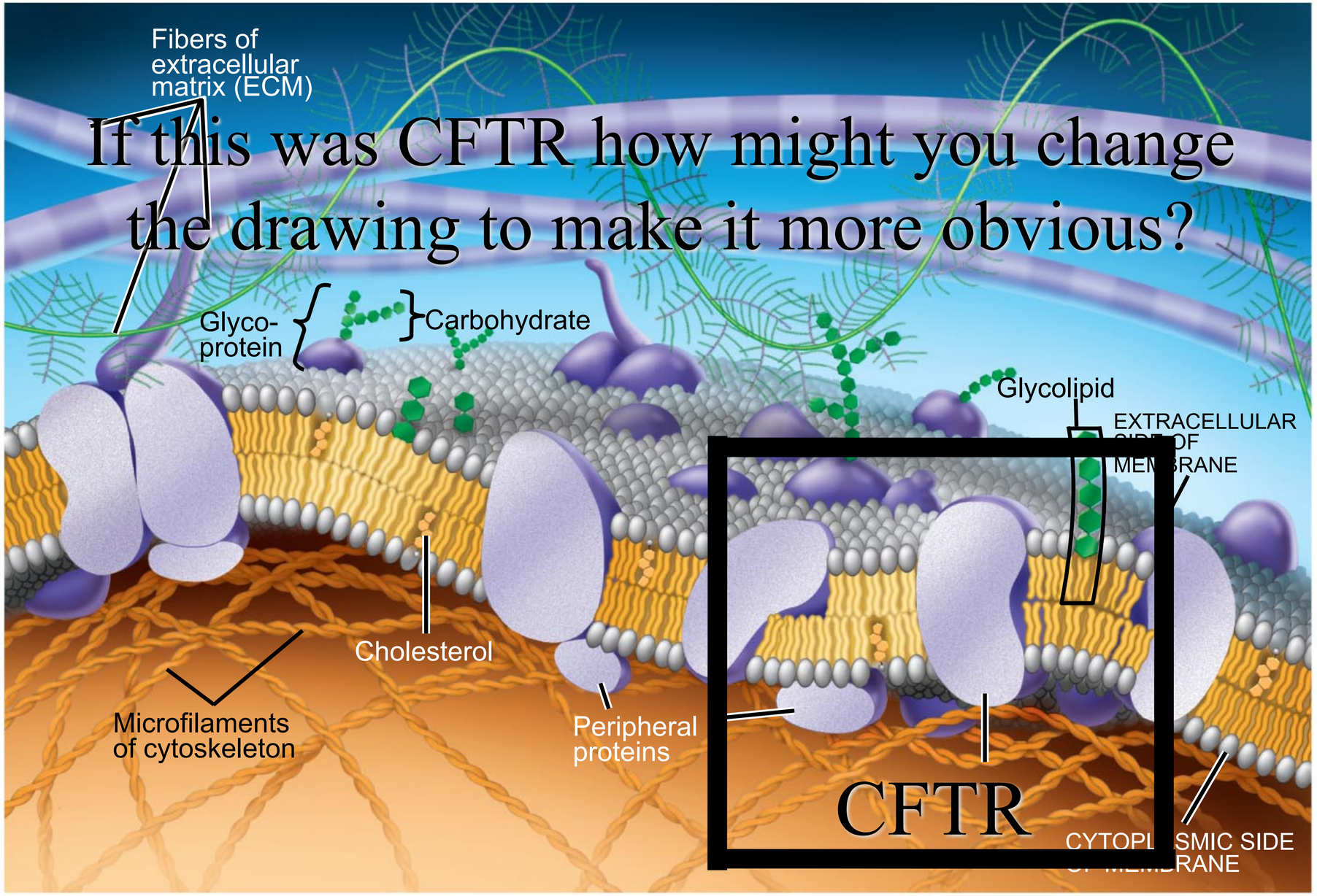
Where in the cell do newly made proteins first gain sugar groups?

Where in the cell do newly made proteins first gain sugar groups?

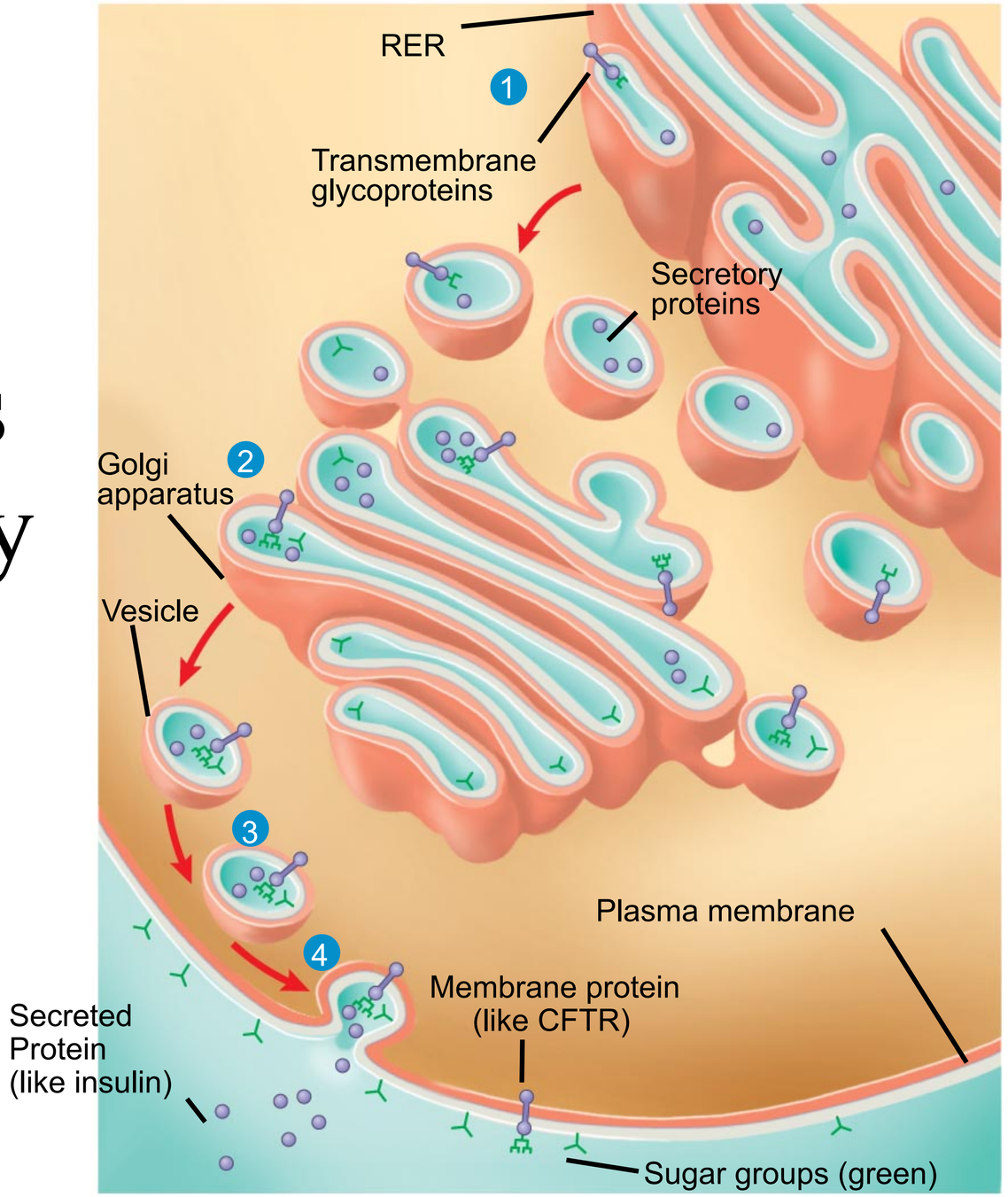
A. ER
B. Golgi
C. Nucleus
D. vesicles that fuse with plasma mem.
E. plasma membrane

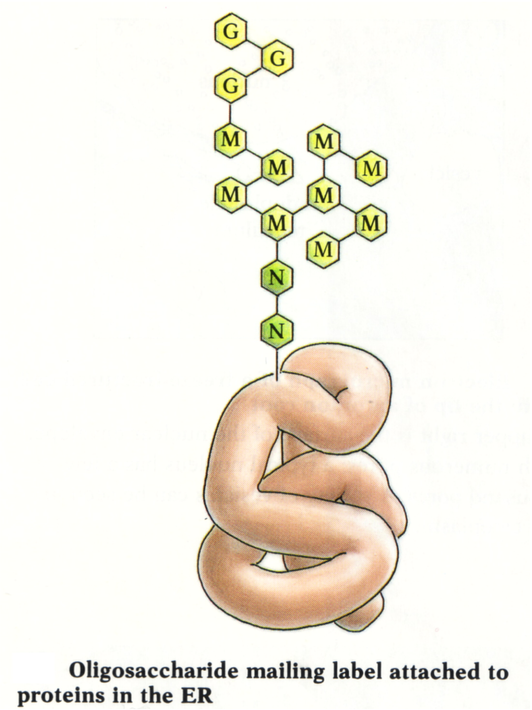






Sidedness or Polarity

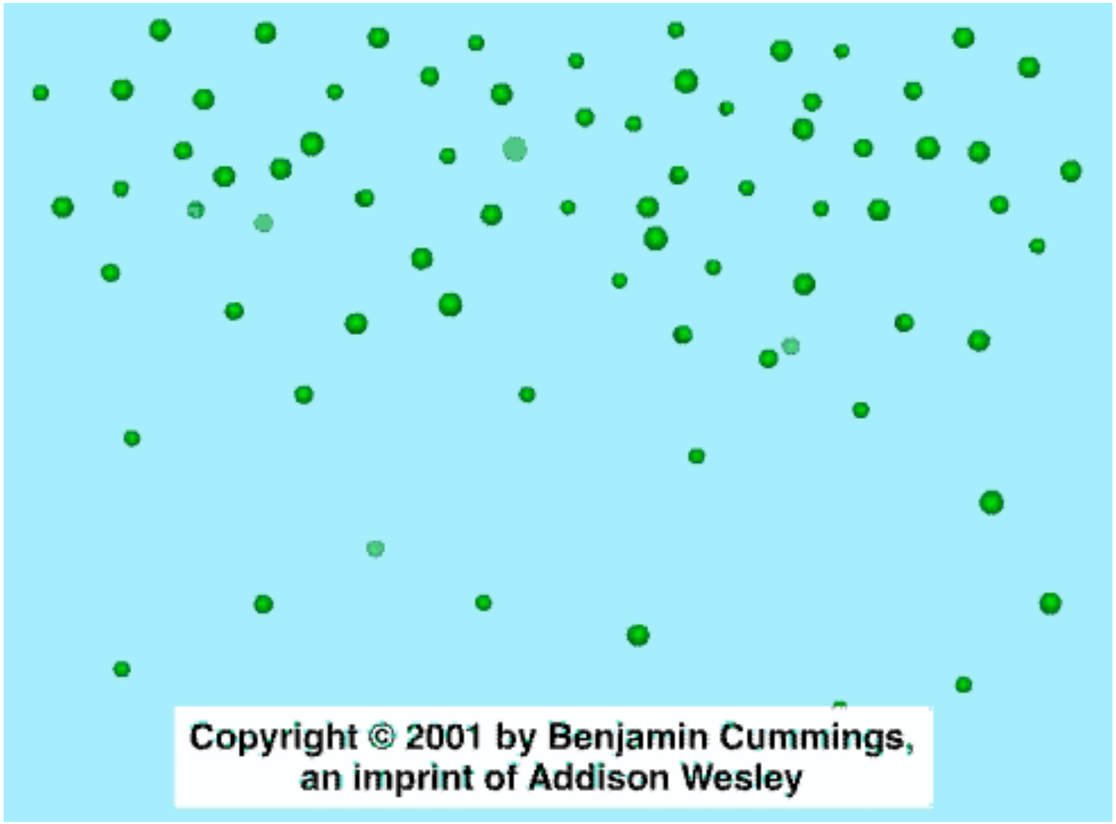




Oligosaccharide mailing label attached to proteins in the ER

Ummm, nice pictures ‘art boy dude’ but, what does a membrane transporter do?

Diffusion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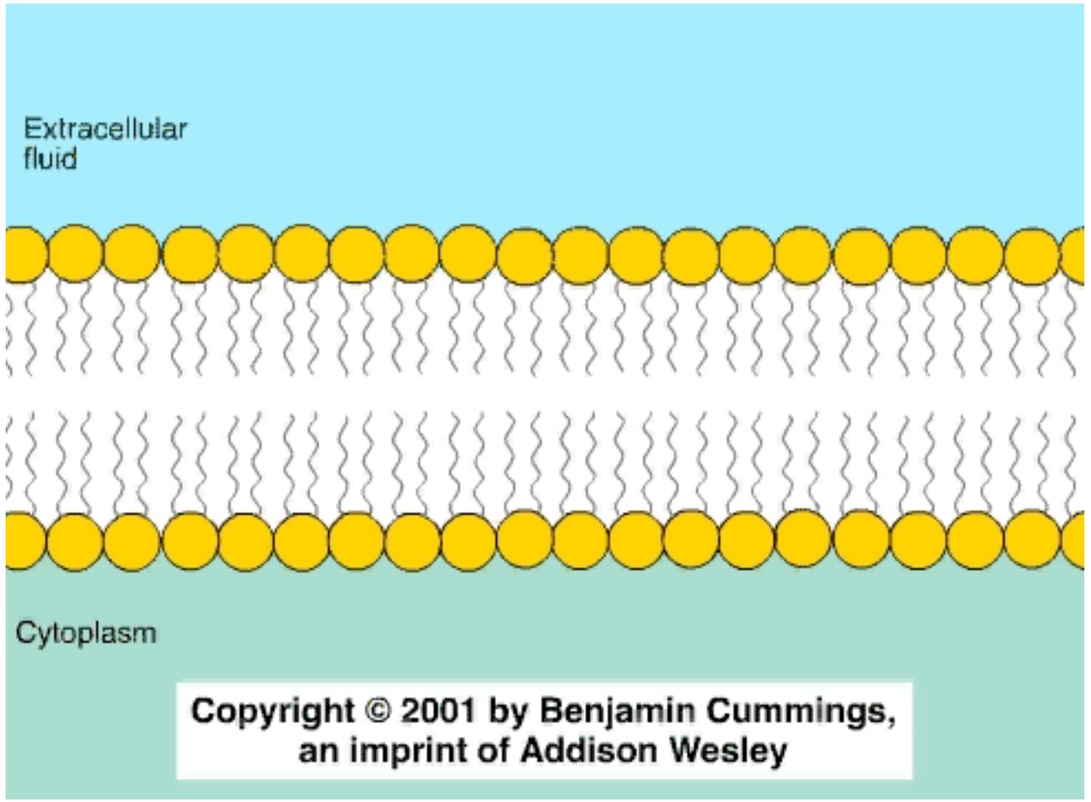
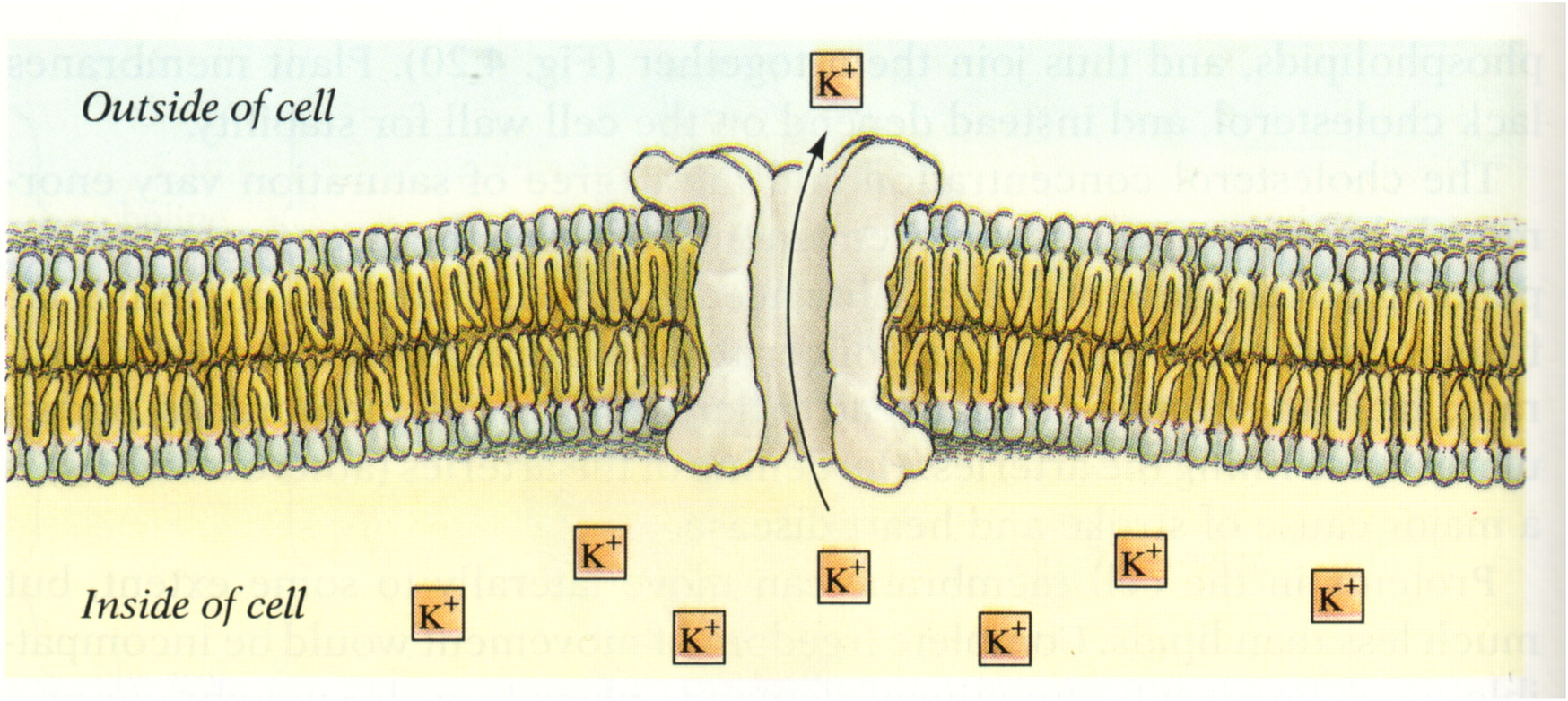
an imprint of Addison Wesley

Selectively Permeable



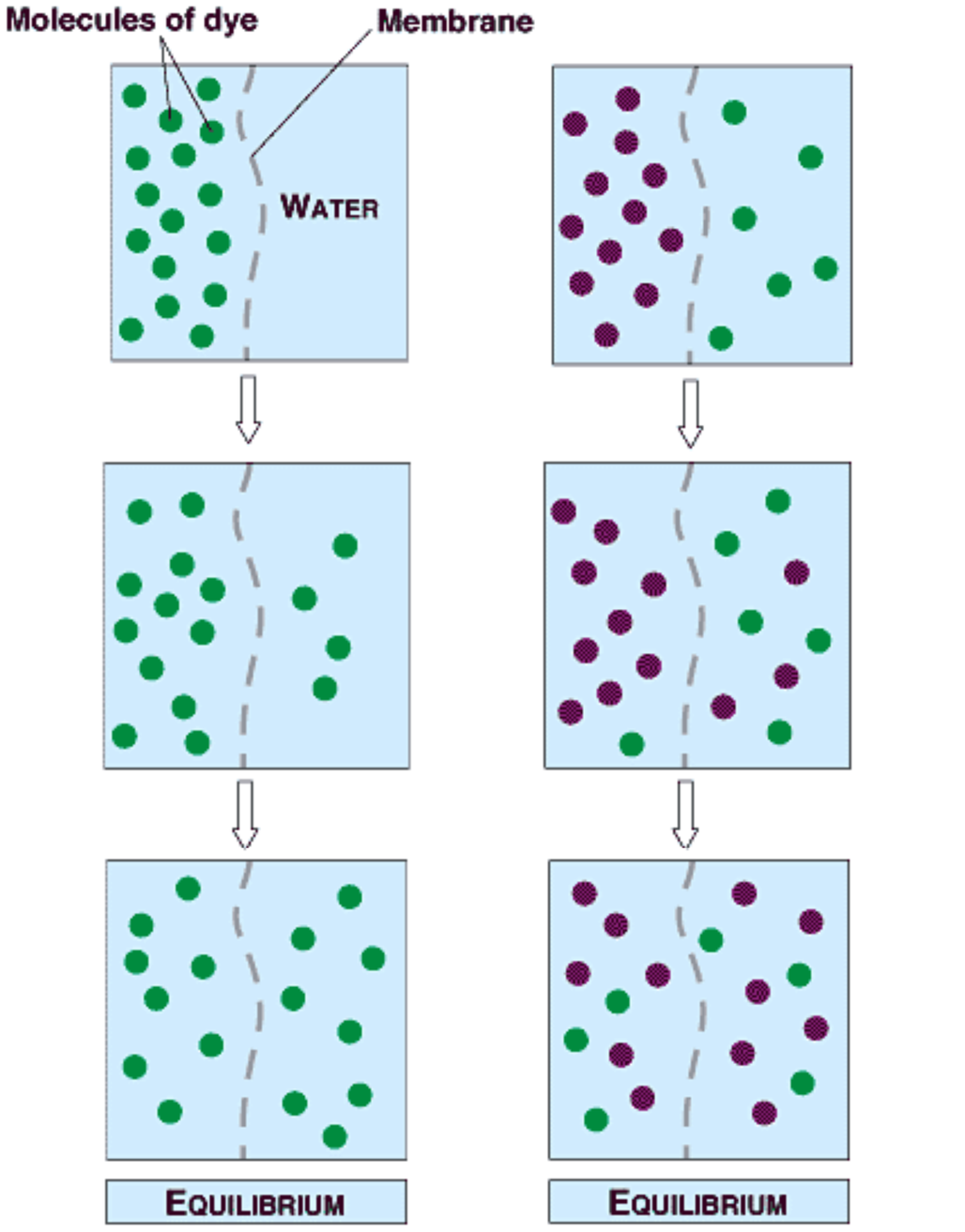
So, what does a membrane transporter do?

Facilitated Diffusion



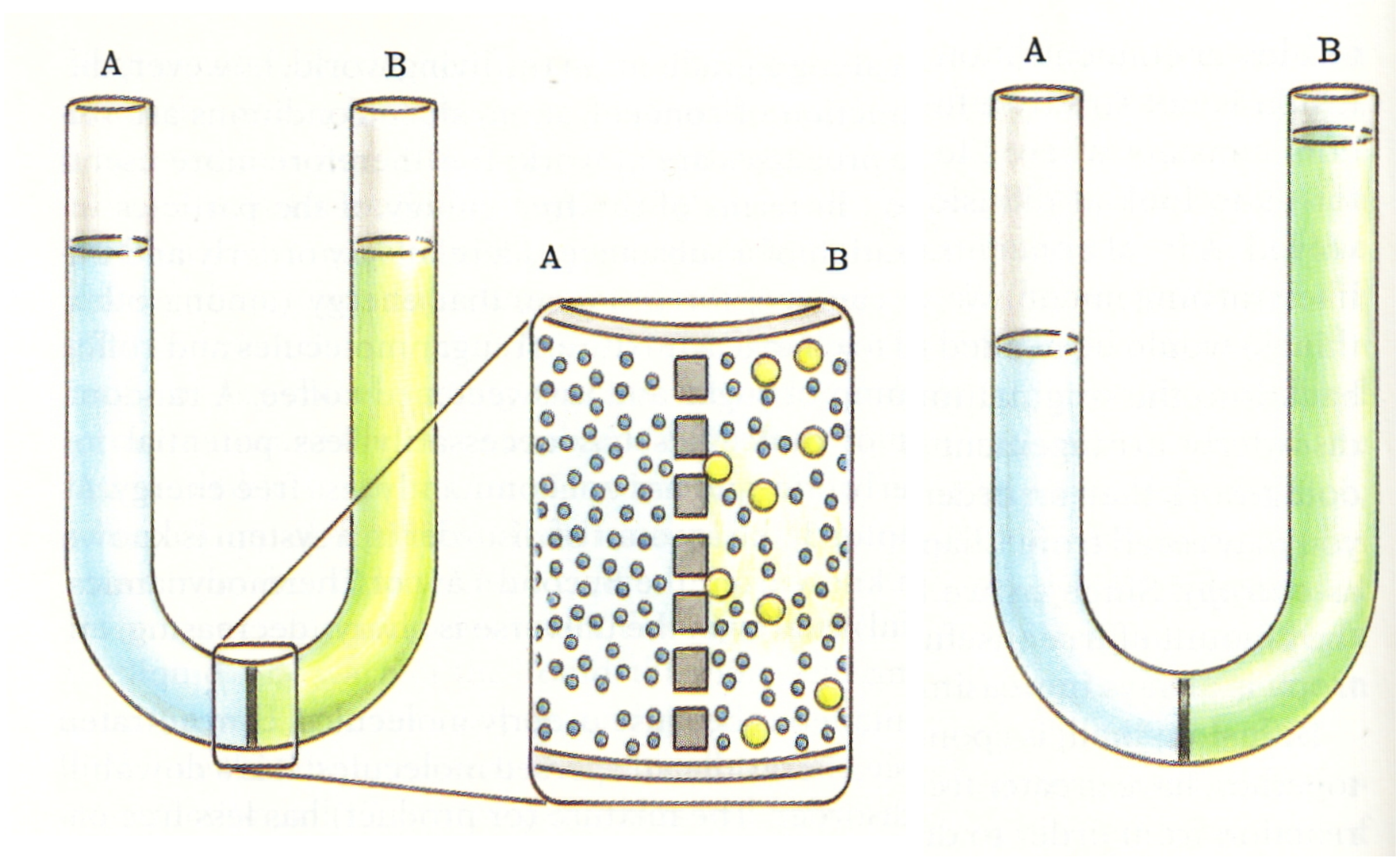
Water follows solute (salt)

HEY!

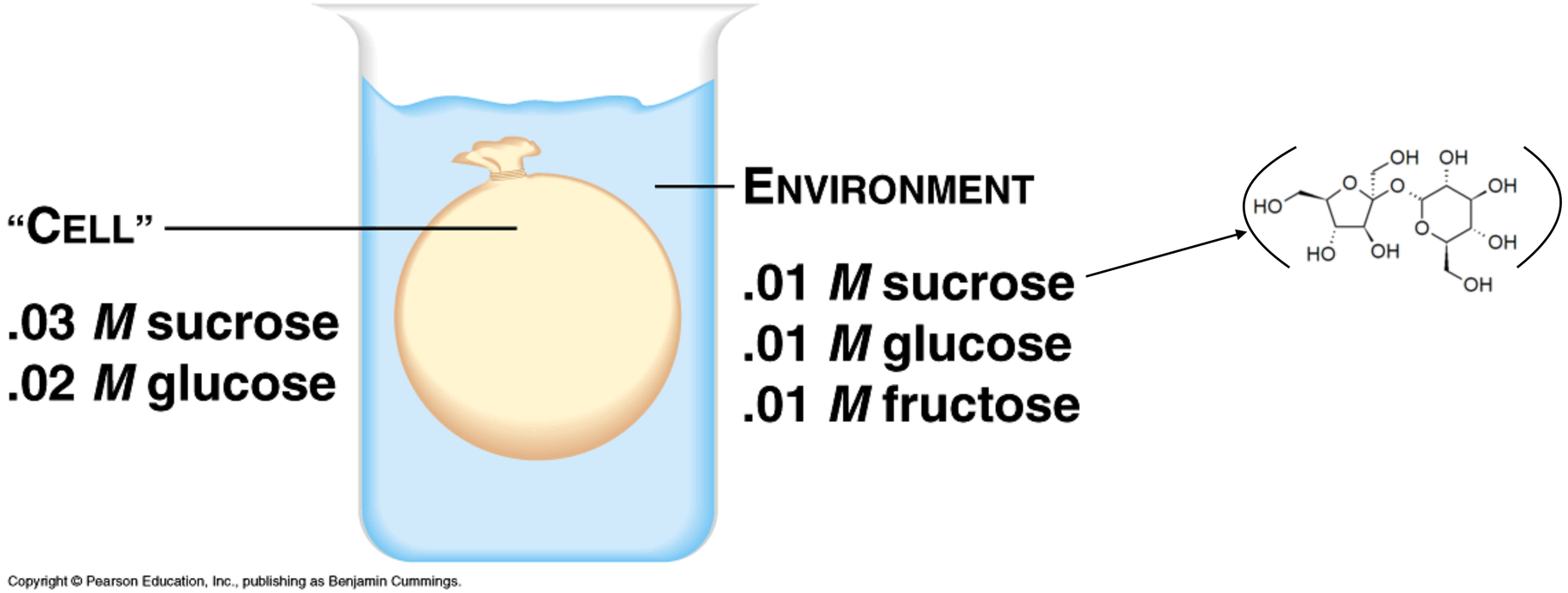


(a) Diffusion of one solute (b) Diffusion of two solutes

Osmosis (diffusion of water)



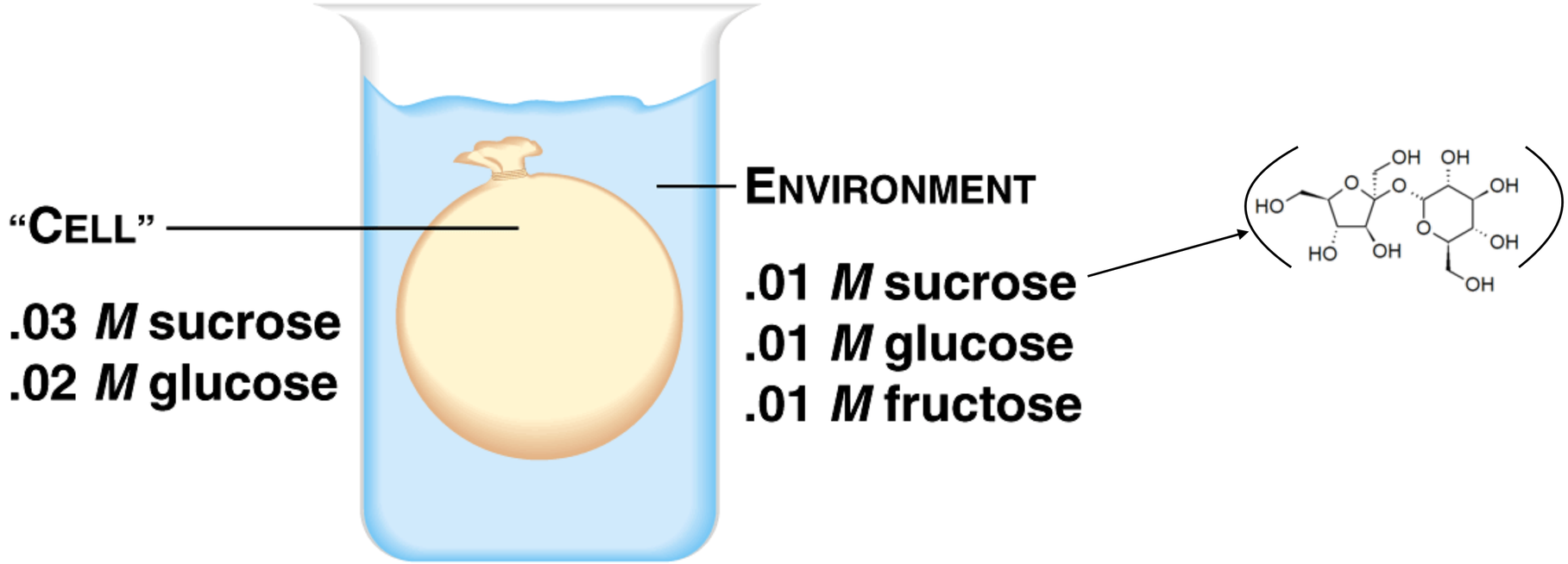
An artificial cell with an aqueous solution enclosed in a selectively permeable membrane has just been immersed in this beaker.



If the membrane is permeable to water and monosaccharides…

1. Which solutes will diffuse into the cell?
2. In which direction will water move?
3. Is the cell's solution iso, hypo, or hypertonic to the beaker's?
4. Will the cell die?

An artificial cell with an aqueous solution enclosed in a selectively permeable membrane has just been immersed in this beaker.

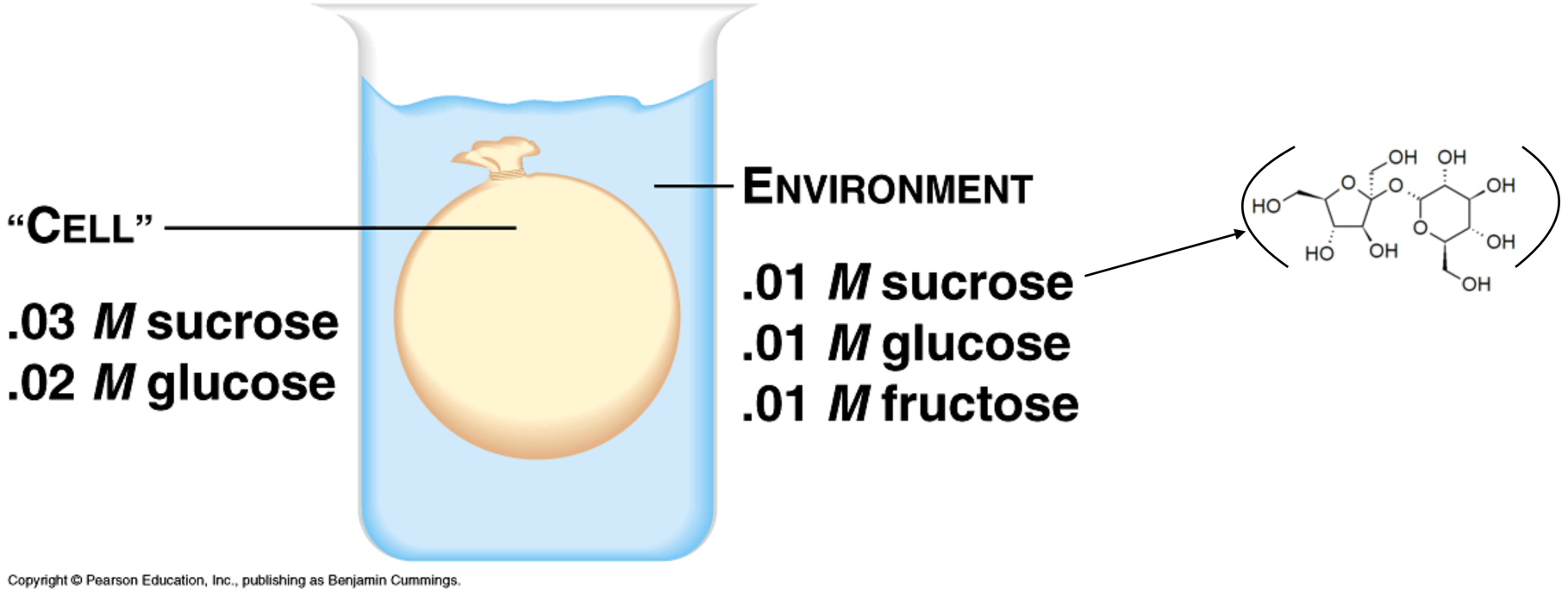


If the membrane is permeable to water and monosaccharides…

1. Which solutes will diffuse into the cell?

A. sucrose
B. fructose
C. glucose

An artificial cell with an aqueous solution enclosed in a selectively permeable membrane has just been immersed in this beaker.



If the membrane is permeable to water and monosaccharides…

2. In which direction will water move?

A. Into the cell causing it to swell up
B. Out of the cell causing it to shrink
C. Equally in both directions