PART 1 - MICROSCOPES

Directions: Label the parts of the microscope using the information you learned in science class. Remember that **spelling counts**!
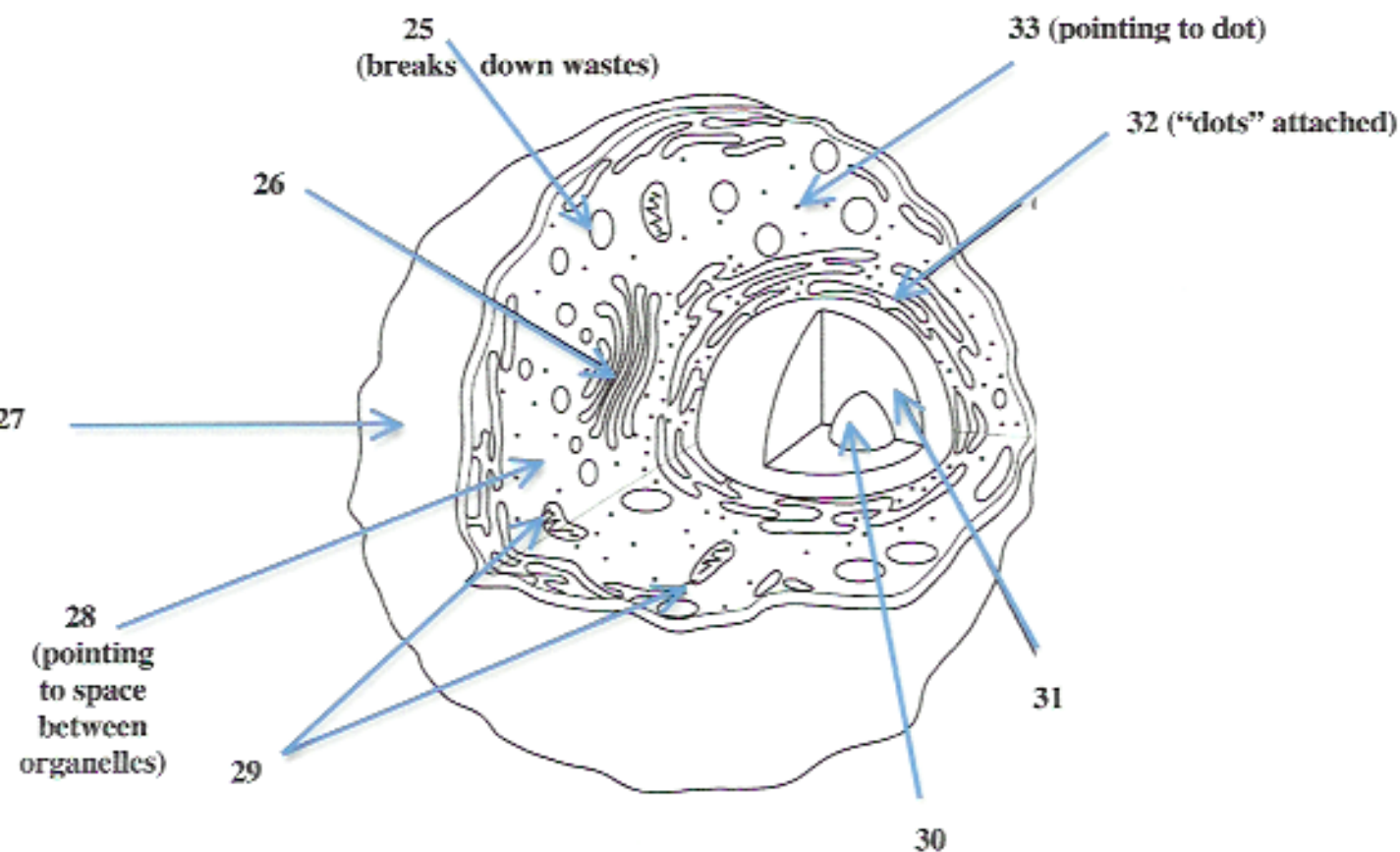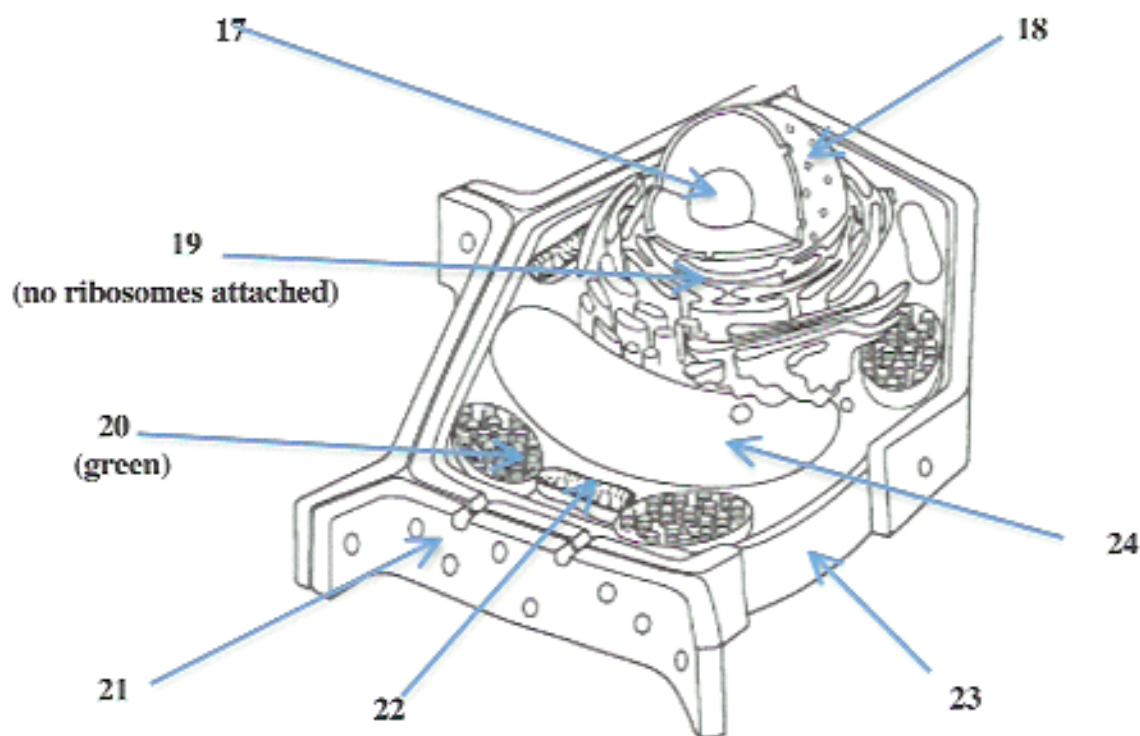
PART 2 - CELL THEORY

The Cell Theory States:

1) _____

2) _____

3) _____

Scientists Behind the Cell Theory:

• After looking at cork in his microscope, this scientist came up with the word "cell" to describe the little boxes that he observed. _____

• This scientist was the first person to see living cells. He called them animalcules, while in fact, he was looking at bacteria. _____

PART 3 – PLANT AND ANIMAL CELL DIAGRAMS

Write the correct cell part and remember that SPELLING COUNTS!

17

18

19
(no ribosomes attached)

20
(green)

21

22

23

24

25
(breaks down wastes)

33 (pointing to dot)

32 ("dots" attached)

26

27

28
(pointing
to space
between
organelles)

29

30

31

PART 4 – CELL TERMS (Organelles, Processes, etc)
Identify the term for each definition:

1) A complex cell with membrane-bound organelles. Includes animal and plant cells. _____

2) A primitive-like cell that has no membrane bound organelles. Bacteria are this type of cell. _____

3) A selectively permeable lipid bilayer that controls what enters and leaves the cell. _____

4) Cell part that provides support and protection to **plant** cells. It allows plants to grow upright. _____

5) Jellylike substance made mostly of H2O (60-70%) and a framework of tubes called the cytoskeleton. _____

6) Control center of cell that guides the cell's activities and stores DNA. _____

7) A small organelle inside the nucleus that is responsible for producing ribosomes. _____

8) This organelle contains a green pigment called chlorophyll that traps the sun's energy for photosynthesis. _____

9) A large organelle that stores water in the plant cell. The rigidity of a plant is affected when this shrinks or expands in each cell. _____

10) Cell organelle that contains digestive chemicals that break down wastes or used proteins in the cell. _____

11) This organelle changes, sorts, and tags proteins so that they may be delivered to the correct place in or out of the cell. _____

12) A series of folded membranes that processes and transports proteins within the cell using vesicles. _____

13) Puts together proteins which cells use for growth & repair. (Some are found attached to the rough ER.) _____

14) Powerhouse of the cell that turns glucose into energy (ATP). _____

15) Process in which sunlight, water, and CO2 are used to produce glucose and oxygen in plants. _____

16) Process in which oxygen and glucose from the bloodstream are used to produced ATP energy in a cell. Carbon dioxide and water are also made as waste products. _____

PART 5 – CELL PROCESSES

DIAGRAM #1: Complete the following steps on the full-page diagram on the next page.

_____ 1) Label the process of transcription
_____ 2) Label the proces of translation
~~_____ 3) Label the process of exocytosis~~
_____ 4) Label the DNA strand
_____ 5) Label the RNA strand
_____ 6) Label a ribosome
_____ 7) Label the amino acid chains
_____ 8) Label a folded protein
_____ 9) Color the nucleolus blue
_____ 10) Color the nucleus red
_____ 11) Outline the endoplasmic reticulum in green
_____ 12) Color the Golgi apparatus yellow
_____ 13) Color the cytoskeleton purple
_____ 14) Color all the vesicles orange
_____ 15) Label a motor protein carrying a vesicle

DIAGRAM #2: For the second full-page diagram, fill out the missing information inside each box, including the KEY.

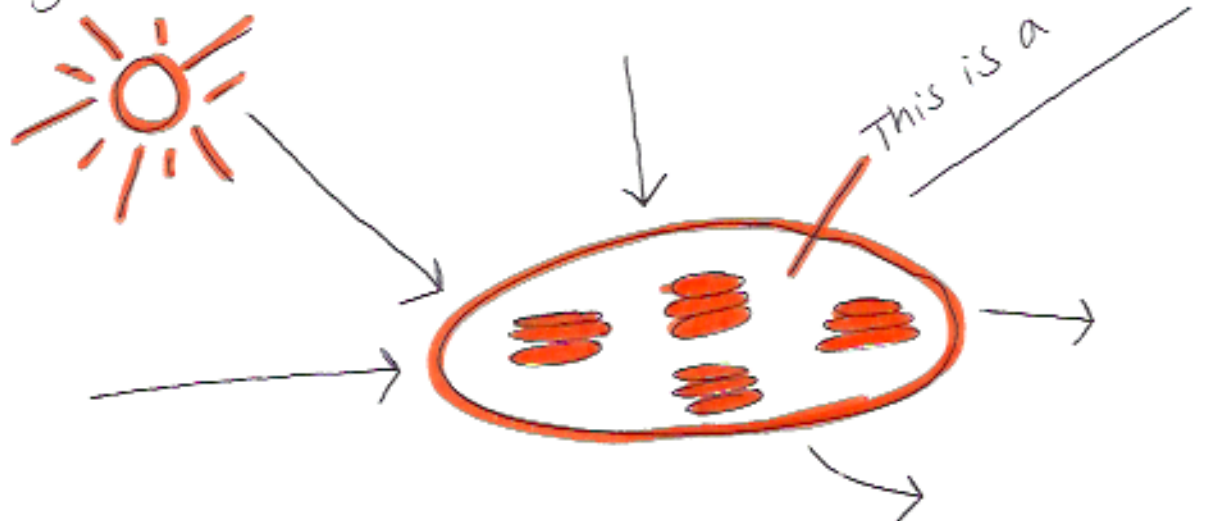Diagram #3: Label the illustration of photosynthesis below.
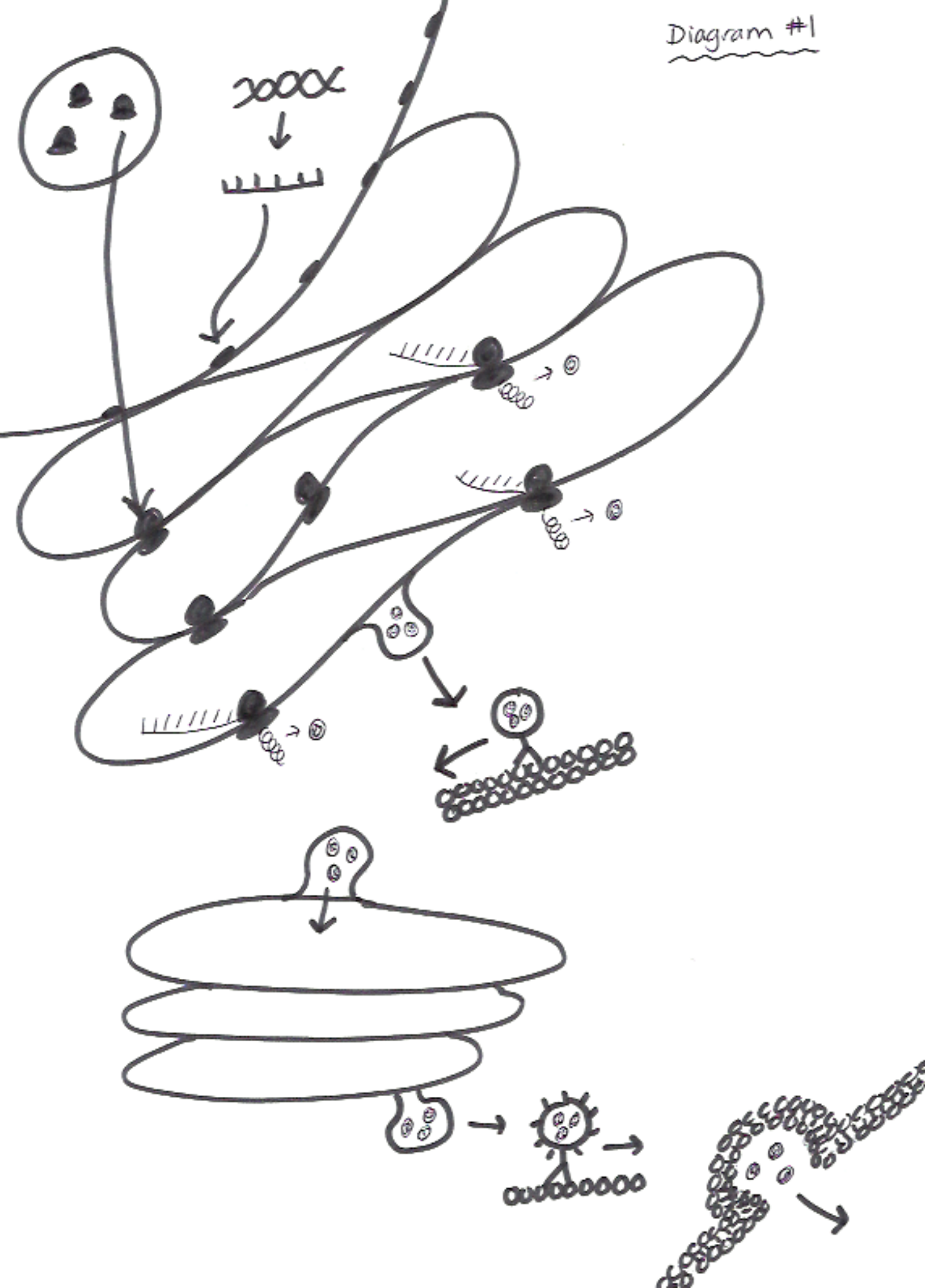
This is a _____.

Diagram #1

Diagram #2

The cell membrane is made up of a _____ bilayer that is selectively _____.

This is a _____ going through _____.

This is a _____ going through _____.

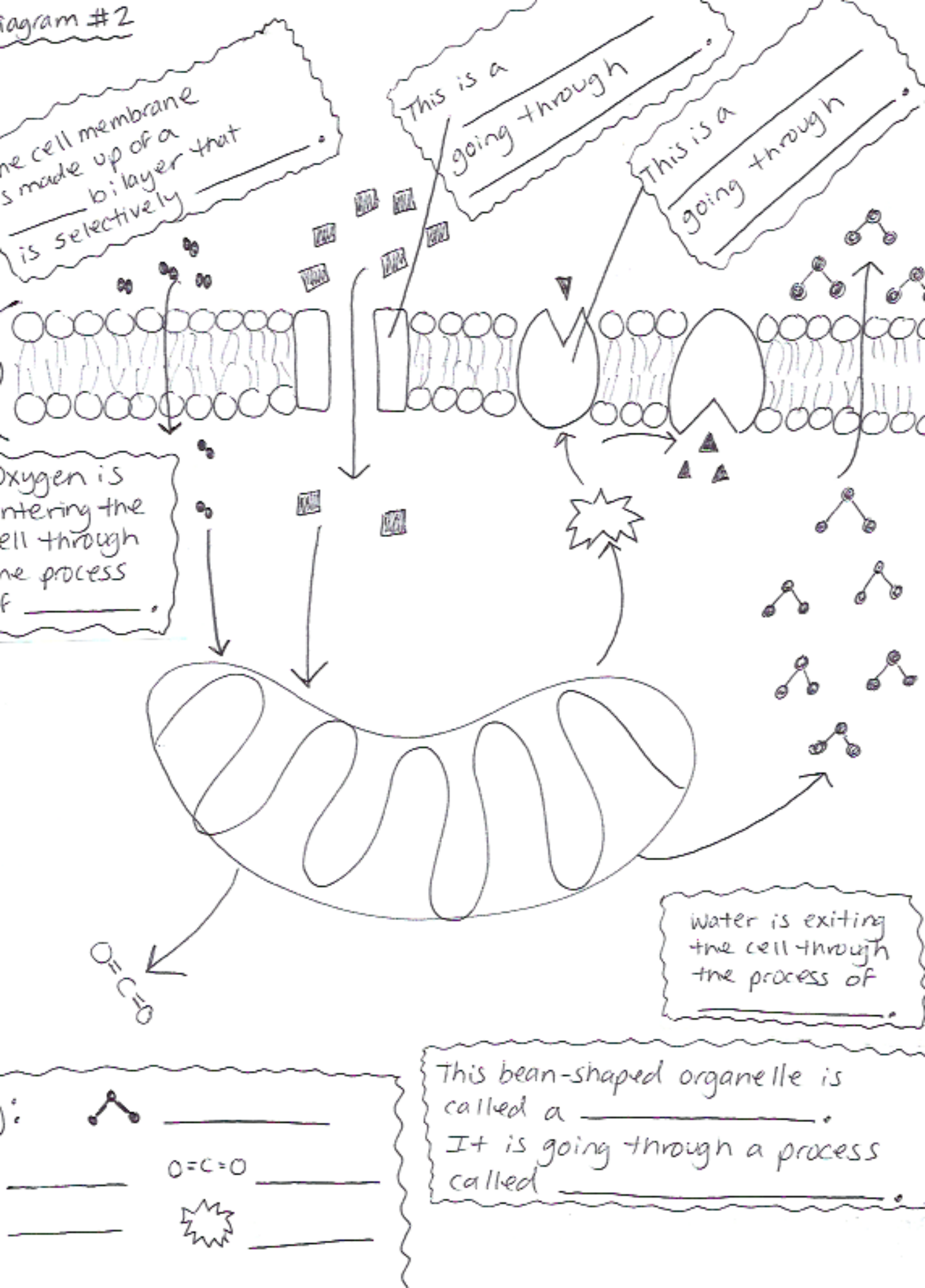Oxygen is entering the cell through the process of _____.

Water is exiting the cell through the process of _____.

This bean-shaped organelle is called a _____. It is going through a process called _____.

O=C=O _____

_____

O=C=O _____

_____

Review Questions

1.   What is the cell membrane made of? (Be specific!)

2.   Why is the cell membrane called the "border patrol"? (EXPLAIN how it is selectively permeable.)

3.   Where does cell respiration take place? What is the importance of this process and how does it relate to the human body systems?

4.   Where does protein synthesis take place? What other processes are involved in making a protein?

5.   Why are vesicles and the Golgi body important to protein synthesis?

6.   Which is more complex: prokaryotic cell or eukaryotic cell? EXPLAIN.

7.   How does the cell wall affect the plant cell's appearance and the way that it changes when exposed to different watery environments?

8.   Why is it important for plant cells to have larger vacuoles than animal cells?

9.   Compare and contrast photosynthesis and cell respiration.

10.   What does H_2O stand for? CO_2? O_2? $C_6H_{12}O_6$?