

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

## Cell Membrane and Cell Transport

**Directions:** Go to [www.biologybynapiers.com](http://www.biologybynapiers.com), The Cell Transport Unit at the top of the left column, and find the link for the Online Build a Plasma Membrane. You may also google: "Bioman cell defense" and choose the first link.

**Cell Defense!** Start a new game. Read all instructions! Choose each challenge and answer the questions below.

### Click on Build a membrane

Read your mission. Answer the questions as you read.

1. Why would cells die without a cell membrane?
2. Define Hydrophilic: \_\_\_\_\_  
Define Hydrophobic: \_\_\_\_\_
3. What two molecules move across the membrane freely?

**Add channel proteins. When the next urgent message appears answer #4.**

4. When does the transport of substances stop? When \_\_\_\_\_ is reached.
5. In which direction do molecules move during passive transport? From \_\_\_\_\_ concentration to \_\_\_\_\_ concentration.
6. Define Diffusion: \_\_\_\_\_  
Define Facilitated Diffusion: \_\_\_\_\_

**Answer #6 - #8 before clicking "I Understand"**

7. What is needed to move a substance from a low concentration to a high concentration (against the gradient)?
8. What structure allows molecules to move from low to high concentration across the membrane?
9. Why is this called active transport?
10. Add carrier proteins and click on the ATP molecules. What happened?

### Go back to main menu and choose: Membrane Structure Challenge

Read your mission. Answer the questions as you read.

11. Play until you can click on everything correctly!

### Go back to main menu and choose: Diffusion Challenge

Read your mission. Answer the questions as you read.

12. How many CO<sub>2</sub>s and O<sub>2</sub>s were moved across the membrane to reach equilibrium? \_\_\_\_\_

### Go back to main menu and choose: Energy and Transport Challenge

Read your mission. Answer the questions as you read.

13. What is used for energy to pump sugar across the concentration gradient in active transport? \_\_\_\_\_  
(Hint: you have to click on it to make the sugar move)

## **Go back to main menu and choose: Osmosis Challenge**

Read your mission. Answer the questions as you read.

14. What moves during osmosis?

15. If there is less solute in a solution, there is \_\_\_\_\_ water.

16. If there is more solute in a solution, there is \_\_\_\_\_ water.

17. Water moves from a \_\_\_\_\_ solution to a \_\_\_\_\_ solution.

18. What helps water pass through the cell membrane?

19. What did you have to add to the cell membrane to accomplish your mission and reach equilibrium of water?

20. Why did the carrier protein need ATP to move sugar across the membrane?