




Cell Theory 4 Practice Quiz

This practice test is designed to help you determine what concepts you DO know and more importantly what concepts you DO NOT know!

Go through the practice test THREE times:
(1) On your own (2) With your notes (3) With another student







Each time, if you cannot answer a question, draw a circle around it to identify that you should review this concept when preparing for the test.

1. Summarize the 3 key points of the cell theory.

1. All living things are made up of one or more cells.
2. A cell is the basic unit of life
3. All cells came from pre-existing cells.

2. What is the difference between a prokaryotic and eukaryotic cell? Give an example of each.

Prokaryotic cell

- Simple cell
- No membrane bound nucleus
- Ex. bacteria

Eukaryotic cell

- More complex cell
- Contains a membrane bound nucleus
- Ex. humans

3. Describe one difference between bacteria and viruses.

Bacteria are living and viruses are non-living.

4. What process causes water to enter and leave the cell?

Osmosis

5. Diffusion vs. Osmosis

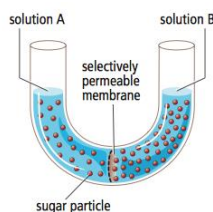
a. How are diffusion and osmosis similar?

Particles are moving. Result is an equal concentration.

b. How are they different?

In the process of diffusion, the particles are free to move in all directions. In the process of osmosis, only the water molecules move across the semipermeable membrane to achieve equal concentration.

6. Which way will the water flow in the diagram below? Explain.



Water will flow to the right side to balance out the concentrations

7. During class someone peels an orange. Why will everyone in the class not smell the orange at the same time? Explain and draw a diagram.

The students will not smell the orange at the same time. The people sitting closest to the orange will smell it first because the particles start with a high concentration closer to the orange and then it will eventually spread to the rest of the classroom (area of low concentration). This is a process called diffusion

8. You have just bought a tropical fish for your freshwater aquarium. Unfortunately, you do not realize it is a saltwater fish. Using your knowledge of osmosis, explain why this fish will not survive in your aquarium.

The fish is accustomed to living in a saltwater environment. In a freshwater aquarium, the concentration of salt is too low in the water so water from the surroundings will enter the cells of the fish which may cause the cells of the fish to burst.

9. The tables below show the results of an experiment to find the effect of osmosis on potato cells. Two cubes of potato were weighed and placed in purified water, and another two cubes were weighed and placed in salt water. The mass of each potato cube was then measure every 15 minutes for an hour.

Time (min)	Salt Water		
	Cube 1 Mass (g)	Cube 2 Mass (g)	Average Mass (g)
0	59	60	59.5
15	58	58	58
30	50	55	52.5
45	50	54	52
60	50	53	51.5

Time (min)	Purified Water		
	Cube 1 Mass (g)	Cube 2 Mass (g)	Average Mass (g)
0	51	52	51.5
15	51	52	51.5
30	52	53	52.5
45	53	54	53.5
60	55	53	54

- a. Calculate the average mass of the potato cubes in purified water and the average mass of the potato cubes in salt water for each time interval. Write your results in the last column of each table.

$$\text{Average Mass} = (\text{Cube 1 Mass} + \text{Cube 2 Mass}) \div 2$$

- b. What happened to the mass of the potato cubes in purified water? Why?

The mass decreased. Water left the cells of the potato.

- c. What happened to the mass of the potato cubes in salt water? Why?

The mass increased. Water entered the cells of the potato.