

CHOOSE 1 of the following 2 questions

9. In class we discussed/worked with the cell membrane extensively. Please describe in detail what you learned about their function and form.

10. Explain the difference between Diffusion and Osmosis and provide an example for each within your response.

(4)

The difference between Diffusion and Osmosis is diffusion is the movement through the cell membrane. Osmosis is when particles move from a hypotonic to a hypertonic ~~fluid~~ ^{solution}. Ex: When a skunk sprays but you're across the road you don't smell it right away, but the particles are moving across the road to you. That is an example of diffusion. Ex: When you put a potato in salt water it comes out squishy and smaller that is an example of osmosis. The water would be a hypertonic solution compared to the potato which is a hypotonic the salt water would go through the membrane and the membrane would want to make it a isotonic and will move the water through the membrane, and salt is a hypotonic solution and will make the potato shrink.

Application:

7. The following are the characteristics that a living organism. To be considered alive, an organism MUST exhibit ALL of these characteristics.

1. Living things are made of cells.
2. Living things obtain and use energy.
3. Living things grow and develop.
4. Living things reproduce.
5. Living things respond to their environment.
6. Living things adapt to their environment.

a) Choose **the BEST one** of the above characteristics to explain each scenario
List the number from above beside each. (levelled)

a. A tad pole changes into a frog

3 - living things grow and develop.

b. A squirrel feeds on nuts

2 - living things obtain and use energy.

c. A human shivers when cold

5 - living things respond to their environment.

d. A fish evolved from a land animal to be able to live in the water

6 - living things adapt to their environment

b) Prove to me that something is living by explaining how that organism fits all of the above characteristics of living things. (levelled)

A human is a living thing because

• they need to eat food to survive (obtain energy) and use energy when moving and exercising (use energy)

• We adapt to our environment because in warmer places people have dark skin ~~because that's~~ melanin that protects your skin. Also if you're in the sun for a long time you get tan or freckles which is melanin protecting you.

• We reproduce by having children.

• We respond to our environment by sweating when we're hot.

• We are made up of cells because ~~we start out~~ when we are in our mothers' stomachs, we have very few then when we grow we get more and more cells.

8. Define the terms solute and solvent and provide an example in your answer.

Solute - Solute is a term for something that dissolves into a solvent, spreading out evenly across the solvent. An example of a solute is when you have a powdered drink mix and you dissolve it into water. The solute is the drink mix.

Solvent - it is a term for what the solute dissolves into. A solvent is almost always water. An example is when you have water and you mix something into it, the solvent is the water.

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Cell membrane is like a gatekeeper; it decides what goes in or out of the cell. There are three kinds of cell membrane:

Ex: milk bag [impermeable
Nothing can get in or out of the cell

plain beaker [permeable
Everything gets in and out of the cell.

mesh [selectively permeable
certain things can get in and out of the cell.

In selectively permeable membranes, if something wants/needs to get in or out of the cell, it needs a pore a.k.a. a protein channel. Every different particle needs its own to travel through.

10. Explain the difference between Diffusion and Osmosis and provide an example for each within your response.

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10. Explain the difference between Diffusion and Osmosis and provide an example for each within your response.

Diffusion is when ^{any type of} molecules move from an area of high concentration to an area of low concentration to even them out. An example is when someone is cooking in the kitchen and you can smell it in the living room.

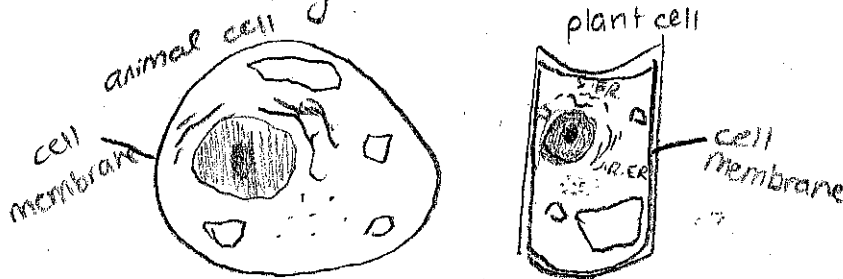
(4)

Osmosis is when water molecules move from an area of high water molecules (hypotonic), to an area of low water molecules (hypertonic). An example of this when the egg was placed in water, after it had been in corn syrup, it filled up with water and expanded because the water moved inside the egg because the egg was hypertonic compared to the water (the water was hypotonic). During Osmosis water always moves from a hypotonic solution to a hypertonic solution.

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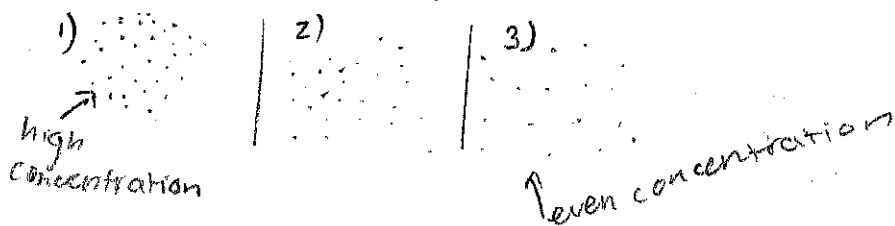
9. In class we discussed/worked with the cell membrane extensively. Please describe in detail what you learned about their function and form.

The cell membrane is what goes around all the organelles. The cell membrane can be permeable (lets everything through), impermeable (nothing through), or semi-permeable (some things through). Normally they are semi-permeable. In plant cells the cell wall is the outer layer, but in animal cells it is the cell membrane. The cell membrane acts like a boarder, and decides what goes in or out of the cell, depending on what is needed. In semi-permeable membranes, normally only the water is let through. Larger molecules can get through the membrane using a protein channel, which acts like a key. animal and plant cells are semi-permeable.



10. Explain the difference between Diffusion and Osmosis and provide an example for each within your response.

Diffusion is the movement of molecules from an area of high concentration to low concentration. Diffusion will occur until there is an even concentration. An example of diffusion is skunk spray. The smell travels quickly, and starts really bad in one spot, but then evens out through diffusion.



Osmosis is the movement of water molecules into or out of the cell membrane. The water will move from a hypotonic solution to a hypertonic solution, to even out the concentration. osmosis will continue to occur until there is an even concentration. An example is the potato piece in tap water. The water was hypotonic thus moved through the cell membrane into the potato which was the hypertonic solution. In result the potato got bigger as the water filled the vacuole.

Application:

7. The following are the characteristics that a living organism. To be considered alive, an organism MUST exhibit ALL of these characteristics.

1. Living things are made of cells.
2. Living things obtain and use energy.
3. Living things grow and develop.
4. Living things reproduce.
5. Living things respond to their environment.
6. Living things adapt to their environment.

* 7. Living things produce waste

a) Choose **the BEST one** of the above characteristics to explain each scenario
List the number from above beside each. (levelled)

a. A tad pole changes into a frog #3 (They grow/develop)

b. A squirrel feeds on nuts #2 (Obtain/use energy)

c. A human shivers when cold #5 #5 because the body is reacting
to the cold environment.

d. A fish evolved from a land animal to be able to live in the water #6 (adapt)

b) Prove to me that something is living by explaining how that organism fits all of the above characteristics of living things. (levelled)

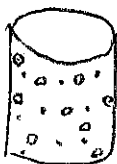
Canada Goose

1. Goose has millions of animal cells
2. Eat seeds/grass/marsh/insects/water ✓
3. Starts as a gosling, develops into an adult goose.
4. Lay eggs → when fertilized turns into a gosling
5. Fly south when cold, back north in the summer.
6. Shed feathers, pluck them sometimes when hot
7. Bird droppings on rooves, cars ...

8. Define the terms solute and solvent and provide an example in your answer.

Solutes are what is being put into the solvent (salt/sugar)

Solvents are the body of (normally) liquid that dissolves the solute.



• water → Solvent
○ sugar → Solute ✓