3/31/11

Osy Assessments

Goals

Upon completion of their playing of Osy, a) students will understand that water moves across semi-permeable membranes in response to concentration gradients, b) students will understand that the extreme of too much water entering the cell can result in lysis and that the extreme of water leaving the cell can result in crenation (e.g., cell death in both cases).

Bank of questions for pre- and post-tests

1. When a cell enters a region in which solute concentration is high, water in that cell will do which of the following?

Move out of the cell

Move into the cell

Not change

2. When a cell contains a higher concentration of solutes than are present in the surrounding liquid environment, water in that cell will do which of the following?

Move out of the cell

Move into the cell

Not change

3. When a cell enters a region in which solute concentration is low, water in that cell will do which of the following?

Move out of the cell

Move into the cell

Not change

4. When a cell contains a lower concentration of solutes than are present in the surrounding liquid environment, water in that cell will do which of the following?

Move out of the cell

Move into the cell

Not change

5. Movement of water into a cell due to differences in solute concentrations can cause which of the following?

An increase in cell size

A decrease in cell size

No change in size

6. Movement of water out of a cell due to differences in solute concentrations can cause which of the following?

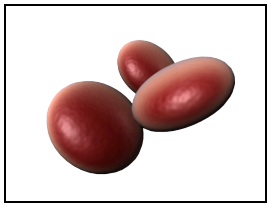
An increase in cell size

A decrease in cell size

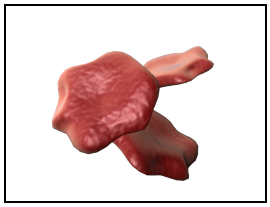
No change in size

Answer the following questions using these three images of red blood cells in different solutions.

Solution A. (normal)



Solution B.



Solution C.

7. Compared to Solution A, Solution B has:

the same concentration of solute

a higher concentration of solute

a lower concentration of solute

8. Compared to Solution A, Solution C has:

the same concentration of solute

a higher concentration of solute

a lower concentration of solute

9. Compared to Solution B, Solution C has:

the same concentration of solute
a higher concentration of solute
a lower concentration of solute

10. Explain why the movement of water into and out of cells due to differences in solute concentrations is dependent upon the cell membrane being semi-permeable.

11. Explain how the movement of water into or out of a cell due to differences in solute concentrations can result in cell death.

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Bank of questions for post-test after playing Osy game

1. When "Osy" moves into an area of low concentration, which should you do?

Add solute particles to "Osy"

Remove solute particles from "Osy"

Do nothing, she will adjust

2. When "Osy" begins to swell, which environment is she in?

High concentration of solute

Low concentration of solutes

Same concentration of solutes

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3. When "Osy" begins to shrink, which environment is she in?

High concentration of solute

Low concentration of solutes

Same concentration of solutes

4**. What process accounts for the change in Osy's size during the game?**

5. Explain why Osy changes size when she moves into pure water?

6. When Osy contains a few particles and is surrounded by many particles, she will:

Swell

Shrink

Stay the same size

7. When Osy contains many particles and is surrounded by a few particles, she will:

Swell

Shrink

Stay the same size

8. In osmosis, water molecules move across a semi-permeable membrane from areas of:

High concentration to low concentration

Low concentration to high concentration

Equal concentration to equal concentration