

**Introduction:** Cells have an outer covering called the cell membrane. This membrane is selectively permeable; it has tiny pores or holes that allow objects to move across it. The cell membrane controls what moves in and out of the cell. **Osmosis is a special type of diffusion; it is the diffusion of water across a selectively permeable membrane. Osmosis occurs when water moves from an area where it is more concentrated to an area where it is less concentrated.** Your teacher has already taken the first step and dissolved the shell from the egg (cell). We will place the egg in two different solutions, hypotonic (water) and hypertonic (sugar solution) to help understand osmosis.

**Purpose:** Explain diffusion, osmosis, hypertonic, and hypotonic.

**Problem:** How can an egg be used to prove osmosis has occurred?

**Materials:** · One egg · Two beakers · Water · Sugar Solution · Scale · Tape

**Procedure:**

Day 1:

- Obtain one beaker and label it **Hypotonic Solution**
- Obtain an egg from the jar on the side table and dry it off.
- **Weigh your egg and record its initial mass in the table below.**
- Place your egg in the beaker labeled **Hypotonic Solution** and cover it **pure water only**

Day 2:

- Remove your egg from the **Hypotonic Solution** (pure water), dry it off, weigh it and record its mass in the table below.
- What happened to the egg? \_\_\_\_\_
- How much mass did the egg gain? \_\_\_\_\_
- Label your beaker **Hypertonic Solution**
- Now place your egg in a beaker labeled **Hypertonic Solution** and cover it with **saturated glucose solution.**

Day 3:

- Remove your egg from the **Hypertonic Solution** (glucose solution), dry it off, weigh it and record its mass in the table below.
- What happened to the egg? \_\_\_\_\_
- How much mass did it lose? \_\_\_\_\_
- What do you think caused it to lose mass?  
\_\_\_\_\_  
\_\_\_\_\_

	Initial	After being placed in a hypotonic solution (1)	After being placed in a hypertonic solution (1)
Egg Mass			

**Questions:**

1.) Define Diffusion: (1)

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2.) Define Osmosis: (1)

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3.) Define Hypertonic: (1)

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4.) Define Hypotonic: (1)

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5.) **If the solution is hypotonic then the cell must be hypertonic to the solution.** Which direction did the water move when the hypertonic cell was placed in the hypotonic solution? (1)

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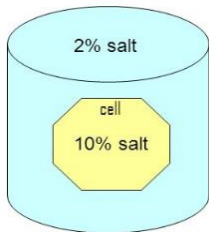
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6.) **If the solution is hypertonic then the cell must be hypotonic to the solution.** Which direction did the water move when the hypotonic cell was placed in the hypertonic solution? (1)

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7.) Using your new gained knowledge of hypertonic and hypotonic solutions, explain what direction water would move in the two cells below and describe what would have happened to the cell? (2)

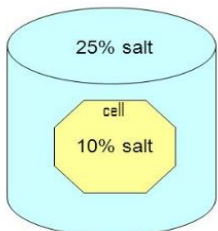


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