



Name \_\_\_\_\_ Hr. \_\_\_\_\_

## Osmosis and the Egg

**Knowledge Probe:** Osmosis is the diffusion of water across a selectively permeable membrane. This means that water can go through membranes from areas where there are a lot of water molecules to areas where there are not so many water molecules.

To perform their functions, cells must keep an internal **steady state** even when the environment outside of the cell is changing. This steady state is called **homeostasis**. Homeostasis is maintained, in part, by controlling the movement of materials into and out of the cell. To achieve this control, cells are surrounded by a membrane that can tell different substances apart, and can slow down or stop the movement of some substances while allowing others to pass through freely. Because not all substances can go through the cell membrane equally well, the membrane is said to be **selectively permeable**.

**Selectively permeable membranes** are those that have openings called **pores** that let water, oxygen, carbon dioxide and certain other small molecules go through the membrane.

Cells in the human body need a constant supply of oxygen and water. They are also making carbon dioxide as a waste, and this needs to be removed from the cell. These substances can move into and out of a selectively permeable membrane around a cell through the process of **osmosis**.

Purpose: To observe osmosis in a cell.

### Day 1: Raw Egg

Observe the egg both quantitatively and qualitatively. Draw an accurate picture that helps describe your observations.

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**Day 2: Egg Soaked in vinegar**

Draw a diagram of the egg in the beaker. Use arrows to show the movement of particles in/out of egg. Make qualitative and quantitative observations.

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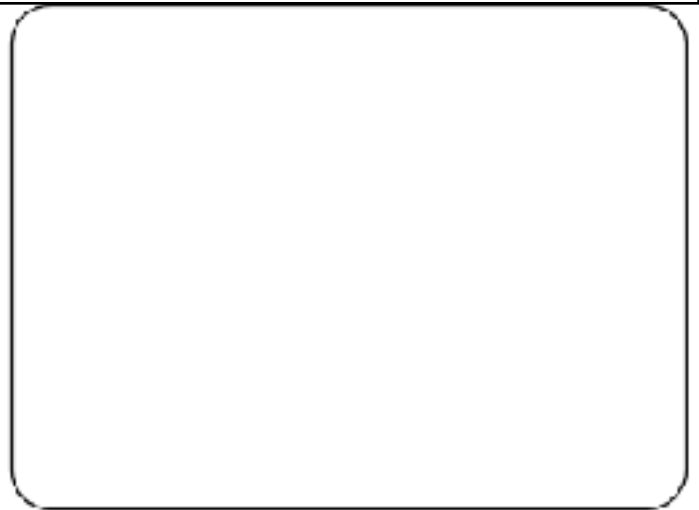
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**Day 3: Egg Soaked in Corn Syrup**

Draw a diagram of the egg in the beaker. Use arrows to show the movement of particles in/out of egg. Make qualitative and quantitative observations.

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## Day 4: Egg Soaked in Corn Water

Draw a diagram of the egg in the beaker. Use arrows to show the movement of particles in/out of egg. Make qualitative and quantitative observations.

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### Questions:

1. What is the term for when a substance evenly distributes itself (food coloring & water)?  
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2. Vinegar is an acid. What did the vinegar do to the shell of the **egg**?  
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3. An **egg** is the largest cell in the world. After the shell was removed, what organelle was the thin white layer around the **egg** (keeps the outside out and the inside in)?  
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4. Was there more of less vinegar in the beaker after the **egg** had been in it over night?  
\_\_\_\_\_ Why do you think this is so?  
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5. Was there more or less liquid in the beaker after the **egg** had been in the syrup over night?  
\_\_\_\_\_ Why do you think this is so?  
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6. Was there more or less liquid in the beaker after the **egg** had been in the water over night? \_\_\_\_\_ Why do you think this is so?  
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