

**Purpose:**

To learn about osmosis using a chicken egg.

**Hypothesis:**

**Date:** 10/31/11

The egg will gain weight because the maple syrup has more sugar than water, so osmosis would take the water from the syrup into the egg since there is more weight outside.

**Date:** 11/1/11

The egg will gain weight because there is a higher concentration of water inside the cup and a lower concentration of water inside the membrane. Osmosis would move the water outside the egg into the egg.

**Materials:**

- Raw chicken egg
- Vinegar
- Scale
- Maple syrup
- Water
- Rubbing alcohol
- Cups

**Procedures:**

1. Get an raw chicken egg, some vinegar, a scale, water, cups, and either maple syrup or rubbing alcohol.
2. Place the egg into some vinegar for around two days.
3. Take the egg out of the cup and peel off the remaining parts of the egg shell.
4. Weigh the egg and record the weight.
5. Place the egg into either rubbing alcohol or maple syrup for a day.
6. Make a hypothesis on the weight of the egg.

7. Weigh the egg and record the weight and weight change.
8. Make a hypothesis on the weight of the egg.
9. Place the egg into a cup filled with water for a day.
10. Weigh the egg and record the weight and weight change.

**Observations:**

**October 31, 2011**

- White streaks
- Smells like vinegar
- Not see through
- Yellowish
- Rubbery
- Soft
- Round

**November 1, 2011**

- Can see the yolk
- Has bubbles on the bottom of the egg
- Smells like maple syrup
- Looks like it's smashed/shrunk
- Yolk is more visible

**November 2, 2011**

- The egg grew bigger
- Lighter color
- Bubbles on the bottom of the egg
- Smells like a mix of vinegar and rotten eggs
- Alcohol egg had little water
- Alcohol egg had water ooze out slowly
- Alcohol egg looks like it's hard boiled inside
- Maple syrup egg squirts out water if popped slowly
- Maple syrup egg explodes if popped quickly

**Results/Data:****Day 1:** 10/31/11

Group	Beginning Weight	Solution	Hypothesis
1	79g	Alcohol	↓
2	76g	Alcohol	↓
3	82g	Alcohol	↓
4	86g	Alcohol	↓
5	81g	Maple syrup	↑
6	85g	Maple syrup	↑
7	81g	Maple syrup	↑
8	78g	Maple syrup	↑

**Day 2:** 11/1/11

Group	End Weight	Weight Change	Solution	Hypothesis
1	62g	↓17g	H2O	↑
2	59g	↓17g	H2O	↑
3	66g	↓16g	H2O	↑
4	68g	↓18g	H2O	↑
5	46g	↓35g	H2O	↑
6	51g	↓34g	H2O	↑
7	49g	↓32g	H2O	↑
8	47g	↓31g	H2O	↑

**Day 3:** 11/2/11

Group	End Weight	Weight Change
1	70g	↑8g
2	68g	↑9g
3	74g	↑8g
4	76g	↑8g
5	83g	↑37g
6	89g	↑38g
7	87g	↑38g
8	81g	↑34g

**Conclusion:**

The eggs that were put in alcohol didn't lose as much water as the maple syrup egg. This is because the alcohol had around 30% water in it already, so the egg wouldn't need to use more of its water to balance the water molecules out using osmosis. The maple syrup had more sugar and less water in it, so the egg in the syrup had to use more water to balance the water molecules out. When the eggs were placed in water (H<sub>2</sub>O), the eggs used osmosis to move the water molecules through the cell membrane and into the egg so the water molecules would balance out, since the egg had a lot less water than the water outside the egg. The alcohol egg didn't absorb as much water as the maple syrup egg since the alcohol egg lost less water on the first day.

# Egg Lab Report

November 2, 2011

Science/Period D