

## Experiment 3: Osmosis!

Eggs can be used as a proxy for a cell membrane. We can use them to see osmosis occur – the movement of water from high concentration of water, to low concentration of water. In this experiment, only the water is moving across the membrane.

### Materials:

- 3-4 fresh eggs
- White vinegar
- Corn syrup
- Distilled water (tap water will be OK if you can't get distilled)
- Sugar
- 3 bowls
- String or simple food scale

### Method:

1. Place each egg (you may want to do 4 in case one egg breaks) in a bowl deep enough that liquid can completely cover the egg. Cover it with vinegar – leave it for 1-2 days, until the shell is completely dissolved. Once it is dissolved, rinse off the egg (carefully!!), you are now ready to begin! Measure your egg by weighing it, or by using a string to measure the circumference of the egg (then measuring the string on a ruler). Record that measurement.
2. Place each egg in a different liquid: water, corn syrup and water with 1 tsp sugar dissolved in 1 cup of water). Make sure the eggs are completely covered.
3. For the next 3-4 days gently remove each egg and measure, then place back in the solution. Record the measurements and what the eggs look like. Try to do at the same time each day.
4. After 3-4 days, compare your results. One egg should have increased in size (water went in), one should have shriveled (water went out) and the last one should have remained the roughly the same. Remember we are looking at osmosis – so how much water is outside of the egg, vs. inside. If there is a lot outside (say with plain water), then the water will go from high concentration (outside) to low concentration (inside), making the egg swell. Now see if you can figure out what happened in the other two eggs!

