Cellular Respiration Review

Photosynthesis vs Cellular Respiration

- **Photosynthesis:**

CO_2+ water + solar energy → glucose + O_2

Opposites!

- **Cellular Respiration:**

glucose + O_2→ CO_2+ water + energy

Cellular respiration is basically photosynthesis backwards…!

Rubber Egg

Today we're going to do some modeling!

Scientific modeling that is!

Take a look at this egg… what do you notice?

This egg spent 48 hours in vinegar

What do you think happened to it?

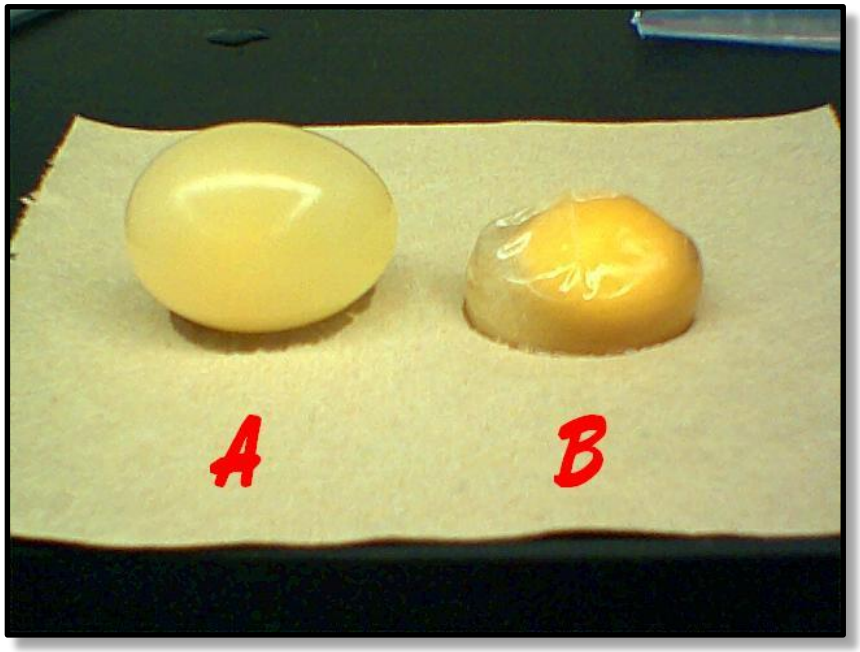

WIDE MOUTH

Now take a look at these 2 eggs

What do you notice now?

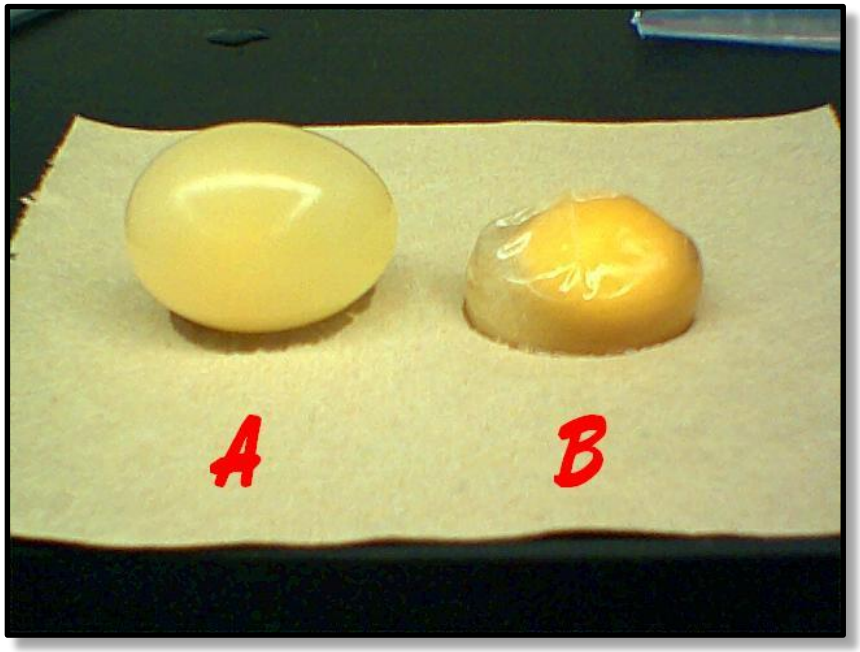
Additional Info

One egg was placed in plain water
And the other in super sugary water



What do you think happened to each of these eggs?

Why does the egg in the plain water look round and full?



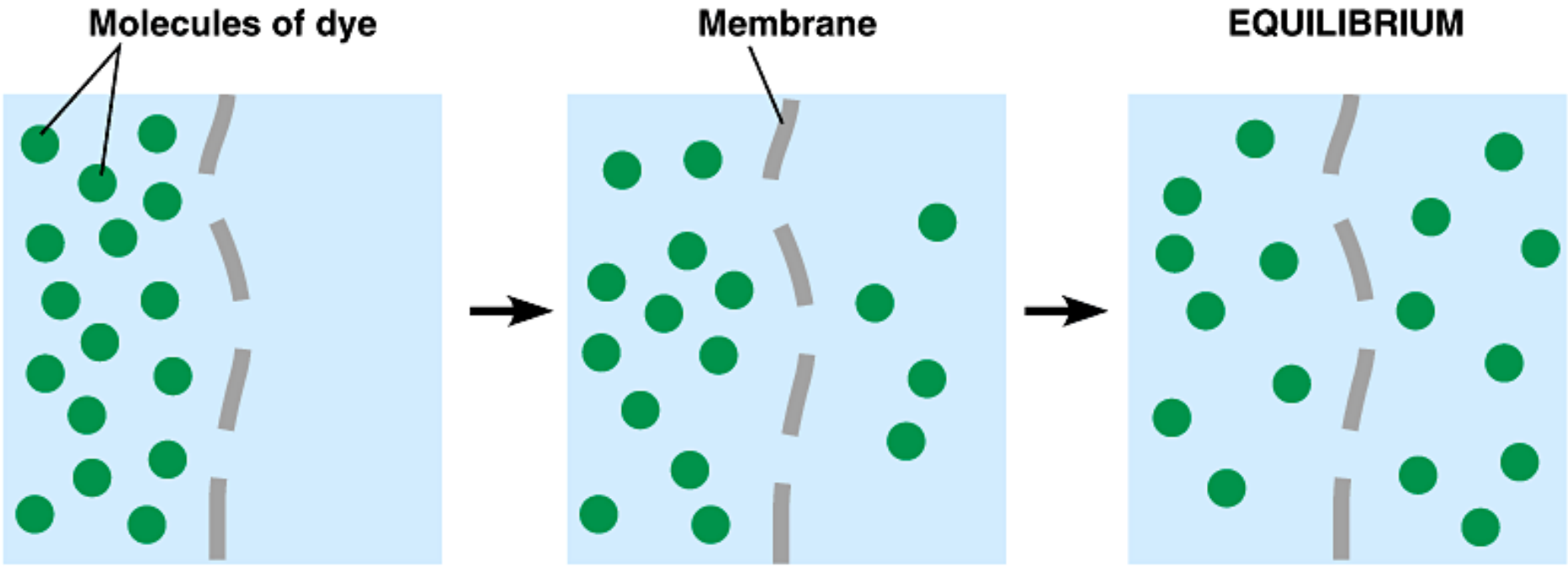
Why does the egg in the sugary water look all wrinkled and deflated?

Diffusion

- **Diffusion:**
  - **Movement of particles** from an area of **high** concentration to an area of **low** concentration

- Think back to the egg we just saw…the same thing will happen with a cell
  - Substances will move **across the membrane** from **high concentration** to **low concentration**

Diffusion

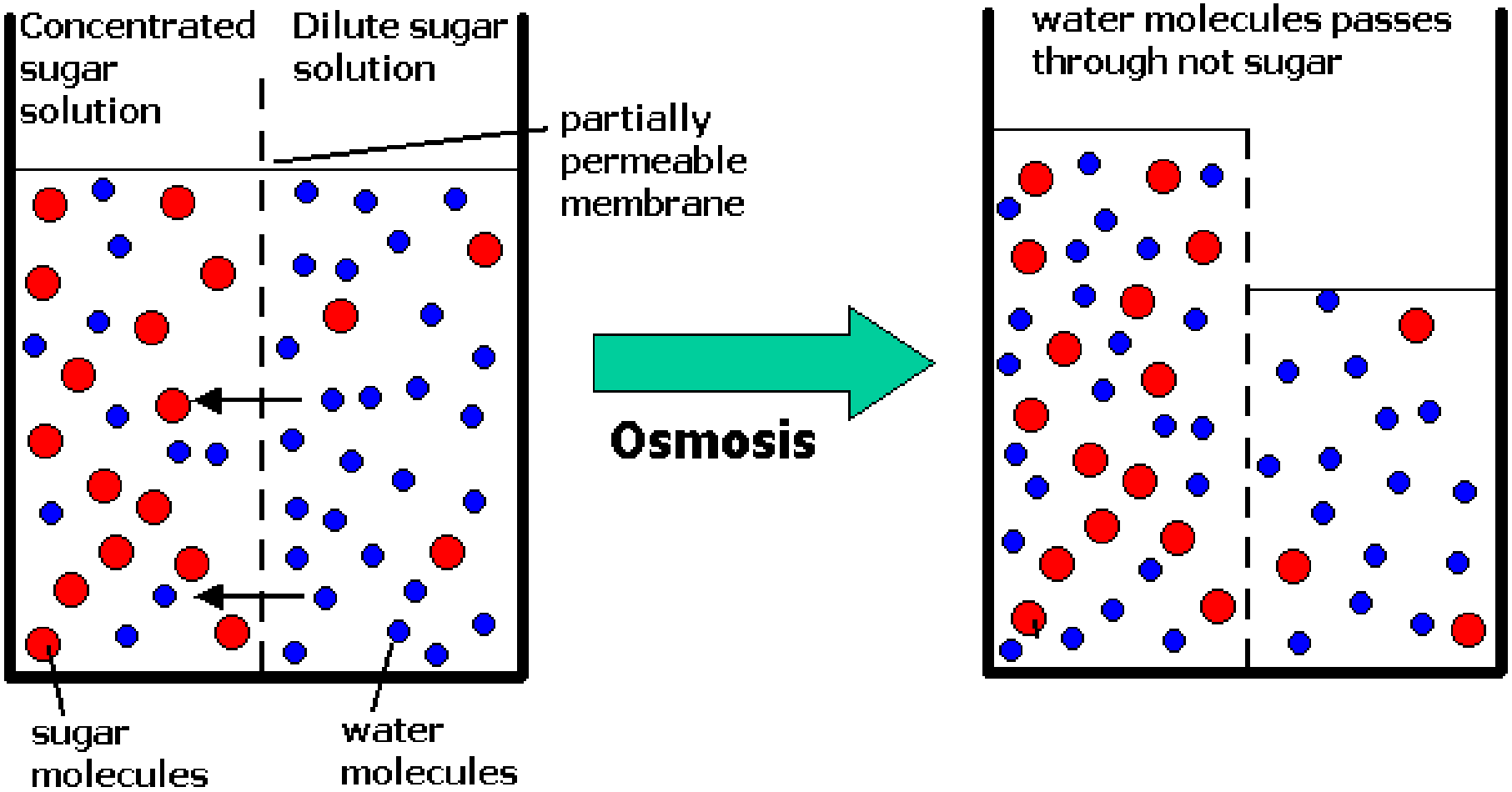


Osmosis

- When the substance undergoing diffusion is **water**, we call the process **osmosis**
  - The water will move across the membrane to establish equilibrium

- For both diffusion and osmosis, **movement across** the membrane continues until the **concentration is the same on both sides**

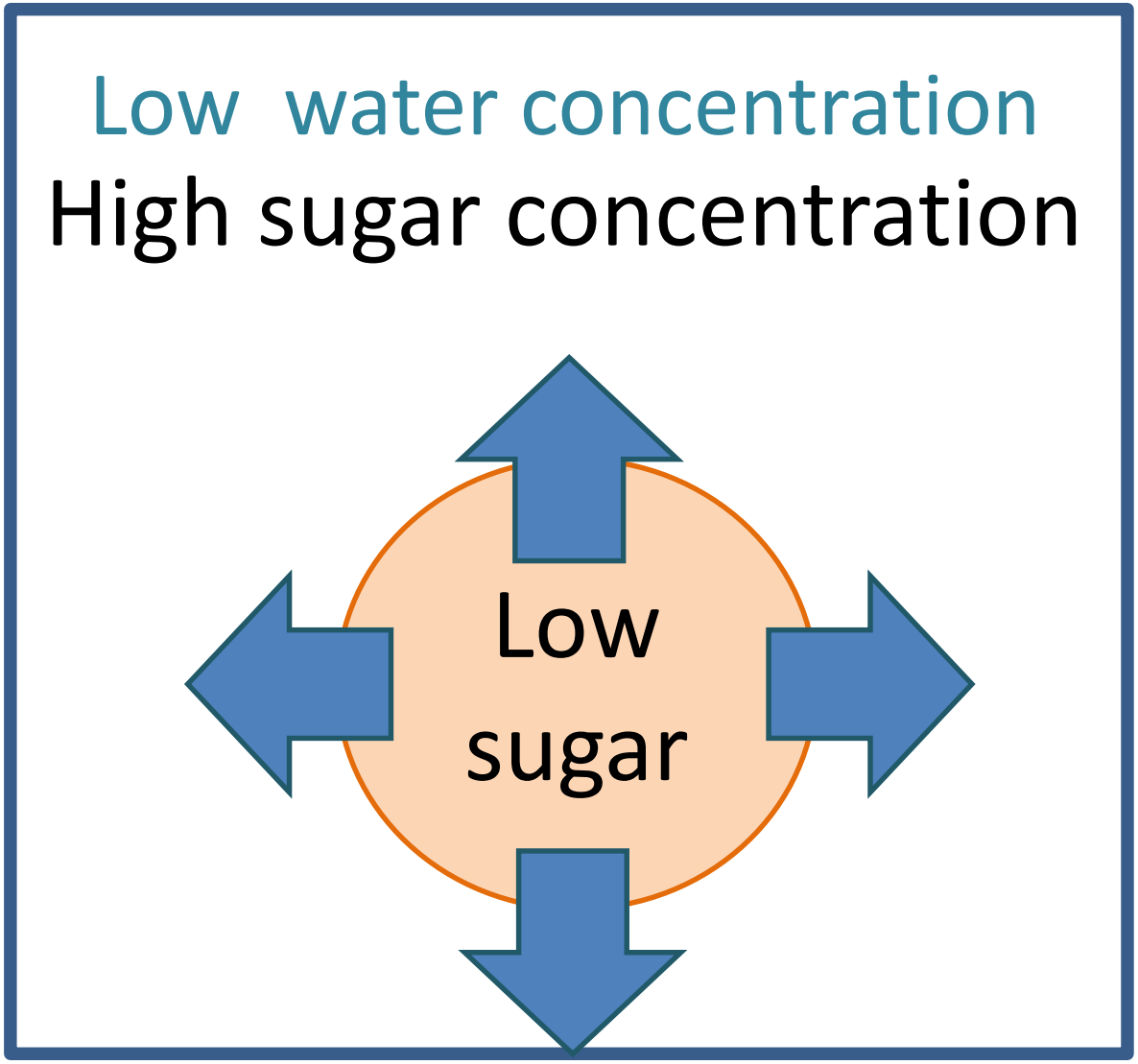
Osmosis


Concentrated sugar solution
Dilute sugar solution
partially permeable membrane
sugar molecules
water molecules
Osmosis
water molecules passes through not sugar

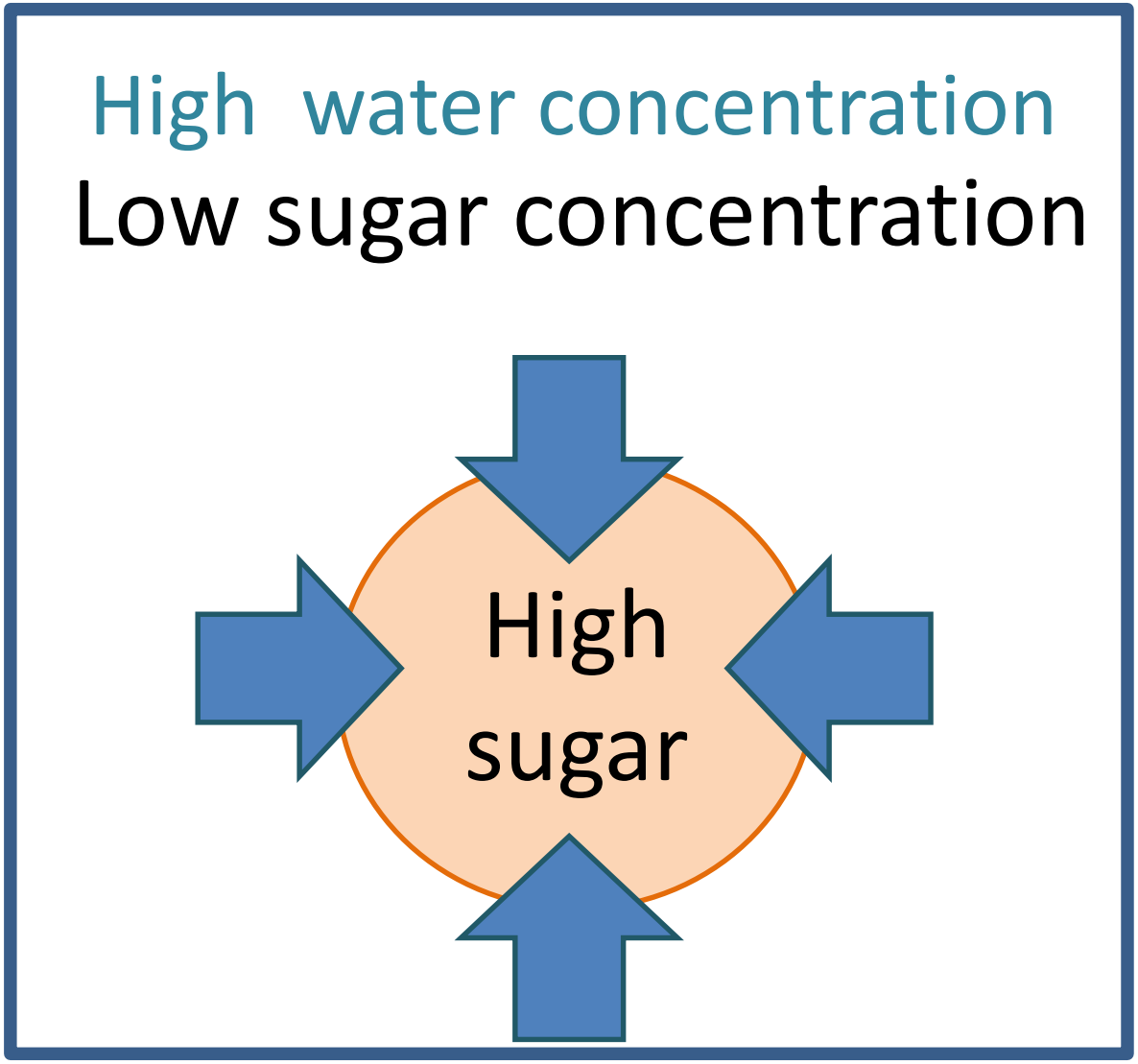
Types of Solutions

- **Hypertonic solution:**
  - **More solute** (substance) **outside** the cell than inside the cell (hyper means “a lot”)
- **Hypotonic solution:**
  - **More solute** (substance) **inside** the cell than outside the cell (hypo means “low”)
- **Isotonic solution:**
  - The concentration is the **same** inside and outside of the cell (iso means same)

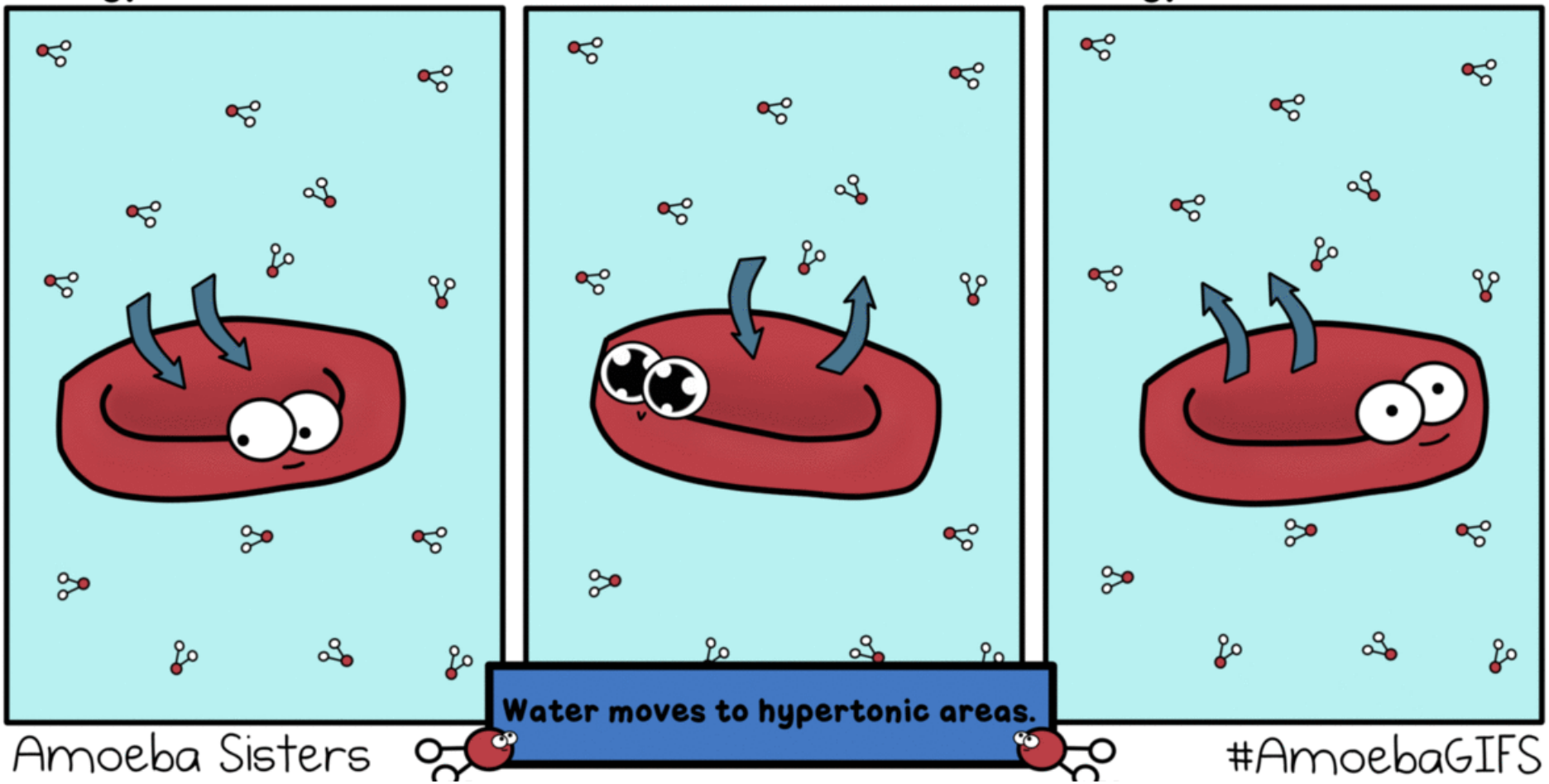
Which way will the water move?



Which way will the water move?

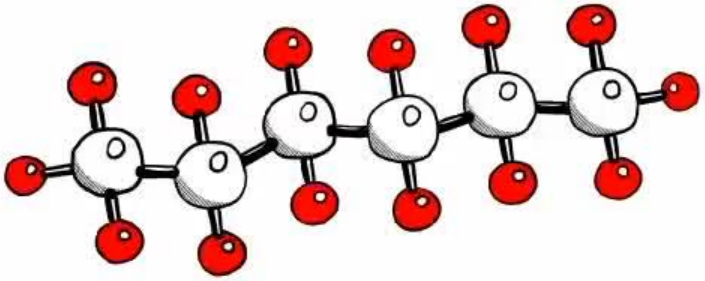


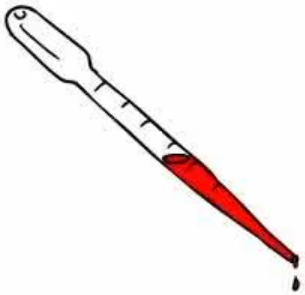
Passive Transport: Osmosis

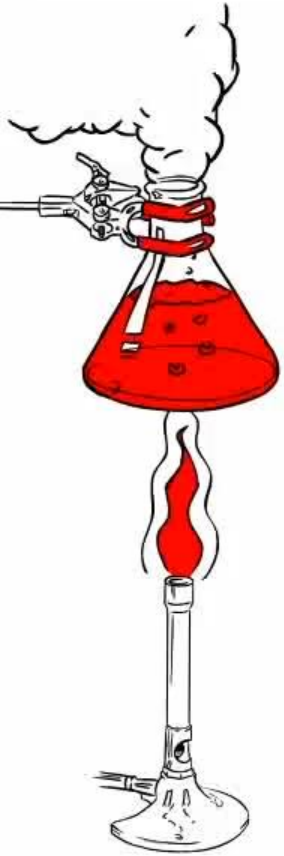


Diffusion with Gases

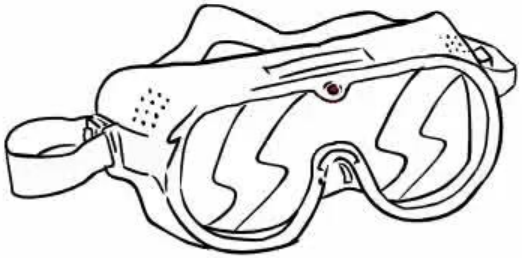
the virtualschool initiative

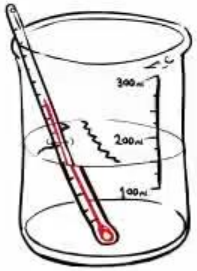


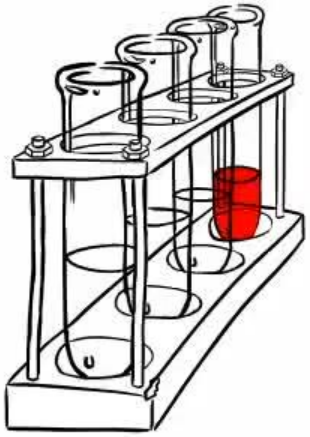




Diffusion of Gases







Closing Thoughts…

- Based on your newfound understanding of osmosis and diffusion, why can you not place a saltwater fish into a freshwater aquarium? Or a freshwater fish into a saltwater aquarium?
  - E.g. why can't you put a goldfish in the ocean??