

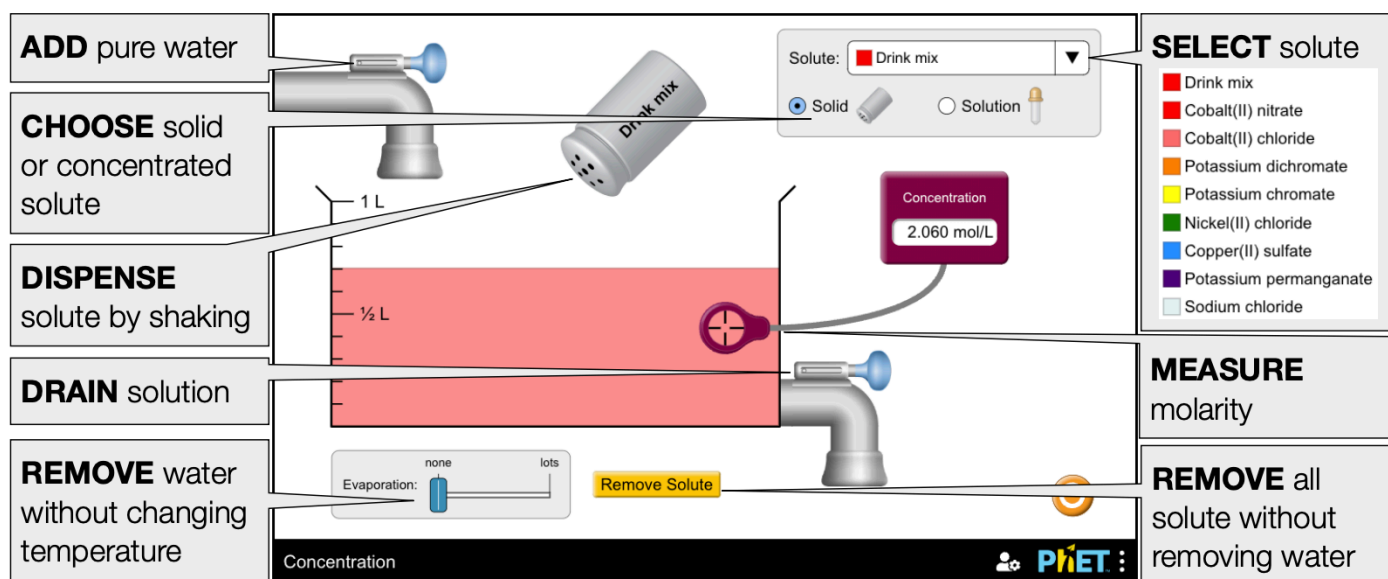
PhET - Solution and molarity(concentration) Simulation

<https://phet.colorado.edu/en/simulations/concentration>

PhET Simulation link

Develop your understanding: Explore the **Concentration** simulation. Try to find all the ways you can change the concentration of the solution in the beaker.

How to work the parts of the PhET:



MOLARITY

1. There are several ways to measure concentration. This simulation uses molarity (mol/L). What does mol/L mean?

2. Solute effect on concentration:

a. Is adding solute directly or indirectly related to molarity? What happens to the concentration when you add more solute?

Direct = Both go up or both go down
Indirect = One Increases, the other decreases

3. Volume effects on concentration:

a. Is dilution directly or indirectly related to molarity? What happens to the concentration when you add water?

Direct = Both go up or both go down

Indirect = One Increases, the other decreases

b. How is evaporation related to molarity? What happens to the concentration when you remove water? Compare it to dilution

Direct = Both go up or both go down

Indirect = One Increases, the other decreases

4. Complete the following table using all of the solutes in the simulator.

Solute	Color	Formula	Saturation Concentration mol/L
cobalt (II) nitrate			
cobalt (II) chloride			
potassium dichromate			
potassium chromate			
nickel (II) chloride			

copper (II) sulfate			
potassium permanganate			
sodium chloride			

5. Which compound has the highest saturation concentration? What is the molarity?

6. Which compound has the lowest saturation concentration? What is the molarity?

7. How does the concentration of the solution affect the color of the solution?

8. As you add more solute after the solution has reached saturation what happens?

9. How is evaporation different from opening the drain? Why is it different?