

Website: https://phet.colorado.edu/sims/html/molarity/latest/molarity_en.html

Prelab:

Define each of the following terms:		Solvent	
Aqueous Solution		Saturated Solution	
Solute		Unsaturated Solution	
Describe how to make a 1.00 M solution of sodium chloride in 100 mL of water.			
What is molarity? Include the formula.		A sample has 0.2 moles of salt dissolved in 2 L of solution. What is the molarity?	

Activity: Click on the play button to run the simulation; click on “show values” to display all numeric values and explore the simulation.

1. For each solute determine if the solution is saturated or unsaturated at a 1 Molar solution

Solute	Saturated or unsaturated	Solute	Saturated or unsaturated	Solute	Saturated or unsaturated
Drink mix		Potassium dichromate		Nickel (II) chloride	
Cobalt(II) nitrate		Gold (III)chloride		Copper(II) sulfate	
Cobalt(II) chloride		Potassium chromate		Potassium permanganate	

Question: During the simulation, what indicates that the solution is saturated? Which of these indicators would also be present in the real world?

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2. Determine the molarity at which each solute reaches the point of saturation. This is the HIGHEST molarity the solution will reach and remain unsaturated.

Solute	Saturation Point	Solute	Saturation Point	Solute	Saturation Point
Drink mix	XXX	Potassium dichromate		Nickel (II) Chloride	XXX
Cobalt(II) nitrate	XXX	Gold (III)chloride		Copper Sulfide	
Cobalt chloride		Potassium chromate		Potassium permanganate	

Follow Up Questions:

If you change the solute amount but keep the solution volume the same what happens to the Molarity?	
If you change the solution volume but keep the solute amount the same what happens to the Molarity?	
What is the relationship between solute amount and Molarity?	
What is the relationship between solution volume and Molarity?	
Describe the process needed to make a saturated solution unsaturated.	