Chemistry 11

Solution Chemistry I

Name:
Date:
Block:

1. **Molarity**
2. **Dilutions**

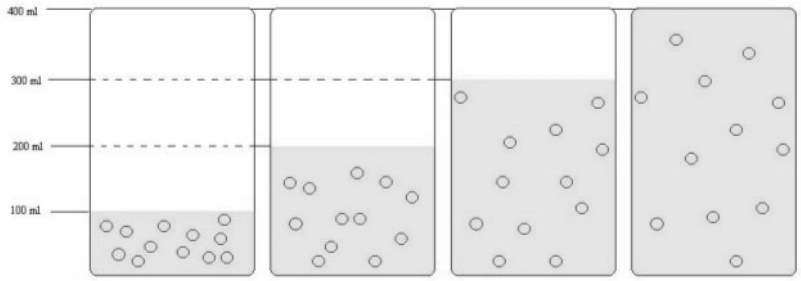
Molarity (review)

Practice 1.
What is the molar concentration of NaCl in a solution containing 5.12 g of NaCl in 250.0 mL of solution? *(0.350 M NaCl)*

Practice 2.
What mass of NaOH is contained in 3.50 L of 0.200 M NaOH? *(28.0 g NaOH)*

Practice 3.
How many moles of $AlCl_3$ are contained in 350.0 mL of 0.250 M $AlCl_3$? *(0.0875 mol $AlCl_3$)*

Dilutions



n = number of moles

V = volume

c = = concentration

The amount of the chemical (number of moles and mass) does not change – only the concentration.

Therefore, $n_1 = n_2$

Since $n_1 = c_1 \times V_1$ and $n_2 = c_2 \times V_2$

Because….

Therefore, $c_1 \times V_1 = c_2 \times V_2$

Example 1:
If 200.0 mL of 0.500 M NaCl is added to 300.0 mL of water, what is the resulting [NaCl] in the mixture? *(0.200 M NaCl)*

Example 3:
What volume of 12.0 M NaOH is required in order to prepare 3.00 L of 0.750M NaOH? *(0.188 L NaOH)*

Example 4:
When 350.0 mL of 0.250 M $MgCl_2$ is boiled down to a final volume of 275.0 mL, what is the molarity of the $MgCl_2$ in the resulting solution? *(0.318 M $MgCl_2$)*