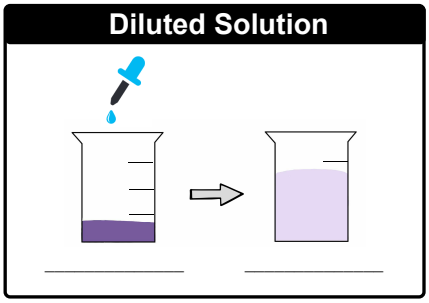
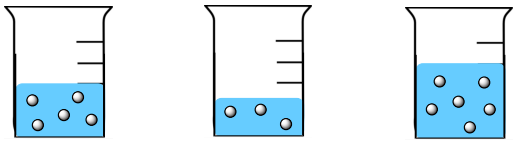
CONCEPT: DILUTIONS

- A standard (stock) solution is a _____ solution that will be *diluted* for some later laboratory use.
  - □ **Dilution**: The addition of more solvent (usually water) to a **solution** in order to create a _____ **concentration**.



EXAMPLE: If each sphere represents a mole of solute from the images provided below, arrange the solutions from least concentrated to most concentrated.



Solution A (1.0 L) | Solution B (2.0 L) | Solution C (3.0 L)

Dilution Calculations

- Dilution can be expressed by the equation:

Dilution Formula

$$M_1V_1 = M_2V_2$$

- □ M_1 and V_1 represent the Molarity and Volume _____ dilution while M_2 and V_2 are _____ the dilution.
  - M_1 is before a solvent is added so M_1 is always _____ than M_2.
  - V_2 represents the final Volume: V_2 = _____ + $V_{\text{Solvent Added}}$.

EXAMPLE: What volume (in mL) of 5.2 M HBr must be used to prepare 3.5 L of 2.7 M HBr?