Chemistry

Guidelines for Study

Academic Assistance
Peer Tutoring

Reading Chemistry

Pre-Reading
- Prior to lecture quickly pre-read the chapter. This gives you a preview of the information that the instructor will be lecturing on.
    - Pay attention to topic headings, bold words, example problems, and the chapter summary
    - Skim through the assigned problems at the end of the chapter. This provides a clue about what the instructor thinks are the important sections of the chapter.

Reading The Text
- After you have pre-read the chapter, it is time to go back and do a thorough job. Some people find it more effective to pre-read the chapter prior to lecture and then thoroughly read the chapter after lecture.
    - Your goal is to understand the material.
    - Pay close attention to any definitions and equations.
    - Make use of the graphs and tables provided by the author since they give you a visual representation of the concept being studied.
    - Work through the practice problems. This will test whether or not you under stand the material.
- After you are done reading the chapter, tackle the assigned problems at the end of the chapter. Don't get frustrated if you cannot work through all of them the first time. Chemistry problems are not easy and often take multiple attempts to solve. Use the answer manual as a tool for helping you get past the area that you are stuck in. **The correct answer is not as important as understanding the steps taken to solve a problem.**
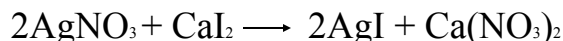
Solving Chemistry Problems

Working through the assigned problems is the only way to ensure that you understand the material being presented in the chapter. Chemistry problems are often difficult, so do not be afraid to ask for help (from a tutor, professor, or friend) if you are having difficulties.

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Approaching the problem

- Skim the problem — what are you being asked?
- Read the problem again paying close attention to what information is provided. As you do this, try to remember what the question is asking.
- Write down the information given to you. <u>Write down the units</u> - they will give you clues about how to solve the problem.
- Look at what you are given - what information do you need to solve the problem? What equations could you use? Try to make a flow chart on how you're going to find the answer.

> **EX.** All the silver in a 45.0 ml portion of silver nitrate solution is precipitated as silver iodide by 26.0 ml of a 0.250 M calcium iodide solution:
>
> $$2AgNO_3 + CaI_2 \longrightarrow 2AgI + Ca(NO_3)_2$$
>
> Calculate the molarity of the silver nitrate solution.

1) Carefully read the problem. What are you being asked?
    - To find the molarity of $AgNO_3$

2) Read the question again. What type of information are you given? What are you trying to solve?
    - To find the molarity of $AgNO_3$ you need the number of moles of $AgNO_3$ and the volume of $AgNO_3$. You are given an equation (always check to make sure it's balanced), the volume and molarity of CaI_2, and the volume of $AgNO_3$. Remember: we want to find the molarity of $AgNO_3$.

3) Write down the information that you are given.
    Equation: $2AgNO_3 + CaI_2 \longrightarrow 2AgI + Ca(NO_3I)_2$
    <u>CaI_2</u>: $\dfrac{0.250 \text{ mol}}{L}$, 26.0 ml   <u>AgNO3</u>: 45.0 ml

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4) What do you still need to solve the problem?
- You want to find the molarity of $AgNO_3$. The units of molarity are mol/L. Look at the information you wrote down. You were given the volume of $AgNO_3$ but not how many moles there are. This is what you have to find. Look at the information again. Try to make a flow chart on how you are going to find moles of $AgNO_3$.

Volume $CaI_2 \longrightarrow$ moles CaI_2 (using molarity) $\longrightarrow$ moles $AgNO_3$ (using balanced
equation)
Molarity of $AgNO_3$ in problem
(using given volume)

$26.0 \, \cancel{ml} \, CaI_2 \quad x \quad \dfrac{\cancel{L}}{1000 \, \cancel{ml}} \quad x \quad \dfrac{0.250 \, \cancel{mol} \, CaI_2}{\cancel{L}} \quad x \quad \dfrac{2 \, mol \, AgNO_3}{1 \, \cancel{mol} \, CaI_2} = 0.013 \, mol \, AgNO_3$

$$\text{Molarity of } AgNO_3 = \frac{0.013 \, mol \, AgNO_3}{0.045 \, L \, AgNO_3} = 0.289 \, M \, AgNO_3$$

Remember to pay attention to units!

Don't forget to consider your resources; go see your instructor or consult with an experienced peer tutor in the Academic Assistance Center. Do not be afraid to ask for help from a peer tutor, professor or friend if you are having difficulties.