

# TUTOR STUDY TIPS

## Problem Solving in the Sciences

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These steps are guidelines for approaching chemistry and physics word problems:

- 1. Read the question carefully.** Do not start solving the problem until you know:
  - a. What information are you given?
  - b. What the problem is asking you to solve/find?
  - c. Which formula/rule is needed (if any)?
- 2. Plan what you will do to find the answer.** By developing an approach, you have created a blueprint to follow. Think about the following:
  - a. Is this a multi-step problem?
  - b. Are there constants that I will be using? Do I need to refer to a chart?
  - c. Is there a similar problem in the book that I can learn from?
- 3. Try solving the problem.** If you get the problem wrong, try a different approach. You will learn from your mistakes. Trial and error is an effective tool when it comes to problem solving.
- 4. Check the textbook.** Many provide answers to some of the questions. They do not show the work but will let you know if you answered the question correctly.
- 5. Check if you are allowed to use a calculator.** If you can, you will not be doing math calculations; the calculator is. Your job is to identify what to input which is why being familiar with the concepts/topics is so important.
- 6. Work on similar problems for practice.** This can help you in completing assignments or practicing for your exam.

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### KUDOS Method of Problem Solving

- 1. Known** – Write down what information you have, the “known(s).”
- 2. Unknown** – Identify what you are looking for, the “unknown(s).”
- 3. Definition** – Define the equation or formula that relates the known information to the unknown. Here is where you find the formula you need, convert units, use a chemistry/physics constant, etc.
- 4. Output** – Perform the calculations needed to output the result (the unknown).
- 5. Substantiate** – Check your answers. Make sure the answer is reasonable, has proper units, and is the correct number of significant figures.

<https://universalchem.blogspot.com/2009/08/kudos-method-of-solving-chemical.html>

<https://easystudytips.blogspot.com/2010/02/physics-tips-physics-problems-made-easy.html>