CHEMISTRY
The Complete Course

Lesson One

Introduction and Philosophy

KA8501

Worksheet

Instructors may duplicate the worksheets as needed

ANSWERS

1. This series is not designed to teach the entire subject of first year chemistry, it is designed to teach problem solving skills as they are applied to chemistry. Several important categories of problems are explained in this series.

2. If students approach each problem like it is completely new and unrelated to other problems the student quickly becomes overwhelmed. Students having difficulty usually do not see the "big picture" in chemistry and have a hard time placing the pieces of the puzzle together.

3. Survival information is the stuff you need to know to just get by. No understanding of the underlying principles are involved if you rely only on survival information.

4. Problem solving skills with a sense of understanding. Mr. Cardulla wants you to visualize and imagine the aspects of the problems you solve.

5. Why not? Give it a try and see it come true!

6. Practice! Problem solving is a skill, that becomes better with practice.

7. Most problems can be solved using the skills of reasoning you have already developed.

8. By seeking to understand the problem. Visualize it, draw a picture, think about what the units really mean.

9. Without a relationship between the numbers it is difficult to remember a long list of numbers. Usually we invent relationships when we try to memorize things.

10. The subject of chemistry contains many relationships that are also interrelated, so it is not necessary to memorize everything.

I. VIDEOTAPE FOLLOW-UP QUESTIONS

I. General introduction
   A. Your instructor is a high school teacher with long and varied experience teaching all levels of high school chemistry.
   B. The focus of the tapes will be the general area of "problem solving."
   C. Approaches to problem solving based solely upon memorization are almost certainly doomed to failure.
      1. Problem solving must be accompanied by understanding to insure long term success.
      2. The type of logical reasoning abilities required to solve introductory high school chemistry problems are completely similar to what students use easily and naturally in their everyday lives.

II. The major goal of these lectures is to help beginning or struggling chemistry students.
   A. Usefulness was always put before sheer entertainment value when choosing topics for inclusion.
   B. The entire focus is to increase understanding rather than memorization.

III. Chemistry is the "easiest class in the school."
   A. Most students do not agree with the above statement and believe chemistry is by its very nature a difficult subject.
      1. This belief often becomes a self-fulfilling prophecy.
      2. Almost any high school student has more than adequate abilities to do well in high school chemistry.
   B. If you can work simple problems involving "students and rooms," you can work virtually any chemistry problem you might be assigned.
   C. The reason many students have trouble in chemistry lies more in their attitude and approach to the subject than any inherent lack of ability.

IV. In viewing the tapes, some should probably be watched in order, but most can be watched in any sequence that is most useful to an individual student.

II. SUPPLEMENTARY EXERCISES

1. What is the goal of this series of chemistry lectures?

2. Why do some chemistry students have difficulty learning chemistry?

3. What does Mr. Cardulla mean by the phrase "survival information"?

4. What would Mr. Cardulla like you to learn from these lectures?

5. Do you think chemistry is the easiest subject in school?

6. What is the most critical aspect of problem solving in chemistry?

7. What is Mr. Cardulla demonstrating with the students and rooms problem?

8. How can you apply your reasoning skills in chemistry problems?

9. Why is memorizing a large quantity of numbers so difficult?

10. Why is memorizing everything in chemistry unnecessary?