

Workshop 8

Chemistry at the Interface

Quality in Teaching: In the last program, cutting-edge technologies are presented, where chemistry is at the interface with other disciplines: tissue engineering, deciphering of the human genome, and agricultural resources for new materials. The future of technology is incorporated into the chemistry classroom, motivating the students with exciting real-world applications and contributing to teaching. The workshop ends with a discussion: What is quality in teaching and how does it influence chemistry students and teachers?

Learning Objectives

- To expose students and teachers to the multidisciplinary nature of chemistry
- To discuss important factors in quality teaching

Pre-Workshop Preparation

1. Read the following: "Conclusion," by Dorothy Gabel, in *ChemSource*, version 2.1 (Orna, Mary Virginia, O.S.U.; Schreck, James O. & Heikkinen, Henry, eds.), vol. 1, PEDTA, p: 25, 1998 (in the Appendix of this guide). Relate it also to the teachers' quotes of Workshop 8 and other workshops. What are your conclusions about what quality teaching is?
2. Write your teaching goals. Go back to Workshop 1 and compare to what you have written in your journal. What has changed? What has influenced it? Do you find that the workshop has caused any change in your attitude toward teaching chemistry?
3. Go to the Links and Readings sections of the Web site and choose one of the topics about application of chemistry to other fields. Based on what you have written in the first two sections, build a full lesson plan that is based on this application and includes all elements that you consider important for quality teaching.
4. Prepare for discussion your journal entry about the new lesson plans from this workshop that you chose to implement in your classroom.

Workshop Session (On-Site)

Getting Ready (30 minutes)

Present the lesson plans that you chose to implement in your classroom, and the difficulties and successes in doing so. Discuss the concepts that you chose to emphasize, the connections between chemistry and its applications, and the methods you used. Try to make the most out of this discussion and to touch major issues of teaching, such as how to build new lesson plans and how to implement them into your curriculum.

Watch the Workshop Video (60 minutes video/60 minutes discussion)

Focus

The emphasis of this workshop is on the interrelationship between chemistry and other disciplines: biology, industry, medicine, and education.

Unit 8.2. Gathering Evidence

Stop the video after Mr. DeGennaro's class about flame tests.

Both Ms. Veatta Berry and Mr. Al DeGennaro conduct a lesson about energy levels and atomic structure. Compare the methods of both: What do they emphasize, which concepts do they choose to teach, and which abilities of the students are brought forth by the activities?

Unit 8.3. Analyzing the Unknown

Stop the video after the slide about lead in drinking water.

How does making the relationship between chemistry and everyday mysteries affect the introduction of principles in analytical chemistry to the students? Bring examples from the program segments and from the interviews that you have seen.

Unit 8.5. Testing Products

Stop the video after the slide about Saran Wrap.

Comment on Mr. DeGennaro's Polymer Strength Laboratory: What are his goals in this activity? What are his students' reactions to the activity? Can you make out from their comments whether Mr. DeGennaro has achieved his goals in teaching this activity?

Unit 8.6. Chemistry and Advertising Discussion

This is an "end-of-the-year" classroom activity. Compare the students' mastery of chemical concepts to earlier "first-day" segments (glue-ball activity, water purification laboratory, and so on). Also, give examples from your classroom. Did Mr. Pratuch bring his students to "chemical literacy"?

Going Further (30 minutes)

Discuss the effect of the workshop on your teaching: What were your teaching goals at the beginning and how did they change? What are your take-home messages from this workshop? How do you plan to change your teaching, or how has it already changed? Do you have any ideas for improving or changing things in the workshop? What did you like best and what would you change?

Between Sessions (On Your Own)

Homework Assignments

1. Write a concluding journal entry about the contribution of the workshop to your teaching. What did you learn? What did you like? What will you change? Did what you found echo to your own difficulties and needs as a chemistry teacher? Are you going home with new ideas?

For additional information and activities about forensic chemistry, go to the ChemSource Web site at <http://intro.chem.okstate.edu/ChemSource/chemsource.html>.

In particular, go to the Concept/Skills Development section at <http://intro.chem.okstate.edu/ChemSource/Forensic/forechem8.htm> and try Demonstration 3: Analysis of Fingerprints [*ChemSource*, version 2.1 (Orna, Mary Virginia, O.S.U.; Schreck, James O. & Heikkinen, Henry, eds.), vol. 2, FORS, pp: 14–16, 1998].

Thank you for participating in the workshop, and good luck!

Notes
