Workshop 5
Infusing Critical and Creative Thinking

DESCRIPTION
Teachers can help students become good thinkers. Good thinkers are able to raise key questions and gather and evaluate pertinent information; thus making informed decisions. But how do we teach students to not just think, but think skillfully? Many critical and creative thinking programs advocate the explicit teaching of thinking skills. In this workshop, we will see and hear how thinking skills can be infused into science content instruction, and contrast this method with direct instruction in thinking skills in non-curricular contexts. We will visit classrooms where teachers have restructured their lesson content to infuse thinking skills and, in the process, have added richness and depth to their students’ learning.

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Robert Swartz received his Ph.D. in philosophy from Harvard University. He is a faculty member at the University of Massachusetts at Boston and the director of the National Center for Teaching Thinking. Through the Center, he provides staff development to educators across the country on infusing critical and creative thinking into content instruction. He has authored numerous articles and books on critical thinking and has acted as a thinking-skills testing consultant for the National Assessment of Educational Progress.
Thinking Skills
Prior to this workshop, you made a list of all the terms that you connect with “thinking skills.”

- Compare your list with the lists made by your colleagues.
- Develop group definitions for the terms included in your lists.

Describe how instruction in thinking skills occurs in your teaching. What do you hope you will learn more about during this workshop to assist you in the teaching of thinking?
Workshop 5 Timeline

Watch the Workshop Video

Going Further

Components of an Infusion Lesson

On the following page, you will see a schematic* illustrating the components of an infusion lesson.

Take five minutes to individually read through the schematic. With your colleagues, discuss each component in turn:

Introduction to Content and Process
• What do you understand by this component?
• What examples did you see, read, or hear about in this workshop that illustrate this component?

Thinking Actively
• What is happening in this component?
• What is the teacher’s role?

Thinking About Thinking

Applying the Thinking
• What value do you think these two components add to the teaching of thinking skills?

Ongoing Activity

Reflective Journal

Return to the thinking skills terms that you defined with your colleagues.

In your reflective journal, describe how your understanding of and the teaching of thinking skills has developed as a result of your participation in Workshop 5.

What questions remain in your mind about the teaching of thinking skills? (You might add these questions to Channel-Talk for comment by other teachers.)

What kind of thinking have you just engaged in, in order to respond to the points above?

Homework

- In your reflective journal, write about what you remember of your own algebra and/or calculus experience. What were the highlights? What puzzled you or made you uncomfortable?

- Interview at least two colleagues about what they remember of algebra and why they had to learn it in high school. Jot these responses down. Bring them to the next session.

Reminder: Sign up for a Web Buddy (see Workshop Components, p. 11).

Reading Assignment

To prepare for Workshop 6, please read the article by James Kaput, “Transforming Algebra from an Engine of Inequity to an Engine of Mathematical Power by ‘Algebrifying’ the K-12 Curriculum,” which can be found in the Appendix.