Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching

High School Chemistry PDA
Presented by Tom Hsu, Ph.D.

March 30 – April 1, 2009
8:30 a.m. - 5:00 p.m.
Hilton Austin Airport Hotel
9515 Hotel Drive
Austin, Texas 78719

MONDAY

8:00 a.m. **Breakfast**

8:30 a.m. **Welcome and Introductions**
Mary Hobbs, Ph.D., Coordinator for Science Initiatives, TRC

9:00 a.m. Opening discussion: *chemistry for all students* - What are the real implications of this strategy?

- What are the practical implications of ALL students taking chemistry?
- What content can we reasonably expect 80% of students to learn?
- Given the limitation of one academic year, what content is acceptable to minimize?
- What level of chemistry mastery might we hope for?
- What strategies have been shown to be effective?
- Can a student pass the EOC while taking a "practical" hands-on chemistry course?
- Useful test taking skill development that is embedded in everyday classroom activity.

Basic Skills

Investigation 1C:	Volume measurement
Investigation 1D:	Dimensional analysis
Investigation 2A:	The chemical formula
Investigation 2C:	One in a million
Investigation 2D:	Density
Investigation 9A:	Density and concentration
Investigation 9B:	Solutions and Beer's law

Chemical Change

Investigation 4A:	Chemical change

5:00 p.m. **Reflect and Adjourn**

TUESDAY

8:00 a.m. **Breakfast**

Atoms and Molecules

8:30 a.m.

Investigation 5A:	Inside the atom
Investigation 5B:	Spectrophotometry
Investigation 5C:	Spectroscopy
Investigation 6A:	Periodic table riddles
Investigation 6B:	Valence
Investigation 7A:	Lewis structures
Investigation 7B:	The geometry of molecules

5:00 p.m. **Reflect and Adjourn**

WEDNESDAY

8:00 a.m. **Breakfast**

8:30 a.m. Opening discussion - Electrochemistry - Why is this a less taught content area despite its immediate relevance to both technology and biochemistry?

- A phenomenological approach to electrochemistry
- The different battery chemistries - alkaline, lithium ion, nickel cadmium, nickel metal hydride, and exotic new technologies
- What is "rechargeable" in terms of chemistry? Why are some batteries not rechargeable?
- What is the chemistry of the "hydrogen economy" of the future that people talk about?

Investigation 14A:	The lemon battery
Investigation 9D:	Electrolytes
Investigation 14B:	An electrochemical cell
Investigation 14C:	Electroplating
Investigation 14D:	Electrolysis of water - a new technique

5:00 p.m. **Reflect and Adjourn**