

Meeting Videos and Handouts from Dec 2010

A big thanks goes out to Dave Lieberman for hosting the December 5th 2010 ChemWest meeting at Glenbrook South High School.

Dave Lieberman from Glenbrook South High School:

Dave showed us a quick and easy way to show students a triple point. He put liquid nitrogen into a vacuum pump and within a minutes we saw all three phases. [Video](#)

Dave also shared how to make fun conductivity testers. First take the electronics out of one of those cards that make music when you open it. Then solder (click "Easy Edit" and help me if this is spelled wrong) on some electrodes. When you test a solution if it conducts electricity a song will play![Conductivity Testers](#) Dave said that you need to store each them in in its own plastic bag so the electrodes don't touch other conductivity testers and use up the batteries.

Random bit of info: Dave shared with us that there is actually a Ag^{+2} ion! So it isn't always Ag^{+1} ! Do we add the roman numeral now !!

At his school a teacher put a golf ball in liquid nitrogen and left it there for a minute and then it exploded! He wants to know if anyone knows why that would happen. A teacher answered this questions under the "Question and Answer" section of this website. You can find it on the left of this screen.

Pat from Flinn:Pat talked about the dangers of 9 volt batteries. He said that a teacher took 9 volt batteries out of her/his conductivity testers and put them in a bag to save the batteries. While in the bag two of the batteries came close enough to each other that the

contacts touched and started a fire. He says you should NEVER store 9 volt batteries together in a bag but instead wrap each one up individually.

Pat also raffled away cool demos and books from Flinn. EVERYONE GOT CAROL BUTTONS!!!
When you come to Chem West you get cool stuff !

Kevin Kopeck from Lane Tech High School:

presented some fun Christmas activities. First he has his Chem Club kids create test tube Christmas trees out of old test tube brushes. He said that they painted and decorated them. Then he showed us a Flinn activity that allows you to grow crystals on a Christmas tree. [Picture](#) He presented a demonstration that helps students visualize polarity. [Picture](#)

Karl Craddock from William Fremd High School:

Karl did a demonstration on how hydrogen bonding affects several properties within a compound. [Video](#) This was done by taking different substances in glass bottles and swirling them to see how fast they swirl. The slower they swirl, the higher degree of hydrogen bonding is within the substance. The write up for the demo can be found [here](#), or in the "Demonstrations and Class Activities" section. In addition, he passed out Chemistry Carols that he sings with his students. Those can be found [here](#).

Karl also talked about another teacher that put different solutions on his blackboard so that students could see how fast they evaporated. The solutions could include water, ethyl alcohol, ethylene glycol, propylene glycol, glycerin, or isopropyl alcohol. Joel added that he like to put different solutions on his students hands so they could not only note which evaporate faster but

they could also note that the evaporation cooled off their hand. Be sure you know which solutions are safe enough to put on a student's hand.

Finally, Karl mentioned a sample e-learning video that shows the difference between the intermolecular bonds of different gasses. It is really really cool![Click here to view the sample e-learning video.](#)

Joel Weiner from Evanston High School: Joel brought LOTS of things to present.

1) Conductivity "Guilty Pickle" Use a lamp cord with plug on one end, split other end 8 inches, shave one inch insulation off each wire, rap around head end of about 2.5 inch nails and seal with electrical tape. Push the nails into the ends of a pickle, plug wire into a wall outlet. Outcome: Pickle glows orange due to resistance and due to the sodium spectrum (refers back to electrons in atoms unit). Connection: conductivity in the body: nervous system Na^+/K^+ pump on axons, Ca^{+2} in muscle, brings up electrolytes. He demonstrated that pickles conduct electricity by electrocuting it. [Video](#)

2) He brought a UFO (if you touch one end and another person touches the other, if you hold hands you will complete the circuit and the ball will light up)

You can buy one at www.teachersource.com for \$4.00. Joel Writes: Class gathers in circle. Two students at one end hold the ball, each touching either metal electrode with a finger but not touching each other. All students hold hands except for the two on opposite sides of the UFO ball. Once everyone is connected, then the last two students hold hands and the ball lights up. Connection: as above - ions in the nervous system and muscle, as well as ions in every cell (electron transport chain, proton pump, etc.)

3) He showed us a **powerpoint which he created about bonding**. Link to [powerpoint](#), scroll down to Molecule vs ionic compound--structural differences" under "BONDING" heading. Joel used Odyssey software to make some of his animations. <http://www.alevel-chemistry.com/>

4) He presented a lab that shows the difference between ionic and covalent bonds. [File](#)

5) He presented a solubility lab to help students practice naming, formula writing, and observing compounds and precipitate reactions. [File](#)

6) He presented a lab where you turn a penny into gold (well really brass....the alloy is copper plus zinc) We talked about safety issues in this experiment. [File](#) He said you have to be very careful when disposing of the NaOH and powdered zinc. He suggested letting the NaOH evaporate from the powdered zinc in a fume hood, then put the zinc in more NaOH, and finally putting it in the sink. I think this is right anyways I will double check. Then Karl added that he found using a zinc chloride solution with granular zinc was safer. We also talked about how to best clean the pennies for the lab. Someone "insert name here if someone remembers who it was" said that NaCl and vinegar did a really great job. David added that Taco Bell hot sauce works well too.

8) Finally he gave us a copy of a Periodic Table that helps with memorizing ions. [File](#)

9) This is a Power Point that explains the difference between ionic and molecular compounds. [Power Point](#)

Susie Lim from Niles West:

1) Ionic bonding puzzle piece activity. ([Part 1](#)) ([Part 2](#)) ([Part 3](#))(The actual puzzle pieces were too big to post....I will try to do this eventually but you can make your own) This activity works well with a lower level chemistry students. It's a nice visual way for students to put together ionic compounds and seeing how to make compounds.

2) Ionic battleship (like electron configuration battleship) Each student has a manila folder with the battleship board in sheet protectors with a dry erase marker. On one board they will draw in their ships and the other board is to keep track of their shots to their partner. Students take turns "firing" at their opponent by saying the name of the ionic compound and the other student has to match it to the formula. [File](#)

3) Ionic and covalent bingo to help with naming. This mixes up ionic and covlant naming and formulas. Students fill out the empty bingo board with the formulas (which I project onto the screen) and then I have them cut out names in a bin. I pull out names and play bingo. [File](#)

Jill Sterling from West Chicago:

1) She brought in a plastic bag with toothpicks and gum drops and talked about how she uses these to help students learn how to build 3D compounds.

([File #1](#)) ([File # 2](#))

2) She brought in wooden dice with cations and anions written on the side. She says you can role the dice and have the kids write the compound instead of coming up with worksheets.

([Picture](#)) [File for Activity](#)

3) Lastly she talked about a room management technique she created. She had a sign with "Go" on one side and "Stop" on the other. During activities she has the students turn their sign from "Go" to "Stop" when they want her to check their work. After she checks it she turns their sign back to "Go" and they continue their activity.

Janelle Hollingshead from Lane Tech: She presented three small activities and her blog.

1) Janelle brought in covalent puzzle pieces. After students learn about Lewis Dot Structures you can give them these puzzle pieces and have them think about what Lewis dot structures tell us about the shape of molecules. She just give her students a list of compounds like CH₄, BH₃, C₂H₄ and lets them try to figure them out. Cutting them up takes a while unless you have a great paper cutter. [File](#)

2) She brought in another small puzzle where students have to match up the compounds with their correct bond. You just need to cut out these pieces along the lines. [File](#)

3) She shared an idea she got from a book. The idea is to use a "Paint with Water" book to demonstrate the difference between polar/non-polar substances. Instead of just using water to color the pictures you have them section off pieces of the pictures and have them paint with a mixture of the following solutions. Water, Vegetable oil, Vinegar, Rubbing alcohol, Milk, Light colored juice or pop, or bubble solution. A more advanced version would be to have them paint with 91-99% isopropyl alcohol, rubbing alcohol (70%), acetone, and non-acetone nail polish remover. [File](#)

[Link to the book on Amazon](#)

4) Finally she shared her blog which she says has changed her life! Her blog site is lanetechchemistry.blogspot.com She shared directions on how to set up a blog. File to come. If you would like to learn how to make a blog or just want someone on the other end of the phone while you build it Janelle would LOVE to help you. e-mail her at jlarendt@cps.edu or call her at 1-773-387-9044 Dave also shared how he has his students update his blog daily. Possible link to his blog to come.

Announcements

Karl wanted to invite everyone to become a member of the Illinois Science Teachers Association" and to become a "Friend of Fermi Lab". The Summer Institute for Fermi Lab this year is June 13th - June 17th 2010.

1) Illinois Science Teachers Association - (ista-il.org) - (\$35)

Their Mission Statement "ISTA conducts State and regional conferences that attract more than 2,000 attendees annually. ISTA provides many programs and services for science educators, including awards and professional development workshops. The Association serves as an advocate for science educators by keeping its members and the general public informed about Illinois issues and trends in science education"

2) Friends of Fermi Lab - http://ed.fnal.gov/ffse_new/ - (\$10 for teachers) Mission Statement
Enhancing the quality of precollege science education in public and private schools.

Encouraging young people to pursue careers in science and engineering. Promoting a broader public awareness and understanding of science. A teacher named Steve Samuels wants to get back into Chemistry and wants to tutor some students. I want permission before I put his contact information up but you can contact me "Janelle Hollingshead" if you want his contact information at jlarendt@cps.edu