

C₃ BONDS

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SPRING 2003
SESSION 1

C₃ SCORES SECOND SEMESTER CLASSROOM IMPLEMENTATION

With the second and final round of classroom visits completed and the second semester of the 2002-03 academic year underway, C₃ takes another look at the implementation of its strategies and concepts within the classrooms of its teacher participants. From data collected during the Program Coordinator's observations, the following statistics were noted:



92% of the classes were engaged in investigative experiences with 83% of them done within one class period and 6% considered ongoing experiences.



28% of these experiences included data that was analyzed mathematically through graphing or other means. 100% of the C₃ teachers were using materials and information gained from the project with 81% focusing on higher level questioning techniques and 56% implementing sponge activities or class openers. 59% of the classrooms were using science activities from the summer project or follow up workshops while 75% incorporated classroom management techniques emphasized in the program.



95% demonstrated that their supplies and materials were in use and 70% had highlighted laboratory safety procedures. 25% of all teachers were integrating science disciplines while 53% integrated math with science, 42% integrated history with science, and 48% were integrat-



ing science with other subjects. 47% of lessons observed utilized the learning cycle and 31% of the lessons were taught through inquiry, a BIG improvement in two of our most critical areas. GREAT JOB! 14% of the students were engaged in experimental design, 6% had engaged in a



jigsaw and 20% in a carousel. 28% had learned through demonstrations, and 50% had completed molecular level drawings, another big improvement area. 86% of classes observed were utilizing cooperative learning, 34% of those with assigned tasks. 84% of the teachers emphasized student communication skills and 56% had incorporated alternative assessment techniques. 14% were using student journals and 14% learning logs. 17% of teachers had implemented concept maps and 28% card sorts. 9% had students engaged in performance assessment while 6% completed student portfolios and used rubrics. 33% of the classes had completed projects with 17% of the projects individual



and 17% group projects. 50% of all teachers emphasized real world connections during their learning experiences and 12% highlighted careers in chemistry. It looks like everyone is doing an excellent job with their classroom implementation and the C₃ team thanks each teacher for the dedication and the terrific work done so far.



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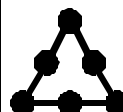
AMAZING MOLECULAR GEOMETRY



C₃ continued its weekend workshop series over the weekend of February 8-9, 2003 with a presentation of "Mastering Molecular Geometry". After "breaking the ice" with cooperative group Introduction Poems that were absolutely hilarious, the group warmed up with a candy bar relay that reviewed concepts from the previous session on Electron Configurations. Dr. Bill helped the participants revisit those important ideas that laid the foundation for the day's activities dealing with molecular geometry. From Bonding Theory and history with Gilbert Lewis, to the Octet Rule and the Five Basic Geometries, the teacher participants jumped in and did an excellent job in exploring these important concepts. Fantastic newsprint presentations were made to illustrate the participant knowledge of Lewis Dot Structures. And using balloons to construct huge three dimensional models of the



geometrical shapes provided lots of fun and excitement! The workshop obviously did the trick because while Cathi was visiting classrooms during the next couple of weeks, more than one teacher had students engaged in the exact same thing; in fact, some even sent us pictures of the "Balloon Art" the students had completed! In addition, each teacher was guided through the construction of accurate models made of sticks and balls that can be used to further enhance the teaching of molecular geometry in the classroom.



Because of the enthusiastic response and involvement of the teachers, the C₃ team was able to facilitate a workshop that successfully modeled how to bring abstract concepts to life for the students that the teacher participants work with each day. Thank you C₃ gang, for always going the extra mile and doing your part to make the program work—it wouldn't happen without YOU!!



INQUIRING ABOUT THE HINDENBURG

The final C₃ workshop of the academic year took place March 8-9, 2003, on the Louisiana Tech campus. The C₃ team engaged the teachers in an experience that brought them full circle from their first meeting during June, 2002. The summer program kicked off using the Hindenburg disaster as the core event that the designated chemistry topics would connect to. So it seemed appropriate that the historical event be the focus of the final meeting before beginning the second phase during June 2003. And because inquiry based learning in the classroom had been a main point of concern throughout the year, each workshop participant was immersed in an inquiry investigation that hinged on the Hindenburg. After getting started with



a "Zeppelin Carousel" that posed trivia questions about the famed Hindenburg as well as the legendary rock group Led Zeppelin, the groups were presented with the problem "What is the relationship between the volume of a helium filled balloon and the weight it can lift?" From this point, each group was responsible for developing an investigation to test its hypothesis to the question, collect and analyze the data, then present their procedure and results to the whole group. It proved to be a task that took the better part of a morning for the teachers to accomplish, but well worth the effort as everyone did a tremendous job. Way to go gang—and here's to inquiring even more about the Hindenburg!



BREAKING DOWN THE BOARD



As the 2002-03 academic year component of C₃ comes to an end, so does the program's Blackboard learning community. But not before Cathi congratulates everyone on a job well done with a big thanks for the efforts put forth. At the end of the final weekend, 95% of the C₃ folks had completed assignment 1, 89% #2, 82% #3, and 87% #4 which measures up to 82% of the group finishing it all. This has been the best overall participation in Blackboard since its addition to our

professional development projects and your commitment and involvement was not only admired, but appreciated. Cathi was always thrilled to be able to give such good reports during staff meetings and brag on the work of such an outstanding group. So, thank you for making Blackboard a priority and begin thinking about discussions that you would find both useful and interesting as we plan for next year's online component. It will definitely be here before we know it!



C₃ Calendar



Attention C₃ gang!! There are some important dates that you will want to go ahead and mark down on your calendar for the 2003-04 year:

June 1, 3:00-6:00: C₃ Orientation for YOU!

Special Kick Off Shindig Following—Details will follow!!

June 2-13, 8:30-3:30 daily: C₃ Year II for YOU!

December 4-6, 2003: LSTA Convention in New Orleans, LA, Radisson Hotel

Important Reminder . . .

If you haven't gotten your "returning" participant application in to Cathi, please do so immediately. In order to plan effectively, the C₃ team needs to know exactly who is going to be where!! You can download a hard copy of the application by visiting <http://c3.latech.edu> You can also apply online at the website if you prefer. Should you or your administration have any questions, please contact Cathi or Linda as soon as possible so that everything can be in place pronto!



FINAL SURVEY SAYS . . .

The results of the final C₃ classroom implementation survey are in and here's how you stacked up with the strategies presented:



100% use of investigative experiences, 93% for one class period, 89% ongoing learning experiences, and 96% having data analyzed mathematically; **100% use of project materials and information**, 93% using higher level questioning techniques, 78% sponge activities and class openers, 93% utilizing activities from the project, 81% implementing project classroom management techniques, 93% with all supplies and materials in use, 85% focused on laboratory safety procedures, 93% integrating science disciplines and integrating math with science, 81% integrating history with science, 74% integrating science with other subjects, 85% focused on the learning cycle, 81% teaching through inquiry, 74% implementing experimental design, 48% using jigsaws, and 89% engaging students through carousels and molecular level drawings; **100% use of cooperative learning**, 89% with assigned tasks, 63% utilizing a group grading process, and 85% emphasizing student communication skills; **100% implementation of alternative assessment techniques and tools**,

59% using student journals, 48% learning logs, 63% conceptests, 85% working with concept maps and card sorts, 63% presenting demonstration assessments and 59% performance assessments, 37% using preassessments, 78% rubrics, 37% with student portfolios, 85% implementing projects with 81% focused on individual work and 59% group efforts; **89% emphasized real world connections**, **52% introduced careers in chemistry**, and **70% integrated technology into their science learning experiences**. Excellent work everyone and many thanks for your commitment to the continued implementation of C₃ strategies and techniques.



**HAPPY EASTER,
HAPPY SPRING,
HAPPY, HAPPY
EVERYTHING!**



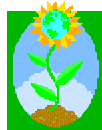
**PORTFOLIOS HAVE BEEN ASSESSED
AND ARE BEING DELIVERED—BE
WATCHING FOR YOUR SPECIAL "D"!!**



SPOTLIGHT ON C₃ SUCCESS



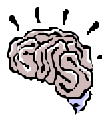
Tyron Lacy, North Caddo High School, developed a card sort to help students with their understanding of photosynthesis and reports that it worked well. This is only one of the different card sorts that **Tyron** has implemented this year. Super! . . .



Annette Parker Gentry, Zwolle High School, developed a project for her students to gain or improve measurement, accuracy, precision, patterns, and spacial perception skills using a BOX! In addition, cooperative groups engaged in water testing experimental design as well as projects on the states of matter. Terrific! . . .



Brenda Kelley, Winnfield High School, used cool “brainteasers” as sponge questions to get her students thinking outside the box as she engaged them in an exploration in map construction. Fun! . . .



Michelle Underwood, Chatham Jasper Henderson High School, used a card sort as an assessment before introducing a pattern activity that helped her students with the study of cations and anions.



Working in cooperative groups the students formed and named formulas before identifying the ratios of cations to anions. Great **Michelle!** . . .

Betsy Chism, East Ascension High School, put together a carousel for her students to use as a review of viruses and cells and it was wonderful. In addition, she developed a full timeline for her Biology classes. Fantastic! . . .



Cleo Head, Riverfield Academy, used the balloon models from the Molecular Geometry Workshop to teach similar concepts to his students. He even did the “pop down” from the octahedral to show the regression toward the linear shape.



Terrific! . . . Jerry Lee Lewis has nothing on **Jane Hamby, Morehouse Middle School,** who took the “shake it baby shake it” line to another level as she engaged her students in an investigation about thermal energy. Shaking sand and measuring temperature, students discovered key concepts that **Jane** further developed following the exploration.



Wonderful! . . . **Dan Sassone, East Ascension High School,** developed a web search discovery for his students to use in learning about the Periodic Table. Peer instruction was emphasized and **Dan** shares that it went really well. Great! . . . **Missy Wooley, Rayville High School,** engaged her students in the study of chemical reactions by performing a dem-



onstration for them to observe. Cooperative groups then completed a classification activity of different reactions and equations before making group presentations about their findings. Super! . . . **Mandy Dugdale, West Feliciana Middle School,** had her students express their understanding of Newton’s Laws of Motion by challenging them to create a balloon rocket



that would travel faster and farther than any other. It was an excellent investigation and the kids loved it, especially the class “competition”. Fantastic! . . . **Mary Beth McCoy, Ouachita Parish Junior High School,** and her students got to enjoy a treat when the class investigated freezing point depression by actually making their own ice cream. Yummy! . . .

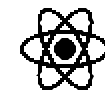


Carolyn Sykes, Ouachita Parish High School, did a wonderful demonstration with sodium in a paper



crate floating in a tank of water to focus her students’ thinking toward trends within groups found on the periodic table. It actually got the “oohs” and “aahs” from the class! She then followed this with the card sort that she got from the C₃ electron configuration workshop and it worked well. Super **Carolyn!** . . .

Leslie McClure, West Feliciana Middle School, used a full cooperative jigsaw to present content and concepts for cell biology and it was terrific! **Julie Dubois, Simsboro High School,** had the learning cycle in full



swing as her Biology class got into its Chemistry study. From initial drawings of models, to an exploration where cooperative groups made molecular models from jelly beans, and on to concept development, the students were actively engaged throughout the learning experiences. Great! . . .

Aleta Overby, Ruston High School, used the carousel technique to move her students through different experiences with density. There was even a “bonus station” for those who finished early. Wonderful! . . . **Cindy Hampton, Celestine Creek School,** used mini M&M’s for her students to model Lewis Dot Structures and



she shares that it was a huge success. Fantastic! . . . **Nathaniel Adams, Green Oaks High School,** did a wonderful learning cycle lesson on kinetic theory that included cooperative groups “crushing cans” and explaining what happened. Terrific! . . .



And **Bill Gallien, Fair Park High School,** used math patterns in his sponge questions . . . Excellent job everyone. Way to really let your light shine!!

TRICKS OF THE TRADE . . .

Cindy Hampton, Cedar Creek School, shares that she has done a “reverse” carousel with her students when reviewing material for tests. She generally has 2-3 sheets or drawings for them to complete but she accomplishes this by putting the students in cooperative groups, giving them one task at a time, and having the students complete it before moving on. **Cindy** actually does the carouseling as she works from group to group assessing their performance on the assignments given before presenting them with the next item. And she loves it!



Thanks for sharing **Cindy**! . . . **Missy Wooley, Rayville High School**, reports that her “Cooking Up Chemistry” projects were a huge success and something anyone can implement. 50 chemistry students prepared dishes that demonstrated physical and chemical changes in cooking while showing balanced chemical equations and providing “ads” for the dishes as well. Plus, there was judging and of course, EATING! It was both fun and educational!



Super work **Missy**! . . . **Mary Beth McCoy, Ouachita Parish Junior High School** and **Richard O’Neal, Crosset High School**, both sing the praises of Dr. Bill as an excellent resource for field trips. Both brought their classes to La. Tech for Bill to do demonstrations and other amazing activities (such as juggling!) and indicate that it was awesome.



Terrific! . . . In addition, **Leslie McClure and Mandy Dugdale, West Feliciana Middle School**, will host Bill and Cathi as featured presenters during their all day Science Extravaganza in April. Looks like the word is out about Bill! . . . and **Aleta Overby, Ruston High School**,



shares that anyone working with the “Sinkers and Floaters” in buoyancy and density should be sure and focus on the mass and volume of water displaced. It’s



too good to miss! . . . Thanks for the tips everyone and we look forward to ways that others are developing new things in their classrooms. Good job!



HOVERING AROUND SUCCESS!

The word is out! The hover craft projects that **Missy Wooley’s** physics students completed and continue to work with are all the rage!!



And others want to know how to do it with their kids. After **Missy** and



her students took the hover craft to the elementary school to perform demonstrations with the children there, everyone was so excited that two parents actually contacted her for instructions on how to make one for their child at home! In addition,

other schools and teachers have taken notice and

Missy continues to get calls for more demos as well as instructions on how to make the “wonder disks”. And now **C₃** has the lowdown on how to make them as well!



So, if you are interested in making hover crafts and would like a copy of **Missy’s** instructions, contact



Cathi and she will get a copy to you. It’s something you and your students will love and love using to not only learn about science, but teach others as well!

FINAL REFLECTIONS . . .

Session 1 teachers shared the following responses to the Post Session Reflection: the most valuable component of the 2002-03 program was the two week summer course. Reasons shared for its importance included content learned, applications experienced, strategies developed, confidence gained, and finally just sharing that it was an excellent experience! **Cathi’s** classroom visits ranked second with comments indicating that the support, positive reinforcement, one-on-one time, and reassurance were invaluable. Plus it seems they just like to see **Cathi** and wish she could come more often. The LSTA meeting ranked third with our teachers sharing that the networking and sharing done as well as information gained was wonderful. But they also included that it was nice to just be able to have FUN together! **Blackboard** was the fourth place finisher with the teachers grateful for the discussion and sharing that allowed them to keep in touch. Newsletters and the Reflective Reunion/Learning Cycle Session came in right behind **Blackboard** in a tie for fifth. The learning cycle project allowed the teachers to apply what they had learned and practice a new strategy while the Newsletters allowed the group to keep up with one another and were said to be interesting, entertaining, encouraging, and fun. Last on the list were the Academic Year Workshops. Though many of the activities were reported to be good and the sharing important, the time involved, travel required, motivation needed and pace made them difficult for most. **C₃** appreciates the teacher feedback and promises to use it to continue to improve and refine the pro-

BULLETIN BOARD:

ROCK 'N MOLE 2003!! You won't want to miss getting in on the Mole Day celebration this year. The King himself is a key fixture in the official celebration with special "Molevis Molennium Figurines" available as well as special t-shirts and ornaments with the Mole version of the King of Rock and Roll. You can bet Cathi will be in on it this year and she challenges everyone else to get their students involved on October 23, beginning at 6:02AM! For more information and ideas of how to get started, visit the official web site at www.moleday.org May the Mole Be With You as you prepare to Rock 'N Mole in 2003!

MULTIPLE INTELLIGENCE WHEEL: visit the website http://www.bgfl.org/bgfl.muscat_notes/580pks3.htm To obtain an interactive worksheet which produces a Multiple Intelligences wheel of your levels in each of the intelligences; easy to use for grades 7-adult

The March issue of the Flinn Scientific Department Meeting Safety Notes can be printed by connecting to <http://www.flinnsci.com/homepage/snindex.html> This month's topic is entitled "Chemical Spill Control—How to Prevent and Respond to Laboratory Chemical Spills" and helps you with what steps must be taken to prevent spills, indicates what proper safety is available to contain and control the spill, and points out how to use spill control equipment. Remember, safety first!

Here's a "musical" periodic table. It is the "Element Song" set to animation. Entertaining! Be sure you have sound on your computer to get the full effect!

<http://www.privatehand.com/flashanimation/elements.html>
Also, here's a java applet that shows the periodic table in absorption and emission spectra. Click on any element to see the spectra for it. Very nice, especially if you cannot do flame tests or do not have the spectrum tubes and high voltage power source to do the demo in your class.
<http://javalab.uoregon.edu/dcaley/elements/Elements.html>

Looking for new ways to raise funds for your science department? The following site contains information from the National Gardening Association A fundraising kit for selling bulbs instead of candy: http://www.garden.org/PRESSROOM/Printer-friendly/Feb03-bulbfundraiser_pr.htm

DAILY TREASURE HUNT: Have your students click on different subject areas to find the hidden treasure, locating varying trivia on geography, Earth and sky, science headlines, and word categories. Visit the following website: [Http://www.schoolexpress.com/funtime/th/th_main.php](http://www.schoolexpress.com/funtime/th/th_main.php)

"Polymer Science of Everyday Things" Workshop is a hands-on long distance workshop for middle and high school science teachers. Offered Saturday, March 22, 2003, information can be obtained by contacting Ann Salamone, event co-organizer, at 561-866-0930, FAX 561-395-4242, or e-mail at <ABSalamone@aol.com>. Space is limited to 24 teachers so get involved early!

LUMCON (The Louisiana Universities Marine Consortium) announces its upcoming Open House at the DeFelice Marine Center in Cocodrie, Louisiana. The event will be held on Saturday, April 12, 2003, from 10:00AM—4:00PM and marks the first open house at the facility since 1996. You can visit the website for updates and further information: www.lumcon.com If you are interested in setting up a field trip to LUMCON or the Port Fourchon laboratory, contact Nicole Crochet, Summer Program Coordinator and Marine Education Associate, by e-mailing her at ncrochet@lumcon.edu

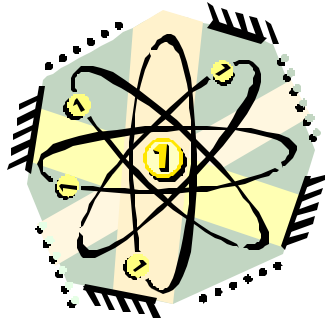
Looking for standards based lesson plans? The LPB/LDE Video Series "Teacher-to-Teacher" has complete lesson plans that include all necessary handouts and references. Ten different science lesson plans for secondary teachers can be downloaded from the LDE web site: <http://www.doe.state.la.us/DOE/assessments/standards/LPBmenu.htm>

<http://www.dbooth.net/mhs/chem/trendgraph/html> contains a great listing of almost any periodic property that you may want your students to graph as well as the basic line graphs of most of the data as well. Check out this excellent resource!

The Louisiana Purchase celebrates 200 years! Check in with the Audubon Zoo to see what resources are available to help you and your students fully engage in this exciting experience. Visit the website at www.auduboninstitute.org or e-mail the audubon folks at air@auduboninstitute.org. Or you can call 1-800-774-7394 or FAX 504-212-5157

Check out the Challenger Learning Center located in the Louisiana Art and Science Museum. The Challenger Learning Center simulation programs are educational, effective, and exciting! Based on your student needs and educational goals, select between "Rendezvous with Comet Halley", "Return to the Moon", or "Encounter Earth". Inservices for teachers are conducted in July for each mission and more information can be obtained by contacting Director Gayle Glusman by calling 225-344-5272, FAX to 225-344-9477, or e-mail gglusman@lasm.org Visit the web site at www.lasm.org and see what all is on tap as the Challenger Center celebrates its 10th anniversary during the 2003-04 school year. It's an experience you and your students will never forget!

The Depressed Atom



This atom walks into a bar, looking really depressed.

He bellys up to the bar and says "Bartender, make it a double!"

The bartender gives him his drink and asks, "Why are you so sad?"

The atom goes to the bartender "I lost an electron!"

The bartender goes, "Well, are you sure?"

The atom says, "I 'm positive!"