

C₃ BONDS

VOLUME 3, ISSUE 3

WINTER 2005
YEAR 1

C₃ Year 1 Teachers Gear Up to Become a Second Year Batch!!

With the second semester of the 2004-05 academic year well underway, C₃ Year 1 folks are not only busy wrapping up their first year program requirements but already focusing on the upcoming summer sequel. Program Coordinator Cathi Cox now has the January



classroom visits under her belt with the February list rolling right along. The final workshop weekend is quickly approaching as February 19-20 looms large on the horizon. This means deadlines are coming fast!! Therefore, each classroom teacher is currently completing the second video lesson and critique which is due at the final workshop weekend along with a professional portfolio that documents the implementation and impact of C₃ in their classrooms throughout the academic year. The final Blackboard assignment has been posted and all online work is to be finished by the end of February. Then, as the final task is checked off each

teacher's "checkbric", the time to get paperwork done in preparation for the summer 2005 Year 2 program begins! All Year 1 participants will gather as "veterans" on Sunday, June 5, to kick off the second phase of their C₃ experience. Following the same successful model as Year 1, the Year 2 component will actively



engage the teachers in intense concept development of accuracy/precision, solutions, conductivity, acids/bases, physical and chemical changes, molarity/molality, and colligative properties among others. In addition, emphasis will be placed on the history of science and key figures involved in the development of scientific information. All participants will engage in hands-on/minds-on learning experiences that involve use of the scientific method, experimental design, process skills, and inquiry. Various aspects of the science reform movement will also be discussed, modeled, and assessed as well as teaching strategies such as cooperative learning, learning cycle, alternative assessment, and constructivism. In addition, the Year 2 participants will prepare to work with other educators during the following school year as part of the project's leadership component. So, in order to get the ball rolling, each Year 1 participant has filled out the Year 2 application and preparations are already underway for another exciting summer together. Everyone is reminded to follow up with their administrators about their critical role and to get in touch with Cathi if there are questions or

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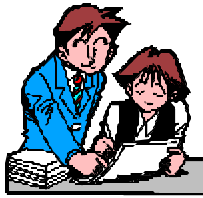
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C₃ ISSUES A PUBLISHING CHALLENGE!!

With most science fairs completed and students investigations well underway throughout the academic year, C₃ reminds its teachers that an opportunity for their students' work to be published is only a simple submission away!! With Cathi in the classrooms seeing the caliber of work that the students are doing, there is no doubt that they are in an excellent position to have their work published in Louisiana Tech University's Student Research Journal. And with most of the work already completed with their experimental design lab reports, only some



minor additions and edits will be needed to have the work ready for submission this spring. The deadline for submitting student work is April 8, 2005 which gives the students ample time to not only get



their science fair papers ready for submission, but a chance to even conduct a new investigation and submit its report. What an excellent opportunity for the students, and your school, to have their work published and on record for others to study and learn from. And what wonderful publicity for you, your students, the school, and school system to have such a feather in your cap. So, the challenge is extended to each C₃ teacher to have at least ONE student submit a research report by the April 8 deadline. And as an incentive for you, for each student paper that is submitted from your classroom, your name will go into a special drawing for a truly fabulous prize. **DON'T MISS THIS OPPORTUNITY**—your students will forever thank you for enabling them to accomplish such an exciting and rewarding task that could open all kinds of doors for them as well as you!!



LOOK AT WHAT WE'VE DONE!

During the academic year, you have completed the following professional activities:

- Blackboard assignments on the Learning Cycle, Video Lessons and Self Assessment, and Reform Based Classroom Strategies
- Development of a professional portfolio
- Two video lessons and accompanying critiques (one each semester)
- Two classroom observations and visits
- Designed a Year Plan implementing C₃



MARK YOUR CALENDARS NOW!!

Dates To Remember:

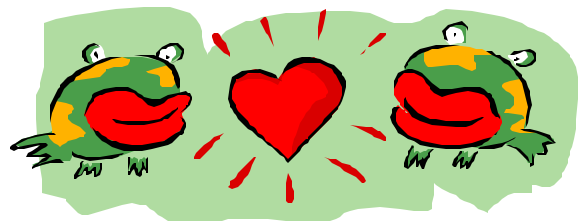
April 8, 2005: Deadline for Student Submission for the Research Journal



June 5-17, 2005: C₃ Year 2 Summer Institute

LOOK FOR EXPERIMENTAL REPORT GUIDELINES FEATURED ON PAGE 10 OF THE NEWSLETTER

HAPPY
VALENTINES
DAYS
FROM THE C₃
TEAM!!



BREAKING DOWN THE BOARD

Year 1 C₃ teachers are currently engaged in completing three online assignments as their Blackboard experience continues. With 100% of the Year 1 participants successfully completing the Learning Cycle assignment and discussion, 92% have addressed Assignment #2 which stems from the first video lesson and critique that each teacher was required to complete during the first semester of the 2004-05 academic year. Assignment #3 is entitled "Strategy Sampling" and provided teachers with a forum for discussing the different strategies from the C₃ project and how they have been used in the classroom. The discussion was guided by the following questions: *outside of the learning cycle, what strategy/assessment has yielded the greatest success in your classroom and why do you think it*



has been so successful, what strategy (or strategies) have you tried that you feel will need a stronger focus when used again, are there specific reasons why you felt the strategy was not as



successful as you had hoped and are you hesitant to try again, are there any strategies/assessments that you absolutely have NOT attempted and can you provide a reason why you are hesitant in using them, can you think of any strategies or assessments that we have not worked with in C3 that you would like to see emphasized in the future? 85% of all Year 1 folks have completed the third assignment and the entire group can boast of being near the 100% mark across the Board. An "Impact Analysis" of the C₃ project in each teacher's individual experience will be completed at the final workshop; teachers will carefully consider which components of the project have been most beneficial as well as the magnitude of growth that each has experienced professionally. Cathi appreciates the excellent job that everyone is doing with the online learning community and encourages each Year 1 participant to get busy now in order to be sure that ALL assignments are completed by the end of February 2005!



2005 CLASSROOM VISITS ARE RIGHT ON TRACK!!

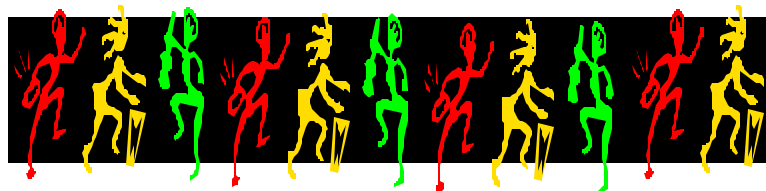


UNBELIEVABLE—that's the only way to describe the job that our C₃ folks are doing in the classroom!! With the emphasis on the learning cycle practically ingrained in everyone's thinking, the natural ease with which each teacher is progressing and implementing the different learning experiences and assessments from the project is simply AMAZING!!! Cathi reports that it has been such a joy to see what a tremendous job the Year 1 crew is doing in the field—you

continue to make us ALL look good!! Remember that we'll be looking for a comprehensive summary of what you've tried during the year when we get together at the last workshop, so now's the time to try something new! And if you need help or support, remember Cathi is just a mad dash away!! Don't hesitate to call as she works her way through the last month of visits—she'll be coming your way soon! Keep up the good work everyone . . . YOU are the heart of C₃!!



WISHING YOU CONTINUED MARVELOUS MARDI GRAS MADNESS!!





SPOTLIGHT ON C₃ SUCCESS



Natalie Rowe, C.E. Byrd High School, applied the concepts of chemical reactions using a teacher demonstration before engaging the students in “The Six Solution Problem.” Process skills were emphasized throughout the inquiry experience. Terrific! . . . **Willia Hatter, Homer High School**, used “Meet the



Mole” while facilitating the mole concept with her Chemistry students. She also focused on conversion factors during the experience. Wonderful! . . . **Mary Beth Plair, East**

Thibodaux Middle School, is really emphasizing real world connections while integrating science into her Physical Education classes. During one lesson, students explored the effects of sugar and exercise on metabolism, heart rate, and recovery time. Exciting! . . . **Sherri Stevens, Livonia High School**, used eggs and different so-



lutions as a demonstration to engage her students in the study of movement across a cell membrane. Students also engaged in diagram analysis and peer instruction before moving

into the laboratory. Great! . . . **Tonya Jones, Carencro High School**, set up a laboratory experience for her students as part of their study of chemical equations. The freshman class observed the phenomena of the reactions before successfully balancing the corresponding equations. And this followed “Colorful Clip Equations. Super!



. . . **Evelyn Scott, Lillie Middle School**, had her students constructing graphs as part of their study on planets and their diameter. Further math skills were used as the students calculated what their weight would be in space. Good job!



. . . **Lydia Clary, Weston High School**, started with a fun analogy using hot dogs to engage the students before they explored chemical and physical changes. And because a popcorn package was used during a demonstration, **Lydia** had popped popcorn for the students to enjoy while watching a short video clip as the concept development for the lesson. Wonderful! . . .



Tammy Pilgreen, Lillie Middle School, emphasized critical thinking when using cookie dough in a problem solving experience focused on probability. Stu-

dents collected data as they played a game throughout the experience. Fun! . . . **Jennifer McSween, Ouachita Christian High School**, presented a variation of Dr. Bill’s “Rat Weight Demonstration” before engaging her students in her own design of “Meet the Mole;” her students determined the number of “Eagles” as compared to the number of “Dawgs.”

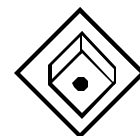


Calculations were emphasized as were student communication skills. Excellent! . . . **Donna Alford, Downsville, Elementary School**, challenged her students to develop methods of “cleaning up” three



simulated pond environments. Each group was given a series of materials to choose from and had to work collaboratively to remove the pollutants present. Exciting! . . . **Stacy Campbell, Ruston High School**, used “The

Cooperative Cube” to emphasize observation and inference before moving to “What’s in the Bag,” a version of “What’s in the Beaker.” Poster presentations were made by the students as well. Wonderful! . . . **Abbra Mack Best, North Little Rock High School**, focused on real world connections when she used x-rays of her



own teeth to extend a previous lesson on parts of the mouth. Students were then presented the outline for a group project entitled “Gastro World.” Student groups developed a digestive system theme park to express their understanding of the structure and function of the system in the body. Terrific!



. . . **Linda Bates, El Dorado High School**, used a brainteaser puzzle to engage students in the topic of matter before moving into a card sort that was constructed into a concept map on newsprint. A lab where concepts were applied followed. Great! . . . **Pat Edington, Ruston Junior High School**, performed a great demonstration related to the layers of rock/earth



using only large books. Concepts were further emphasized as the students created foldables that contained the main ideas and terms from the study. Fun! . . . As can be seen, the C₃ gang continues to shine in the classroom and no doubt their students are the better for it. Thank you for your continued hard work—you are an inspiration to us all!



CONGRATULATIONS

C₃ congratulates **Tonya Jones, Carencro High School**, who was named CHS Teacher of the Year!! And after seeing **Tonya** in action, Cathi indicates that the honor is certainly well deserved. Way to go **Tonya!** . . . **Donna Alford, Downsville Elementary School**, received a room full of flat topped desks from her administration for her commitment to implementing cooperative learning. Great job! . . . C₃ applauds all the wonderful things going on in the classrooms of its teachers and appreciates the support and encouragement from their administration and colleagues. We love wonderful news!!!



MUSIC TO MY EARS . . .

When making a visit to **Donna Alford's** fourth grade class at **Downsville Elementary School**, Cathi reports that the most wonderful sound was heard. The class was busy at work on another subject and when **Donna** spotted her guest, she informed the students that they would be “changing gears” and beginning science earlier than usual. And a giant CHEER went up from the students in her classroom. It seems that they

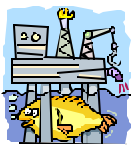


LOVE science. Which means that **Donna** is obviously doing something right! And this spilled over into a Family Science Night when more than 20 parents and students participated as **Donna** engaged them in Cartesian Divers. Great job—may that fire continue to burn brightly!!



PROFESSIONAL DEVELOPMENT WORK

Sherri Stevens, Livonia High School, is currently enrolled in a graduate level chemistry class and still pursuing her certification in secondary chemistry. And that in addition to her work with C₃! **Evelyn Scott, Lillie Middle School**, participated in the JASON Expedition Workshop that was hosted on the Tech campus in January. The focus was the Disappearing Wetlands, giving **Evelyn** a strong real world connection for her earth and life science classes. Good job ladies—keep up the good work!



JOY, JOY, and MORE JOY!!!

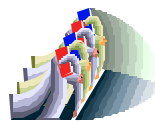


C₃ is thrilled to share in the joy that two of its participants are up to their ears in! **Abbra Mack Best, North Little Rock High School**, and the love of her life, **Cameron Best**, decided on the spur of the moment to move their wedding date up from June to December and therefore give each the best Christmas present ever. The pair was married on December 18, 2004, before enjoying a snowboarding honeymoon in Canada. And all indications are that life is good for the Bests in Little Rock, AR!! On the other end of the spectrum, **Jennifer McSween, Ouachita Christian High School**, is not only enjoying a wonderful pregnancy, she shares that it's a BOY!! **Alexander Lee McSween** is scheduled to debut on the planet in May. And we couldn't be more thrilled for everyone. Congratulations girls; we couldn't be happier for you if we tried!



COLLABORATION IS THE KEY!

Willia Hatter, Homer High School, is currently working with a pre-service teacher in her science classroom. The Louisiana Tech senior is student teaching in both physical education and chemistry. **Willia** has shared C₃ strategies and learning experiences while modeling standards based instruction, making her an excellent partner during his teaching practice.



“THE SECRET TO GETTING AHEAD IS GETTING STARTED”

BEFORE YOU SPEAK

T is it true?

H is it helpful?

I is it inspiring?

N is it necessary?

K is it kind?



BULLETIN BOARD:

Are you interested in addressing the Indian Ocean Tsunamis with your students?

The Bridge <<<http://www.marine-ed.org/bridge>>> Tsunami Data Tip highlights the physical and geological forces behind tsunamis and allows students to work with seismic and historical tsunami data. The Data Tip includes background information, a step-by-step data activity, and discussion questions and is correlated to the NSE standards. To access the Tsunami Data Tip visit the Bridge <<<http://www.marine-ed.org/bridge>>> and click on "Tsunami" in the Data Port column on the right.

National Oceanic and Atmospheric Administration's National Marine Sanctuary Program's Dive into Education 2005!

The workshop will be hosted by NOAA's Gray's Reef National Marine Sanctuary May 13th and 14th on Tybee Island, Georgia at the Ocean Plaza Beach Resort.

Education Coordinators from each of the 14 sites within the National Marine Sanctuary Program will present their programs that are being specifically adapted to address science performance standards in ocean science and other disciplines. These national level educators will bring their unique programs, materials and perspectives from their part of the country, which includes Hawai'i, American Samoa, California, Washington, Texas, Florida, Georgia, North Carolina, Massachusetts, and Michigan.

For more information on the workshop and an application form, please visit the Gray's Reef website at <www.graysreef.nos.noaa.gov>.

Check out the Presidential Awards Program by visiting www.nsf.gov/pa This outstanding program not only recognizes America's best teachers, but also provides the opportunity for these teachers to serve as models for their colleagues and leaders in the improvement of mathematics and science education. Don't miss an opportunity to be a part of this exceptional program.

42 PAGES OF GRAPHIC ORGANIZERS:

<http://www.lib.ncsu.edu/livinginourworld/PDF/Resource%20center%20documents/Graphic%20organizers.pdf>

Download fully forty-two pages of classroom teaching aids at this site, with printable graphic organizers for every occasion and subject. Generic patterns (Prism, Pyramid, How to Make a Triarama, etc.) are also available in this teaching resource.

www.teachersdomain.org

Teachers' Domain is an online collection of classroom-ready multimedia resources from public television programs like NOVA, ZOOM, Building Big, and A Science Odyssey. Video and audio clips, interactive activities, photographs, diagrams, illustrations, and images of documents bring science to life in exciting interactive ways. Whether used in teacher presentations or assigned to students for self-study, these resources supplement static textbook lessons with compelling images and data.

Teachers' Domain is more than just a media repository. It is designed to give teachers what they need to inspire and educate students, and to prepare themselves for doing so. Teachers will find background essays that provide detail on each topic, discussion questions, lesson plans, correlations to standards, and related subject resources. With these contextualized, teacher-tested resources, educators don't need to spend valuable time searching the Internet to plan lessons. Customizable folders within Teachers' Domain provide educators with quick access to materials they've selected for ready use in class presentations and student assignments.

All resources are correlated to national standards, which can be consulted as needed. There are some state correlations as well. A menu of commonly taught topics and a searchable database make locating resources easy. Teachers' Domain is available at no charge, through the generosity of its funders and WGBH.

Public and private school teachers are invited to take advantage of Louisiana Public Broadcasting's free Unit-streaming service. With the service, teachers have internet access to more than 2,000 videos and 20,000 video clips to help enhance their classroom lesson plans. The clips cover a range of subjects and address state standards in each of the subject areas. To use this free service, teachers must have internet access and a password obtained from LBP by calling 1-800-272-8161, ext 4206 or 225-767-4206 in the Baton Rouge area. Teachers can e-mail a request to edserv@lbp.org

Here's a web site that allows you to generate graph paper in different types and dimensions:

IT'S HISTORY TIME IN SCIENCE!!

Are you trying to get your history connections going in science? Are you looking for a good way to "jump start" your classroom timeline? **Natalie Rowe, C.E. Byrd High School**, shares a way that she got her students involved in getting the timeline going. Each student was



assigned a Nobel Prize winning chemist; the final product for the project was a timeline card highlighting the work of the chemist. Each student's timeline card could then be added to the classroom timeline, modeling how the timeline would be used throughout the year. Other ways to add some "spice" to your timeline is to focus on famous African American scientists during Black History Month, or select a specific topic each month and have different classes participate in the research and timeline card development. Get everyone involved and let history shine as you make connections to science throughout the

SAFETY COURSE



The Laboratory Safety Institute (LSI) will offer a two-day short course on lab safety at the AmeriSuites-Baton Rouge on March 23rd and 24th, 2005. Secondary science teachers, science department heads, and science supervisors are encouraged to participate as a means of improving their lab safety programs. The course outline and registration information is posted at LSI's website, www.labsafety.org For more information, contact Ana Adams (Aadams@labsafety.org or 508-647-1900).

Further contact information is:

The Laboratory Safety Institute
Safety in Science and Science Education
192 Worcester Road
Natick, MA 01760
508-647-1900
508-647-0062 FAX
508-574-6264 cell
<http://www.labsafety.org>

Louisiana Youth Environmental Summit: July 25-28, 2005
Chicot State Park in Ville Platte, LA

For students entering 8th through 11th grades

Experience an intensive, free three-day summit of select middle and high school students and their adult sponsors. Students and sponsors join educators, scientists, policy makers, regulators, dynamic speakers and special guests to discuss environmental issues and actions.

Afterwards students are encouraged to work on environmental-based, community projects with the assistance of their adult sponsors. Students can apply for grants to assist their projects financially. And those students completing their projects are eligible to apply for the Louisiana YES student mentor program.

Louisiana YES sponsors, Cleco Corporation and Audubon Louisiana Nature Center, believe today's students will become tomorrow's environmental leaders. We can work together to shape Louisiana's environmental future—one project at a time.

All summit costs including meals, lodging, educational materials and supplies, field trips, entertainment, recreation and transportation are provided. The only cost not covered is transportation to and from the summit.*

Base camp is beautiful Chicot State Park in Ville Platte, but we'll also take field trips to study environmental issues in surrounding areas.

For more information contact Kathleen Welch at (504) 378-4149, or e-mail lnceducation@auduboninstitute.org.

To download a student application go to <http://www.auduboninstitute.org/lnc>

*A limited number of stipends are available to help defray these costs.



No Dentist Left Behind Act

John S. Taylor, Superintendent of Schools for the Lancaster County, PA, School District

If you don't understand why educators resent the NO CHILD LEFT BEHIND ACT . . .

The Best Dentist---"Absolutely" the Best Dentist

My dentist is great! He sends me reminders so I don't forget checkups. He uses the latest techniques based on research. He never hurts me, and I've got all my teeth, so when I ran into him the other day, I was eager to see if he'd heard about the new state program. I knew he'd think it was great.

"Did you hear about the new state program to measure effectiveness of dentists with their young patients?" I said.

"No," he said. He didn't seem too thrilled. "How will they do that?"

"It's quite simple," I said. "They will just count the number of cavities each patient has at age 10, 14, and 18 and average that to determine a dentist's rating. Dentists will be rated as Excellent, Good, Average, Below average, and Unsatisfactory. That way parents will know which are the best dentists. It will also encourage the less effective dentists to get better. Poor dentists who don't improve could lose their licenses to practice."

"That's terrible," he said.

"What? That's not a good attitude," I said. "Don't you think we should try to improve children's dental health in this state?"

"Sure I do," he said, "but that's not a fair way to determine who is practicing good dentistry."

"Why not?" I said. "It makes perfect sense to me."

"Well, it's so obvious," he said. "Don't you see that dentists don't all work with the same clientele; so much depends on things we can't control. For example, I work in a rural area with a high percentage of patients from deprived homes, while some of my colleagues work in upper middle class neighborhoods. Many of the parents I work with don't bring their children to see me until there is some kind of problem; I don't get to do much preventive work at all."

"Also, many of the parents I serve let their kids eat way too much candy from an early age, unlike more educated parents who understand the relationship between sugar and decay. To top it all off, so many of my clients have well water which is untreated and has no fluoride in it. Do you have any idea how much difference early use of fluoride can make?"

"It sounds like you're making excuses," I said. I couldn't believe my dentist would be so defensive. He does a great job. "I am not!" he said. "My best patients are as good as anyone's, my work is as good as anyone's, but my average cavity count is going to be higher than a lot of other dentists because I chose to work where I am needed most."

"Don't get touchy," I said.

"Touchy?" he said. His face had turned red and from the way he was clenching and unclenching his jaws, I was

afraid he was going to damage his teeth. "Try furious. In a system like this, I will end up being rated average, below average, or worse. My more educated patients who see these ratings may believe this so-called rating actually is a measure of my ability and proficiency as a dentist. They may leave me, and I'll be left with only the most needy patients. And my cavity average score will get even worse. On top of that, how will I attract good dental hygienists and other excellent dentists to my practice if it is labeled below average?"

"I think you are overreacting," I said. "'Complaining, excuse making and stonewalling won't improve dental health'...I am quoting from a leading member of the DOC," I noted.

"What's the DOC?" he asked.

"It's the Dental Oversight Committee," I said, "a group made up of mostly lay persons to make sure dentistry in this state gets improved."

"Spare me," he said, "I can't believe this. Reasonable people won't buy it," he said hopefully.

The program sounded reasonable to me, so I asked, "How else would you measure good dentistry?"

"Come watch me work," he said. "Observe my processes."

"That's too complicated and time consuming," I said. "Cavities are the bottom line, and you can't argue with the bottom line. It's an absolute measure."

"That's what I'm afraid my parents and prospective patients will think. This can't be happening," he said despairingly.

"Now, now," I said, "don't despair. The state will help you some."

"How?" he said.

"If you're rated poorly, they'll send a dentist who is rated excellent to help straighten you out," I said brightly.

"You mean," he said, "they'll send a dentist with a wealthy clientele to show me how to work on severe juvenile dental problems with which I have probably had much more experience? Big help."

"There you go again," I said. "You aren't acting professionally at all."

"You don't get it," he said. "Doing this would be like grading schools and teachers on an average score on a test of children's progress without regard to influences outside the school, the home, the community served and stuff like that. Why would they do something so unfair to dentists? No one would ever think of doing that to schools."

I just shook my head sadly, but he had brightened.

"I'm going to write my representatives and senator," he said. "I'll use the school analogy- surely they will see the point."

He walked off with that look of hope mixed with fear and suppressed anger that I see in the mirror so often lately.

How To Write A Simple Experimental Report

1. Title

Write a sentence that relates the independent and dependent variables that were investigated.

2. Introduction

Describe the rationale, purpose, and hypothesis for the investigation. Use three questions to guide your writing of the introduction.

- Why did you conduct the experiment? (Rationale)
- What did you hope to learn? (Purpose)
- What did you think would happen? (Hypothesis)

3. Experimental Design

Format the experimental process.

- Begin the diagram by drawing a rectangle.
- Write the Independent Variable across the top of the rectangle
- Divide the rectangle into labeled columns to represent the different levels of the independent variable.
- Indicate the number of trials in each column
- Write the Dependent Variable and constants (C) beneath the rectangle.

4. Procedure

List the steps followed to complete the investigation. Include the following:

- Materials
- Variables – include independent variable, dependent variable, variables held constant
- Step by Step Directions

5. Results

Complete a data table and an appropriate graph for the data using the following guidelines.

Data Table

- Make a table containing vertical columns for the independent variable, dependent variable, and derived quantity (average). *The independent variable is on the left.*
- Subdivide the column for the dependent variable to reflect the number of trials.
- Order the values of the independent variable-preferably from the smallest to the largest.
- Record values of the dependent variable.
- Compute the derived quantity (average).

Graph

- Draw and label the X and Y axes of the graph.
- Determine an appropriate scale for the X and Y axes; subdivide the axes.
- Plot the data points on the graph.
- Write a sentence to summarize the data trends on the graph

6. Conclusion

Describe the purpose, major finding, an explanation for the findings, and recommendations for further study. Use six questions to guide your writing of the conclusion.

- What was the purpose of the experiment?
 - What were the major findings? *Summarize major findings in one or two sentences; state your interpretation of the data.*
 - Was the hypothesis supported by the data?
 - How did your findings compare with other researchers or with information in the textbook?
 - What possible explanation can you offer for the findings?
 - What recommendations do you have for further study and for improving the experiment?
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