



BSERVATIONS

A Newsletter of the Georgia Science Teachers Association

VOLUME XXII, NUMBER III January 2004

Input Needed in Science Curriculum Revision

by Nancy Brim

In January, the culmination of nine months work will be available for everyone to view. The updated Quality Core Curriculum will be released for public review. According to Steve Pruitt, the notable difference in the Science QCC is that instead of being purely at the knowledge learning level, they are performance standards. The motto is 'Less is More'. The performance standards will allow for depth of content to be taught and the teacher will have examples of student to work find out if their students are performing satisfactorily.

Phase I of the QCC rewrite took place this summer with the Curriculum Expert Advisory Board which selected the national standards that served as a model for the science QCC. Later in the summer, the teacher teams reviewed the models and wrote performance standards. A draft of the revised curriculum was to be presented to the State School Board in December. If the Board approves the draft, then the science curriculum will be placed at the DOE website (<http://www.doe.k12.ga.us>) for public review from January through March.

This is where you come in. This is the chance for Georgia science teachers to have a say in what they teach. Most district curriculums are based on the state standards. Poorly written state standards can lead to poorly written district standards and unhappy teachers. In January, information on how to review the standards will be posted at the GSTA website (www.georgiascienceteachers.org) when the QCC is available for review. Comments will be considered which address two things: the appropriateness of the language of the standard, and the placement of the standard in a grade. These are the only two issues which will be considered as the DOE looks at the comments entered.

Once the public comment section is over, revisions based on your comments will be made. This will take place during April and May. Kathy Cox, the state school superintendent intends to hold meetings throughout Georgia to discuss the QCCs. At this time the plan is to phase in the curriculum over time. Starting in 2004-05 a few more grades will be added each year. Each grade will have one year of training and transition, followed by the implementation of the aligned test during the second year. This phase in will run from 2004-05 until 2008-09. The 8th grade change is scheduled to come on line during the year of textbook selection.

The new standards were written with the Benchmarks for Scientific Literacy, the American Association for the Advancement of Science's publication, in mind. Vocabulary lists have been added to assist students in developing a common language. There is more emphasis on process skills at all age levels and a reading standard has been added which makes the science QCC in line with the other core curriculums. The new goal is to "Do science, not View Science."

... continued on page 2

Table of Contents

Pages 2 & 3

- GSTA Board members
- President's Column
- Jekyll Island 4-H Center Renovations

Page 4 & 5

- What's Going On In Science?
 - Flower Parts
 - Classroom Practice

Pages 6 & 7

- NASA Space Place
 - So Many Galaxies
 - District 7 Science Strands
 - Hurricane Team Work

Page 8 & 9

- Georgia Aquarium Survey
- Ocean Science Leadership Institute

Pages 10 & 11

- Flinn Science Laboratory Help
- GSTA Membership form
- GSTA Foundation information

Page 12

- Governor's Honors Program



Visit our new website at www.georgiascienceteacher.org

Editorial Staff**Bob Williams:** Editor (bobwms@comcast.net)**Ellen Roach:** Assistant Editor
emroach@bellsouth.net**GSTA Officers (2003-2004)****Venetia Butler,** President
venetia.butler@savannah.chatham.k12.ga.us**Steve Rich,** Middle School Rep.
srich@douglas.k12.ga.us**Karol Stephens,** GSTA Director
KrlStephens@aol.com**Gail Marshall,** President Elect
Legislative Committee Chairperson
gmahs@mindspring.com**Jamie Akin,** Secretary
jdhakin@aol.com**Bob Moore,** Executive Secretary
bobm875218@aol.com**Tom Howick,** College Rep.
thowick@kennesaw.edu**Nancy Brim,** Secondary Rep.
nbrim@mindspring.com**Michael Pope,** Middle School Rep.
maddscientistso@hotmail.com**Teri Sheppard,** Elem. School Rep.
sheppardt@clarke.k12.ga.us**Marion Reeves,** Supervisors Rep.
marion_reeves@earthlink.net**Dawn Hudson,** District I Director
dawnhudson@mindspring.com**Suzanne Bellflower,** District II Director
sbellflower@piedmont.edu**Peggy Baugh,** District III Director
baugh@mindspring.com**Rachel Foster,** District IV Director
rachelf87@hotmail.com**Bruce Murdock,** District V Director
murdock.bruce@fcboe.org**Tommie Ford,** District VI Director
scooter302@aol.com**Carol Miller** District VII Director
cmiller.westside@bibb.k12.ga.us**Dan Ailes,** Dist. VIII Director
Dan.Ailes@savannah.chatham.k12.ga.us**Connie Barrow,** District IX Director
conniedamo@aol.com**Linda Chitty,** District X Director
lchitty@darientel.net**David Hedgepeth,** District XI Director
dhedgepe@valdosta.edu**Teresa Massey,** District XII Director
Teresa_A_Massey@fc.dekalb.k12.ga.us**The President's Column****The Future is Now!**

In my younger years, I was a fan of science fiction and really got into movies such as 2001: A Space Odyssey and reading Aldous Huxley. The future I was reading about then is now and the world of science keeps changing so fast it is impossible to keep up. Is this what was meant by "future shock"?

Did you know there is a 4th state of matter? There are solids, liquids, and gases that we are familiar with. There is also PLASMA, the 4th state of matter. We are familiar with it, too. We've all seen lightening, used neon or fluorescent lights and at least heard about the Aurora Borealis, the northern lights. We just didn't know it was another state of matter called "plasma". It is also used in etching computer chips, rockets, and fusion experiments. You may have even played with a Nebula Ball or watched a plasma television screen. Plasma is ionized particles, 10,000 degrees Fahrenheit or higher, with unique behaviors. Plasma related technologies and new discoveries in the basic behaviors of plasmas will greatly impact our future world. The American Physical Society has an education outreach group that is working hard to enlighten our teachers and students so that plasma science will become an integral part of science curriculums.

The point of all this is to say that science research information is changing so fast that our textbooks can not keep up. Good teachers know that textbooks are a great resource, but should not be the driving force of our curriculum. It is up to us to keep ourselves informed and willing to weave the newest information into our teaching in order to best prepare our students for the future. One way to do this is by reading the journals and other publications by science organizations. Another is by attending the state and national science teachers' conferences to learn about the newest information available. We are fortunate to be having the most comprehensive conference of all right here in Georgia. Be sure to attend the National Science Teachers Association conference in Atlanta, April 1-4, 2004. Treat yourself, have a good time, meet the best, learn about the future and enhance your teaching. You'll return to your schools with renewed enthusiasm and your students will love you for it!

Venetia Butler, President

"Curriculum" continued from page 1 ...

The biggest change is moving sixth grade physical science to eighth grade and eighth grade's earth science to sixth grade. The reasoning is that Earth Science is less abstract and thus easier for sixth grade minds to comprehend over the more abstract Physical Science. Some topics have been moved around in kindergarten through fifth grade, but not enough changes apparently that current textbooks will not fit.

Only four courses in high school have been rewritten at this time. They are biology, physical science, chemistry, and physics. As these courses are the norm for a lot of high school students, they were chosen to be completed first. The other courses will be added eventually with Human Anatomy and Environmental Science to be developed next. Teachers will use the old QCCs for those courses until they are revised.

Jekyll Island 4-H Center Gets a New Look 2003 Renovations

The Jekyll Island 4-H Center is back – and better than ever! We were temporarily closed in February of 2003 to complete some structural renovations that were discovered while updating the facility. While repairing the damaged areas, we were able to make some other cosmetic and practical changes to the center. Here are a few of the changes that have occurred at our facility:

- replacing the AC units with newer, quieter models
- modifying the plumbing so that temperature changes in the showers are reduced
- updating the electrical systems in the rooms
- repainting the rooms
- replacing the floor tile in the rooms
- updating and increasing the number of VIP rooms from 2 to 4
- adding high-speed internet access and televisions to the VIP rooms
- opening the dorm rooms into the courtyard for improved security of the children
- removing the “back door” and rear walkways
- installing time clocks on the AC units so they do not run when children are not present
- adding motion detectors to the exterior lighting



above: main entrance to renovated dormitory building

below: redesigned chaperone's suite



Jekyll Island 4-H Center offers environmental education programs to the youth of Georgia and surrounding southeastern states. The education program focuses on barrier island ecology, salt marsh ecology, and maritime forest ecology. In addition to these core classes, visiting teachers can select from many elective classes (subjects include invertebrate studies, environmental issues, water chemistry, oceanography, botany) to build a program that best suits their individual curriculum and needs. Our program targets 3rd – 10th grade students, but can be adapted to suit any grade level.

The typical field study at Jekyll is a three-day, two-night “lunch to lunch” experience. Most groups arrive in time for lunch on the first day and stay through lunch on the third day. During this time, students participate in eight day classes (one and a half hours each) and four evening classes (one hour each). The qualified Jekyll staff teaches seven of the day classes while the visiting teacher leads one day class (select from a variety of ideas), and the Jekyll staff leads two of the evening programs while the visiting teacher leads the other two evening programs. The cost for the 2003-04 school year, including lodging both nights for a lunch to lunch program, is \$75 per person.

The Jekyll Island 4-H Center calendar opens each August for the next school year. We are typically booked one school year in advance. We are currently booking schools for the 2004-05 school year. The take-home message: call now for dates during the next school year! For scheduling or general questions or comments, please use the contact information below. Thanks and we hope to see you at the beach!



left: renovated cafeteria

right: dormitory



Melanie Melancon Biersmith, Program Coordinator

Jekyll Island 4-H Center

201 S. Beachview Drive, Jekyll Island, GA 31527

PH: 912-635-4117 • FAX: 912-635-4135

ejekyll@uga.edu • www.jekyll4h.org

for information about the APRIL 1-4, 2004 NSTA Conference in Atlanta
and to register on-line, please visit: <http://www.nsta.org/conventions>

Assessing Students' Understanding About "Flower Parts"

by Constance D. Barrow

One of the things that Middle School and Elementary School students habitually have problems with is the understanding of sexual reproduction in plants. In order to assess their current understanding and use it as a spring board for appropriate instruction, I designed this lesson. Part of the lesson was used as a section in my National Teacher Certification.

Materials: Paper, crayons, dissected flowers, overhead projector with word list, and pencils.

Notes: The words the students were asked to identify were: stem, leaf, petal, stamen, sepal, stigma, style, ovary, anther, filament, pollen, and pistil.

Procedure:

1. The students were given crayons and paper. They were told to write their name on the paper and given 5 minutes to draw a detailed picture of a flower "from memory"(the actual flower samples were covered at this time.) Most of the seventh graders in my classes tended to draw stereotypical simple line pictures of flowers at this point.
2. Actual flowers were placed in front of the students. The flowers were dissected to remove half the petals so that the flower organs were visible.
3. The students were asked to draw the flower they saw. (This resulted in a much more detailed drawing of the flowers by every student.)
4. The students were shown a list of plant parts (not shown to the student until now) and asked to label the associated parts of the flower using these terms. They were encouraged to guess if they did not know.
5. After a brief discussion about the symbols used for male and female (the looking glass of Venus; the shield and spear of Mars), the students were asked to assign male and female symbols to the parts that they had drawn, if the parts related to reproduction.

Goals:

The goal for this instructional sequence is to evaluate the students knowledge of plant function, reproduction and anatomy. It was important to understand my students' current knowledge and begin to build from there. The standard my students will take with them as a result of this lesson is that "Plants also reproduce sexually - the eggs and sperm are produced in the flowers of flowering plants." (pg. 76 ; Benchmarks for Science Literacy). I also wanted to interpret the student's knowledge of producers' ability to transfer the energy of sunlight (via photosynthesis) into chemical energy. Both of these goals are important because they support teaching for understanding and represent part of our county's required high school biology curriculum.

The students' observations, both in their responses and illustrations, allowed me to evaluate their processing skills. The assignment of male and female symbols to parts allowed me to evaluate their classification skills. An important learning goal for my students is to increase their understanding of plants and improve their process skills in the areas of communication and classification.

Conclusion: These drawing indicated how much the students knew about plant anatomy and reproduction. Most of my students' responses were far from correct.

Unit Overview:

The students then researched and compared the parts of different flowers. They analyzed their drawings and compared them to diagrams. It was interesting to hear them discuss why a certain part was not a stamen or pistil. The next day, they drew, "graded" each others' drawings and helped "correct" them - so that each student got an "A" on that daily grade.

After learning more information by selected readings and written feedback, the students grew dirt-and-grass-seed Chia pets from old socks, examined spuds, and started rooting plants. The students reviewed with Botany -Jeopardy and mnemonic exercises. The unit about plants also included reading, more drawing (using flowers donated by a local florist), watching a film and taking notes. The students were then evaluated on their knowledge by repeating the assessment lesson. This time, the same list of parts and symbols were provided but no real flowers were available to the students. They were asked to draw the flowers from memory.

I was amazed at the results!! The students not only drew more accurate flowers but they also correctly labeled a significant number (about 80%) of the parts more correctly. This assessment lesson can be geared "up" or "down" for upper and lower grades. For a copy of my handouts and lesson plans regarding this subject, please feel free to contact me at ConnieDamo@aol.com.

CLASSROOM PRACTICE

by Ellen Roach

As the K-5 science lab instructor at an elementary school, one of my responsibilities is to design concrete, hands-on activities to help Kindergarten students comprehend their science learning objectives while approaching learning as an inquiry. One successful set of inquiry lessons deals with creating shadows. Quality Core Curriculum objectives K.9 and K.10 hold the expectation that students will understand how shadows occur, predict where they will occur, as well as recognizing that placement of the light source changes the shadows appearance. This unit relies on having the students search for answers rather than being provided with information.

We begin our study of shadows by allowing every student to create a shadow using an old filmstrip projector light. As a student creates a shade, the entire class is observing to discover what a shadow "recipe" entails. As they attempt to create a shadow, a student will note that the light must fall on the object to make a shadow. As students get comfortable making shadows, I ask if a shadow can be seen anywhere. Most think so, until a student decides to make a shadow on the window but finds in the attempt that no shadow is visible. We ask what the difference can be. Students know that a shadow should have been made because they observed light as it fell on the object. But there is no shadow! Then we return to investigate places where they have observed a shadow. They discover that a shadow needs to be "caught" by something that the light cannot go through. So, the recipe for a shadow, according to my K classes, is this: a light, an object, and a solid background.

During the next lesson, the students must first recall this recipe. I ask them if they can change the size of the shadow they have made. Much experimentation takes place; moving between the light and the background produces the anticipated outcome. The seated observers are usually the individuals who notice a correspondence to the distance of the object to the light source as being the critical factor. These students then proceed to cheerlead others who are trying to discover the trick of shrinking or enlarging the shadow size.

The following lesson explores where a shadow will fall if the shadow maker knows the source and direction of the light. I provide groups of students with a large paper (12 inch diameter) clock face. Students place an object in the middle of the clock face which will produce a shadow when a flashlight is directed to it. The flashlight takes a lap, round robin style, of the table. As

each child gets his/her turn to shine the light, he/she is asked to place the flashlight horizontally on a specific number of the clock face with the light directed at the object in the center. I ask a volunteer at each table to find what number the shadow of the object touches. After the students at each table have taken a turn and identified where the shadow has fallen, the flashlight is turned off. Students then take a turn during which time they are again directed to place the flashlight on a number facing the object. (Different numbers are used this time.) Students are asked to tell what number the shadow will occur on if the flashlight is turned on. After this information is relayed for each group, the lights are lit and students do a self check to see if their powers of prediction are accurate. It has been amazing to see how totally Kindergartners comprehend the movement of the shadow as it relates to the movement of the light source. Next, we change the angle and height of the light. Students are asked to compare the shape of the shadow with the various angles and heights.

As an evaluation piece, students present a shadow puppet play during which they must make a shadow and change its size. They enjoy the activity so much that they do not realize that an assessment of their knowledge is taking place. To follow up and check their memories, we go out and watch for our personal shadows at different times of the school day. Students are asked to provide oral responses to explain why their shadows shapes and directions differ from a previous visit.

Some indirect learning skills developed during this unit on shadow and light. Good observation skills helped the students recognize what was happening as others performed the task of creating a shadow or moving the light source. Real thinking about what was happening to change the shadow size occurred. And, finally, peer coaching took place. As the cheerleaders loaned each other the benefit of their observation and thinking, they were modeling thought processes AND providing encouragement to students who did not "see" as quickly as they did.



Counties in GSTA Districts

District I Dade, Catoosa, Walker, Whitfield, Murray, Gordon, Chattooga, Floyd, Bartow, Polk, Paulding, Haralson

District II Cherokee, Forsyth, Hall, Banks, Franklin, Hart, Stephens, Habersham, White, Lumpkin, Dawson, Pickens, Gilmer, Fannin, Union, Towns, Rabun

District III Cobb, Douglas, Fulton, Clayton

District IV Jackson, Madison, Elbert, Barrow, Jasper, Oconee, Clarke, Oglethorpe, Wilkes, Lincoln, Taliaferro, Greene, Putnum, Morgan, Walton

District V Carroll, Heard, Coweta, Fayette, Henry, Spalding, Butts, Lamar, Pike, Meriwether, Troup, Upson

District VI Harris, Talbot, Taylor, Macon, Muscogee, Chattahoochee, Marion, Schley, Sumter, Webster, Stewart, Randolph, Clay, Quitman

District VII Monroe, Jones, Baldwin, Wilkinson, Twiggs, Bibb, Crawford, Peach, Houston, Bleckley, Laurens, Treutlen, Montgomery, Wheeler, Dodge, Pulaski, Dooly, Wilcox, Telfair

District VIII Jeff Davis, Appling, Wayne, McIntosh, Long, Liberty, Bryan, Chatham, Effingham, Bulloch, Chandler, Evans, Tattnall, Toombs

District IX Hancock, Warren, McDuffie, Columbia, Richmond, Burke, Jefferson, Washington, Johnson, Emanuel, Jenkins, Screven, Glascock

District X Clinch, Ware, Charlton, Camden, Glynn, Brantley, Pierce, Bacon, Coffee, Atkinson

District XI Terrell, Lee, Crisp, Turner, Ben Hill, Irwin, Tift, Worth, Dougherty, Calhoun, Early, Baker, Mitchell, Colquitt, Cook, Berrien, Lanier, Echols, Lowndes, Brooks, Thomas, Grady, Decatur, Seminole, and Miller

District XII DeKalb, Gwinnett, Newton, Rockdale

So Little Time, So Many Galaxies

By Dr. Tony Phillips



Fourteen billion years ago, just after the Big Bang, the universe was an expanding fireball, white hot and nearly uniform. All of space was filled with elementary particles and radiation. "Soupy" is how some cosmologists describe it.

Today the universe is completely different. It's still expanding-even accelerating-but there the resemblance ends. The universe we live in now is "lumpy." Great cold voids are sprinkled with glowing galaxies. In galaxies, there are stars. Around stars, there are planets. On one planet, at least, there is life.

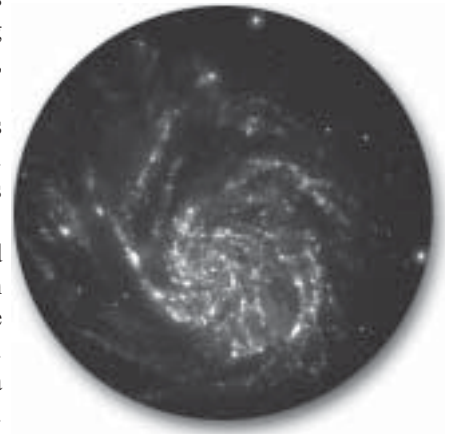
How we got from there to here is a mystery. Finding out is the goal the Galaxy Evolution Explorer, "GALEX" for short, a small NASA spacecraft launched into Earth orbit April 28, 2003. GALEX carries an ultraviolet (UV) telescope for studying galaxies as far away as 10 billion light-years.

"GALEX is a time machine," says astronomer Peter Friedman of Caltech. Because light takes time to travel from place to place, pictures of distant galaxies reveal them as they were in the past. "GALEX is investigating the evolution of galaxies over 80% of the history of our universe."

The Hubble Space Telescope can see faraway galaxies, too, but GALEX has an advantage: While Hubble looks in great detail at very small regions of the sky, GALEX is surveying the entire sky, cataloging millions of galaxies during its 2-year mission. GALEX is a UV mission for a reason. Friedman explains: "UV radiation is a telltale sign of star birth." Stars are born when knots of gas condense in interstellar clouds. The ones we see best are the big ones-massive stars that burn hot and emit lots of UV radiation. "These stars are short-lived, so they trace recent star formation."

Understanding star formation is crucial to studies of galaxy evolution. When galaxies collide, star formation surges. When galaxies run out of interstellar gas, star formation wanes. In galaxies like the Milky Way, spiral arms are outlined by star-forming clouds. The shapes of galaxies, their history and fate ä they're all connected by star formation.

Even life hinges on star formation, because stars make heavy elements for planets and organic molecules. "Our measurements of UV radiation will tell us both the rate at which stars are forming in galaxies and the distances of the galaxies," says Friedman. How did we get here? GALEX will show the way. Find out more about GALEX at www.galex.caltech.edu. For children, visit The Space Place at spaceplace.nasa.gov/galex_make1.htm and make a beautiful galactic mobile while learning about some of the different shapes galaxies can take.



This image of Messier 101 (M101), aka the "Pinwheel Galaxy," was taken in two orbits of GALEX on June 20, 2003. M101 is 20 million light years away.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

District 7 Science Strands

Come hear about the new science strands! GSTA District 7 is sponsoring a science curriculum seminar featuring Stephen Pruitt, State Science Program Specialist, on Saturday January 10th.

Mr. Pruitt will cover in detail the changes being made to the science curriculum and the time schedule for this implementation. For elementary and middle schools, the curriculum is being trimmed down with the expectation that the students will achieve a much greater depth in their science based knowledge and a higher level of scientific literacy. "Doing science not viewing science" is a major objective and to achieve this goal students will be expected to successfully complete a given task list and other specifically designed student work. K-5 changes could phase in during 2005-06, while 6-12 during 2004-05. Middle Schools big change is the moving of earth science to 6th grade and physical science to 8th grade.

In grades 9-12, biology, chemistry, physical science, and physics are the first four courses to become performance based. Mr. Pruitt will explain the changes in the QCC's for these courses, and he also hopes to bring examples of assessments as handouts.

Please pass the word to all of your fellow science teachers in district 7 about the meeting January 10th at Westside High School in Macon from 10:00 AM to NOON. Refreshments will be served. RSVP at millfarm6@aol.com and directions will be given by return email. **Don't forget NSTA April 1st - 4th in Atlanta, GA!!**



Hurricane Team Work

by Dr. Tony Phillips

On a gray breezy day last October thousands of people got in their cars and reluctantly left home. U.S. east coast highways were thick with traffic. Schools were closed. Businesses shut down.

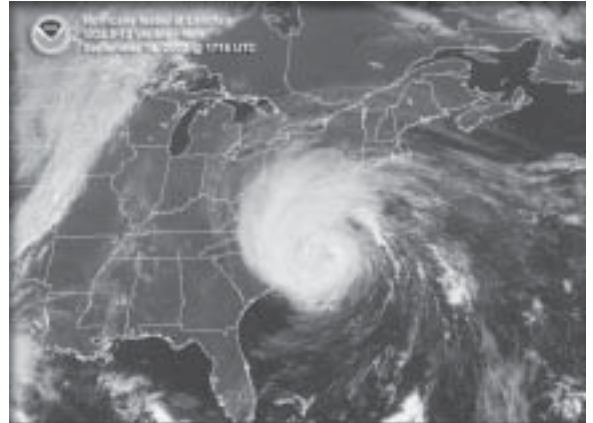
Perfect! When powerful Hurricane Isabel arrived some 38 hours later nearly everyone in the storm's path had fled to safety.

Days later Vice Admiral Lautenbacher, in a briefing to President Bush, praised the National Atmospheric and Oceanic Administration (NOAA): "Without NOAA's excellent track forecasts, hurricane Isabel's toll on lives and property would have been even more devastating. This is NOAA's first year of providing 5-day forecasts-and the 5-day forecast for Isabel was as good as our 2-day forecasts have been over the last decade."

Many people in NOAA played a role. A team of pilots, for instance, flew Gulfstream-IV High Altitude Surveillance jets right up to the approaching hurricane, logging 25,000 miles in the days before landfall. Their jets deployed devices called dropsondes-little weather stations that fall toward the sea, measuring pressure, humidity, temperature and wind velocity as they plummet. The data were radioed back to the aircraft and transmitted to forecasters on shore.

While two Gulfstream-IV crews flew night and day around the storm, a NOAA satellite named GOES-EAST monitored Isabel from above. (GOES is short for Geostationary Operational Environmental Satellite.)

From an orbit 22,300 miles above the Atlantic Ocean, GOES-EAST had a unique view. "It could see the entire hurricane at once," says Ron Gird of NOAA. "Scientists used infrared spectrometers onboard the satellite to estimate the height of the storm clouds, their temperature and water content. GOES can also measure the temperature of the ocean surface-the source of power for hurricanes."



GOES-East satellite image of hurricane Isabel as it makes landfall on September 18, 2003.

Constant streams of data from GOES and the Gulfstream aircraft were fed to supercomputers at NOAA's Environmental Modeling Center in Maryland where sophisticated programs, developed over the years by meteorologists and programmers, calculated the storm's most likely path.

Supercomputers. Satellites. Jet airplanes. Scientists. Programmers. Pilots. It took a big team using a lot of tools to predict where Isabel would go-accurately and with time to spare. Says Vice Admiral Lautenbacher: "I hope everyone at NOAA shares the pride of being part of a team effort that so effectively warned the public of impending danger and enabled citizens to take action to protect themselves and their loved ones."

Well done, indeed.

To learn more about the GOES, see www.oso.noaa.gov/goes/. For kids, the SciJinks Weather Laboratory at scijinks.nasa.gov has lots of fun activities and fascinating facts about the wild world of weather.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

ATTENTION PHYSICS TEACHERS!

Arizona State University in Tempe invites high school physics chemistry, and physical science teachers nationwide to enroll in summer graduate courses in physics pedagogy, interdisciplinary science, and contemporary physics. Modeling Workshops are included. The program can lead to a Master of Natural Science degree. An NSF grant provides stipends, some free tuition, and free housing. Families are welcome! E-mail Jane.Jackson@asu.edu, or visit <http://modeling.asu.edu>

MARINE EDUCATION WORKSHOP

Newfound Harbor Marine Institute is a marine and environmental education program for students 4th grade through college located on Big Pine Key, in the Lower Florida Keys, 120 miles southwest of Miami. Our facility is accessible by air with airports located in Miami, Ft. Lauderdale, or Key West. This Marine Education Workshop will offer the opportunity to study a variety of subjects. Unique sub-tropical program sites include: Soft and Hard Corals, Mangrove Islands, Sponge and Seagrass Beds, Goniolithon Shoals and Labs, and the Looe Key National Marine Sanctuary. All educators, naturalists, and others with an interest in the marine environment are invited.

FRIDAY, FEBRUARY 13 – MONDAY, FEBRUARY 16, 2004 COST: \$200.00/PERSON

Registration includes three nights lodging, eight meals (Saturday breakfast through Monday lunch), lectures, field trips and snorkel gear. If you are interested, please contact us toll free at: 1-877-732-2267 or visit our website at: www.nhmi.org

GEORGIA AQUARIUM SURVEY

We (The Georgia Aquarium's Office of Educational Programming) are currently seeking feedback prior to developing our education programs so we can best meet the needs of the educational community in Georgia. Your input is greatly valued and appreciated. Please fill out the brief survey below and you will receive an invitation to the pre- opening Aquarium Educators Meeting where you will receive a free gift for your participation.

1. Do you believe informal education institutions (zoos, museums, conservation centers etc.) are beneficial in helping teachers and students meet the goals of the educational curriculum in Georgia?

___ Yes ___ No

Please explain your answer

2. How can the Georgia Aquarium help you meet/ or continue to meet your curriculum needs?

3) Do you feel there are obstacles that impede your ability to take your class on educational fieldtrips?

___ Yes ___ No

Please explain your answer

4. How can the Georgia Aquarium assist you in meeting your educational curriculum needs?

5. What do you feel would be a reasonable time for your group to arrive and depart when visiting the Georgia Aquarium? (We will be located next to Centennial Park in Atlanta)

Arrival _____ Departure _____

Thanks for your participation!

Name _____
Address _____
City _____ State _____ Zip Code _____
County _____ E-mail address _____

Which of the following titles would best describe your role in the education community. Please circle the most appropriate title.

[] Teacher grade level you teach ___ [] Administrator [] Other (please specify) _____

Please mail your response to:

Brian Davis
Director of Educational Programming
The Georgia Aquarium
2455 Paces Ferry Road
Atlanta, GA 30339

DEADLINE: Mail by February 1, 2004

SouthEast COSEE 2004 Ocean Sciences Education Leadership Institute

The SouthEast Center for Ocean Science Education Excellence (COSEE) will host the second Ocean Sciences Education Leadership Institute for middle and high school educators at the University of Georgia Marine Education Center and Aquarium on Skidaway Island in Savannah, GA on June 25 – July 1, 2004. The Institute is being sponsored by SouthEast COSEE, UGA/MECA, UGA Marine Extension Service, Skidaway Institute of Oceanography, NOAA/NOS—Sapelo Island NERR and Gray's Reef National Marine Sanctuary, NOAA/Ocean Exploration and GA Sea Grant.

Middle and high school science teachers from NC, SC and GA are invited to apply for selection. The Institute will consist of 30 teachers—10 teachers with two alternates will be selected from each state.

SELECTION CRITERIA:

Experience teaching marine science and/or ability to demonstrate that ocean related topics can be added to his/her curriculum within the state standard's framework.

Teachers from underrepresented groups or who teach a majority of students from underrepresented groups.

Recommendation from the principal that ocean topics can be used in the school and support for the peer teaching in a professional development situation, called SE PORTs.

BENEFITS TO THE PARTICIPANTS:

Travel expenses will be reimbursed and lodging and meals expenses will be provided.

Participants will receive a stipend of \$200 on the completion of the Institute's criteria.

Certificate renewal credit

PURPOSE OF THE INSTITUTE:

To introduce middle and high school science teachers to ocean science research in the areas of:

island dynamics (geology, relevance to development)

physical ocean parameters, such as currents, waves and wind

biological/ecological parameters (wetland/salt marshes, estuarine, off-shore)

To connect these teachers with ocean science researchers

To introduce teachers to high quality curricular materials and resources.

To prepare the participating teachers with the leadership skills necessary to conduct an "Ocean Awareness Day" at a SE PORT partner site in their local area.

The 2004 Ocean Sciences Education Leadership Institute consists of two parts:

Part One: Participation in the July 25-July 1, 2004 Institute residential experience

Part Two: Integration of the Institute Experiences in following school year course and developing and executing a SE PORT Ocean Awareness Day.

Participants in the Ocean Science Leadership Institute are required to develop a personal teaching plan for integrating ocean science into their classroom. This plan must be submitted by September 1, 2004 and implemented in the school year with your students.

Develop a SE PORT Ocean Awareness. This entails working with a team—other Institute members, SECOSEE staff and a partner institution—to develop the agenda for a 6-hour in-service for local teachers and educators. SECOSEE will provide the partner institution with an instructor's stipend for your effort and funds for supplies to implement the ocean awareness day. This SEPORT Ocean Awareness day must be completed by May, 2005.

Participate in follow-up evaluation surveys.

If available and appropriate for you, assist with the review and testing of curriculum materials developed by SouthEast COSEE partners.

**For an application visit our website at <http://www.scseagrant.org/se-cosee/education.htm>
or contact Margaret Olsen at olsen@uga.edu**

Available Now from Flinn Scientific:

New Acids and Bases ChemTopic™ Lab Manual

Acids and Bases is Volume 13 in our new curriculum series of 28 ChemTopic lab manuals organized around key content areas in the chemistry curriculum. *Acids and Bases* brings together the very best selection of experiments and demonstrations designed to help students fully explore the properties, principles and applications of acid – base chemistry.

ChemTopic Labs will help give teachers and students the necessary knowledge, skills, attitudes, and values to be successful in chemistry.

Flinn ChemTopic Labs:

- Include 4-6 student-tested experiments and 3-5 attention-getting demonstrations.
- Were created under the direction of Flinn Scientific and an Advisory Board of seven master teachers with 180-plus years of chemistry teaching experience and numerous national chemistry awards.
- Meet National Science Standards
- Include background, pre-lab questions, key content, reproducible data tables and comprehensive teacher notes to help even beginning teachers succeed.
- Give you the flexibility to choose activities to match the concepts your students need to learn.

Acids and Bases (Catalog Number AP6260) is available from Flinn Scientific for \$11.95 plus shipping. To order, or for more information, call 1-800-452-1261.

and...

FREE Laboratory Safety Training

Flinn Scientific offers a free laboratory safety-training program via e-mail called Flinn Scientific Science Department Meeting Safety Notes. This unique program provides an informative 5- to 10-minute safety training lesson to science teachers every month. The training can be held as part of your monthly department meeting or can be organized as a short safety meeting.

Every month you will receive an e-mail linking you to an Internet address that will allow you to print the latest edition of Flinn Scientific Meeting Safety Notes. The safety notes include both a reproducible handout and a presenter's information guide. Very little preparation is required to conduct the safety meeting.

Simply e-mail your name, school name and address, and the subjects and grade levels that you teach to Flinn Scientific to receive your FREE Science Department Meeting Safety Notes.

Flinn Scientific, Inc.

P.O. Box 219

Batavia, IL 60510

E-mail: flinn@flinnsci.com

Web page: www.flinnsci.com

GSTA Members Urged to Support the GSTE Foundation

The Georgia Science Teachers Education Foundation, Inc. is a non-profit, tax-exempt corporation of GSTA.. It was organized to serve as the charitable arm of GSTA. The goal of the Foundation is to distribute awards and scholarships for promoting science education. The awards program of GSTA is administered through the Foundation.

GSTA members may contribute to the Foundation in two different ways. First, on the membership form there is a place where you can indicate that you want \$5.00 of your dues to support scholarships and awards through the Foundation. Second, members are encouraged to make additional tax-deductible contributions to the Foundation.

Levels of giving have been established for both individual and corporate donors. These levels are described below. Members are also urged to solicit corporate donations. Just as it is important that excellence in science teaching is rewarded and recognized, it is important that GSTA members support the Foundation, the vehicle through which this recognition takes place.

GSTA Members Urged to Support the GSTE Foundation

Annual tax deductible contributions may be made at several levels of giving as described below.

Individual Donors		Corporate Donors	
Member	\$ 5 (Check-off w/dues)	Supporter	\$ 200. (\$ 200 - \$ 499)
Bronze	\$ 15. (\$ 15 - \$39)	Friend	\$ 500. (\$ 500 - \$ 999)
Silver	\$ 40. (\$ 40 - \$69)	Advocate	\$1000. (\$1000 - \$2499)
Gold	\$ 70. (\$ 70 - \$99)	Patron	\$2500. (\$2500 - \$4999)
Platinum	\$100. (\$100 or more)	Benefactor	\$5000. (\$5000 or more)

Records of contributions will be kept on a calendar year basis. Individual contributions above the member level will be listed in Observations and/or the annual conference program unless the donor requests that this not be done. All corporate contributions will be listed in Observations and in the annual conference program.

Donations may be designated "in memory of" or "in honor of" a person who has had a significant role in their life or career. Appropriate acknowledgements will be mailed for such contributions.

Contribution Amount \$ _____

Name _____

Address _____

City/State/ZIP _____

Telephone _____

E-mail _____

Donation

In Honor of _____

In Memory of _____

Person to notify _____

Please check one:

- Yes, please list this contribution in Observations and/or the conference program.
- No, do not list this contribution in Observations and/or the conference program.
- I want this contribution to remain anonymous.

Please send this form and contribution, payable to the Georgia Science Teachers Education Foundation, Inc. to:

Dr. Bob Moore, GSTE Treasurer

GSTA
P.O. Box 2668
Stockbridge, GA 30281

GSTA Membership Application

Send applications (with check) to: GSTA • P.O. Box 2668 • Stockbridge, Georgia 30281

Please check one: new member or Renewal

Name: _____ Phone: (____) ____ - ____ (h) / (____) ____ - ____ (w)

Address: _____ City: _____ State: _____ Zip: _____

e-mail address: _____ GSTA District: _____

Employer: _____ School & System: _____

Level (check one): Elementary Middle High University Other

Subject Area (check most appropriate): Life Science Earth Science Physical Science

Dues: Regular \$30.00 / year • \$50.00 / 2 years • \$75.00 / 3 years • Joint GSTA / NSTA Membership = \$85 / year

Student \$10.00 (Must be a full time undergraduate or graduate student, confirmed by major professor's signature)

• Please note that our fiscal / membership year is July 1 through June 30 •

Please check here if you are willing to contribute \$5.00 of your dues to support scholarships and awards through the GSTA Foundation. Additional amount: \$ _____

New member sponsor: _____ (not required for membership)



GOVERNOR'S HONORS PROGRAM AT VALDOSTA STATE UNIVERSITY

The summer of 2003 marked the 40th year for the Georgia Governor's Honors Program, and the 23rd year that it was held at Valdosta State University in GSTA District XI. This year GHP brought 685 students to the Valdosta State campus from all over Georgia to participate in programs in agriscience/biotechnology, English (communications arts), foreign languages, mathematics, science, social studies, visual art, theatre, music, dance, design, technology and executive management. Instruction is also provided in four support areas: computers, counseling, library/media and physical fitness. Each department plans a program of studies and activities intended to challenge and empower the students in new and unique ways.

Admission to The Georgia Governor's Honors Science Program is a highly competitive process. A limited number of potential students can be nominated for consideration for GHP by each school. The qualified students are then interviewed by a panel of expert teachers. Students must also submit evidence of academic excellence, letters of reference, and a record of interest and activities in science. In 2003 there were seventy-five students who were selected to participate in the science program, with an instructor to student ratio of 1:15.

Instructors for each program are selected by the Georgia Department of Education staff and GHP administrators. The science staff for 2003 included, Mr. Isaiah Moore of Stockbridge High School, (Department Chair), Mrs. Sonja Guilbeau of Glynn

Academy, Mrs. Darlene Sabine of Pike County High School, Dr. Linda Wood of Lanier County High School, and Dr. David Hedgepeth of Valdosta State University. The GHP program is held for six weeks each summer, and is a residential program for gifted and talented high school students. The students are either rising seniors or juniors and live in the campus dorms with a residential life staff consisting mostly of graduate students from elite schools who are former GHP participants.

GHP's Assistant Program Director for Instruction is Mr. Dale Lyles who stated, "The program is shifting the focus of the science curriculum from a discipline-based survey approach to a problem-based learning approach. This past summer, the science instructional staff posed a problem to the students based on a local pond, Lake Louise, and asked students to propose research to investigate the problem. With continued tweaking by the summer's instructional staff and Mr. Steven Pruitt, the Georgia State Department of Education Science Program Specialist, the GHP science curriculum will indeed both become 'significantly different' and 'empowering'." And according to Mr. Pruitt, "You can say that we are having a shift in direction from the past.

We are going to provide our science major students with opportunities to spend quality time in their chosen branch of science. The curriculum is going to be full of rigor and inquiry learning suited for our best and brightest science students."

The GHP Science Department would like to encourage all GSTA teachers to consider nominating your outstanding students for the Summer 2004 session. It will certainly be an unforgettable experience for them. To find out more about the Governor's Honors Program you may check online at: <http://www.doe.k12.ga.us/support/sss/ghp.asp>

David Hedgepeth



Atlanta Conference
April 1-4, 2004

<http://www.nsta.org/conventions>



P.O. Box 2668
Stockbridge, GA 30281

OBSERVATIONS

an official Publication of the
Georgia Science Teachers Assn.

www.georgiascienceteacher.org

Presorted Standard
U.S. Postage
PAID
Savannah, GA
Permit No. 33