Summer is quickly approaching. Are you ready for it? We sure are!

The TaLL team is preparing for the Summer Math and Science Institutes.

The Summer Math Institute will be presented by Dr. Cathy Liebars, the topic is Discrete Math.

The Summer Science Institute will be run by Professors Linda Burroughs and James Messersmith, the topic is "Presenting Fundamental Concepts and Content Needed for Teaching Solid Elementary Science With Your Activities."

Both math and science institutes will be held at The College of New Jersey from August 23 to August 26, 2005. The institutes will include 3 days of math or science topics and a fourth day of mentoring and True Colors Equity and Diversity training.

The TaLL team is also working on other workshops to be held during the remainder of the school year and summer. Currently there is a Kits Planning workshop scheduled for June 1, 2005 for teachers to plan their ordering of materials for the next school year. Teachers will learn how to use kits with a variety of lessons and also how to dissect the kits for materials that can be used with more than one lesson. This will help them plan how to use materials over and over and to be prepared to start teaching Science in September.

Professors Burroughs and Messersmith would also like to get discussion groups together during the summer for teachers who teach the same grade levels in the different Trenton schools to share with others what they have been teaching or experiencing while teaching science. This process will help teachers in the district share experiences, suggestions, and frustrations so that they may address problems or areas that they may need improvement.

The TaLL Program has been designed to help the Trenton teachers with Math, Science, and Technology please contact us with any questions, comments, or suggestions that you may have.

We are always interested in bringing you workshops and courses on topics or areas that you will need for everyday classroom use so that we can help you help your students.
MATH-592 Data Analysis and Probability for Middle School Teachers

The Data Analysis and Probability Course was completed on May 12. Twenty Trenton middle school teachers (and some high school and Daylight/Twilight school teachers as well) participated in the 15-week graduate level math course. Teachers received 3-graduate level credits from The College of New Jersey as well as Professional Development hours for their participation.

The course gave teachers a deeper understanding of data analysis and probability. Physical materials, models, technology, and middle school curricula will be used to explore data, statistical measures, and elements of probability. Also, they learned how children learn mathematics and rationales for developing the methods and strategies for teaching the many topics in these mathematics curricula to children of diverse cultures.

By the end of the course teachers had a deeper understanding of processes and algorithms and the purposes beneath them that can be found in middle school curriculum. They gained a knowledge of the relationship of mathematics to other subjects and its application in society and relationships within mathematics itself. They also, increased their abilities to implement the five NCTM Process Standards (problem solving, reasoning and proof, communication, connections, and representations). Finally, they gained knowledge in the use of concrete manipulative materials, technology, and pictorial representations necessary in the development of data analysis and probability concepts and procedures.

Teachers also created quests that covered the correct use of mathematical terminology and a group project that explored the connection to pedagogical issues.

MATH-594 Patterns, Functions, and Algebra for Middle School Teachers

Patterns, Functions and Algebra is another graduate level math course that TaLL will be offering in the coming fall semester.

The course is open to all Trenton middle school teachers. This 15-week, 3-credit graduate level course will take place on Tuesdays from 4:00-6:30 p.m. at Hedgepeth/Williams Middle School. The cost of the course is $1275 to be paid by the Trenton District upon completion of the course with a passing grade.

The graduate level math courses are great opportunities for the Trenton teachers. The cost is free upon completion of the course with a passing grade. Participants receive 3 graduate level credits and professional development hours. MATH-594 course covers material that is current and is being used in the Trenton classrooms daily.

To register for MATH-594 for the Fall 2005 semester, please contact Michelle Ordini at 609-771-2295 or Mary Switzer at 609-771-2714 or print a registration form from the TaLL website at http://tall.intrasun.tcnj.edu and fax it to 609-771-3330.

Upcoming Math Events

Elementary Math Inquiry Institute:
Involving Investigations Curriculum
(a repeat of last summer’s workshop)
June 27-July 1, 2005
July 18-22, 2005
at The College of New Jersey
Presenters:
Dr. Sharon Sherman
K-2
Dr. Cathy Libbars
Grades 3-5
For more information please contact the Trenton Board Office

TaLL Summer Math Institute:
Discrete Math
What is it and how do we teach it?
For Middle School Teachers
August 23-26, 2005
at The College of New Jersey
For more information see the TaLL website at: http://tall.intrasun.tcnj.edu

MATH-594
Patterns, Functions, and Algebra for Middle School Teachers
A Graduate-Level Math Course
Fall 2005 Semester
Tuesdays from 4-6:30 pm
Beginning on September 6
at Hedgepeth/Williams Middle School
For more information see the TaLL website at: http://tall.intrasun.tcnj.edu
Savvy Cyber Classroom Applications

This semester, the TaLL Program offered a graduate level course on computer Internet applications. Carol Shields from the Stevens Institute of Technology taught the first 10 weeks of the course showing the Trenton Teachers hundreds of web sites useful for teaching science. These teachers learned to create their own web pages using this material. The second part of the course (the last 4 weeks) was taught by Linda Burroughs and included applications software not usually used in classrooms, but found to be very successful with students.

After giving the teachers some excellent pointers on new ways to use Power Point, Excel and Word for effect, she taught them ways to include Paint and create templates.

Digital Blue camcorders were used to record original clay animations created by the teachers as a study in sequential movement.

Music Maker is a wonderful program also used that not only enables one to write and listen to one's composition written from the keyboard, but was found to be a great way to reinforce the learning of fractions.

Teachers used satellite mapping to view landforms, locations and resources. It turned out to be another enjoyable Internet application that the students immediately saw as useful for social studies as well as science.

The final exam for the course included making a lesson plan for one of these applications and teaching it to students with Ms. Burroughs' mentoring. A very successful Web Quest was designed on "Phases of Matter" by Rose Quiles at Immaculate Conception School. The students were surprised to discover there are more than three states of matter! In this way, what is learned was applied later and discussed in our group. Real insights and true learning! We want our Fall 2005 graduate programs to be as enjoyable and learning rich for content and applications.

Some Comments From the Course!

~My experience taking the Savvy Cyber Teacher Course was absolutely amazing. I never dreamed that I could have learned so much in such a short period of time. I now have my own website complete with my very own web-quest! This is something I thought I would never be able to do. I now feel entirely computer literate and comfortable to incorporate technology into my weekly lesson plans. I can't even mention all of the interesting science-tech lessons we learned because there are way too many. The professors gave me the confidence I needed and were always encouraging. This course has not only changed the way I look at the integration of science and technology but it has also changed the way that I teach!

~Rose Quiles

~Science class has been not only more fun to teach, but my students enjoy it more, too. We can now use the website I created to enrich the science curriculum and compose music on the computer. My comfort levels with programs like Power Point has greatly increased. I would highly recommend this course for all teachers.

~Julia Jones

~As a participant/student I learned the intricacies of simple programs that can be incorporated into any class from K-8 to enhance a document or classroom performance. The computer instruments demonstrated made teachers more aware of the Technological equipment that is on the market that wouldn't make your pockets SeeSaw. The TaLL Program redirected me to my own teaching techniques and strategies. I heard some of the echoes, *Do It Again,* "I didn't get it," "Show Me Again" etc. Now I am more cognizant of my presentation in the classroom. All students need visual and actual hands on practice to master a concept. The TaLL Program did exactly that and now I am more aware of the student's various needs and abilities.

~Claudette C. Jones

~The Savvy Cyber course was one of the most beneficial professional development opportunities I have experienced. I was very limited in technology skills. All of my colleagues were aware of this, and I was always the subject of technology jokes. Since taking the training, I am now able to present information to the staff at my school, and I have earned much respect. My students are currently enhancing a States and Capitals unit with Power Point, and are planning for a science movie. I sincerely appreciate the positive instruction I received.

~Myra Williams

Project Astro at Raritan Valley Community

May 11, I attended the Project Astro Hands-on Workshop, and would strongly recommend it to all elementary school teachers, especially grades 3-6.

Along with excellent activities which (finally!) explain what is happening with the phases of the Moon, we investigated how the surface of Venus is mapped, how tides are created, what "Scale" means and how to present these concepts to children, and ended with how to make a comet!

The presenters were extremely knowledgeable and helpful with ideas and the workshop provided a huge binder of activities which could not be covered in one session so I am looking forward to attending both their summer workshops and enjoying more learning through these NASA researched activities for children. I hope to be able to work these ideas into Space Units for schools I mentor this coming year. It was well worth the time to attend!

~Linda Burroughs
Live Critters In The Classroom

This was a banner year for live critters in science lessons taught as a part of student investigations. Besides the incredibly successful butterfly rearing at Parker, Bayard used ladybugs in the pre-K as part of their Science Fair project with Ms. Shirley Chant. Frogs were reared and studied from tadpoles in Ms. Aiello’s kindergarten class. These children also studied habitat features, camouflage, cell development and care of tadpoles as a part of their activities. The third grade with Ms. Cutler worked in a Foss Unit on Organisms and had real first-time experiences handling crayfish and studying their behavior. The fourth graders under Ms. Onukwugha adopted the crayfish which rewarded them by hatching a dozen babies they could watch grow. These observations led to many ideas for science fair projects, and the children were thrilled when Ken Maskell came to their classrooms helped them view the crayfish under handheld magnification viewed on the TV monitor. Fifth grade girls wished to study the anatomy of frogs for their science project, and were rewarded with dissection instruction by Ms. Burroughs which they thoroughly enjoyed. They decided to do their own science fair display comparing frog and human organs. When a student expressed an interest in raising chicks, day-old peps were acquired from Moyer’s Chickens, an excellent Pennsylvania raiser. The entire school got to greet the chicks when they arrived, and shared stories of chicken lore for several hours after school. This also, became a science fair feeding study project. For those interested, Agway will take back any chicks after science class and Rosedale Mills has food. Care and study of endemic (natural to the New Jersey environment) should be encouraged, and is generally very easy and highly rewarding. This may be of interest to all of you for future workshops!

Science Fair at Bayard

The week of May 16 was the culmination of two months of hard work on Science Fair projects at Bayard Elementary. Edna Margolin strongly supports science education at her school, and encouraged her faculty and students by having a raining workshop, providing tri-fold boards for displays and utilizing Linda Burroughs, TLL science mentor, to work in the classrooms with both teachers and children. The children developed many original research projects such as measuring stress of students before and after the Terra Nova exams, observing water temperature choices for crayfish in a student-designed habitat, evaluating the best growing solutions for plants, evaluating different soaps and how fast they dissolve, and monitoring a chicken feeding study. The children were taught proper science report presentation and write-ups for the displays, and several classes received instruction from Ms. Burroughs on what a “Fair Test” means in a controlled experiment. Awards were given for many applications and special work displayed by the students at the Awards assembly.

Butterfly Release at Parker Elementary School

For the last month, second grade students at Parker School have been studying insects as their unit in science. As part of the project, the Butterfly Life Cycle was included to help the children understand the life cycle process. Forty butterflies were raised from caterpillars in net cages, fed and observed for behaviors. One lesson included observations of meal worm “caterpillars”; the children also observed and wrote about their real caterpillars as they spun silk cocoons and consumed all the food in their cups. They used butterflies from Bill’s Butterfly School Kit from Butterflies and Blueberries, Inc. which produced very healthy insects, and for only $80 a kit (others are also available in different price ranges). Check them out at www.butterflynursery.com

After a romantic weekend, all the fledging butterflies continued to feed on oranges, grow and lay hundreds of eggs. The children understood very clearly what this implied. One little boy said, “We can keep the eggs and feed the caterpillars, and make butterflies all summer long!” Clearly the Life Cycle was understood. A Celebration of Butterflies culminated in a joyous release in front of the school where all four classes participated. The released butterflies remained long enough for the children to catch and hold them, photograph them and then watch them fly away. This was a real life adventure!
Integrated math, science and technology

Make learning real! Make learning fun!

Come to a free Children Designing & Engineering™ Summer Workshop and learn about the fun of seamlessly integrating sciences and math with art and language through design and engineering (technology). Each workshop includes a free teacher’s guide with all lesson plans. Put knowledge to work, solving practical problems related to a real-world setting:

- Research, develop and launch a new juice drink product
- Design a germ-fighting kit with Gina the Germbuster

CD&E, the nationally acclaimed instructional program funded by the National Science Foundation, is offering two dynamic professional development workshops this summer at The College of New Jersey:

Workshop I - July 26, 2005/9am-3pm
Germbusters & Co. (K-2)
Young students learn how germs travel and how various products and practices help control their spread. Then, enlisted by fictional heroine, Gina the Germbuster, they make soap, test toothpaste, tissues and bandages, and design Germbuster Kits for themselves and other children their age.

Workshop II - July 27, 2005/9am-3pm
Juice Caboose (3-5)
Students learn how companies gauge consumer preferences and explore the physiology of taste in order to propose a new combination juice drink, then mass-produce, package, promote and launch the product.

To register, contact Alison Goeke at goeke2@tcnj.edu or 609-771-3244. Send name, school, grade level, contact phone# and/or email address, address where registration packet can be received.

DEADLINE FOR REGISTRATION: July 11, 2005

You will receive professional development hours upon completion.
What you don’t know about space but need to include in your classroom teaching.

**Family Astro**
Wednesday August 3, 2005 (9 a.m.-4p.m.)
Family Astro-Making Science Fun for the Whole Family
A program sponsored by Raritan Valley Community College and Somerset 4-H.
To help children and adults explore astronomy together.
Learn to lead family astronomy events about the “Night Sky” and “Our Solar System”
Fee-$150 per person (registration deadline July 27, 2005)
You will receive 2 Family Leader Kits, supplies, breakfast and lunch and 6 hours of Continuing Education Credits.
For more information and registration application check out the Family Astro website at: http://www.raritanval.edu/planetarium/familyastro or contact Amie Gallagher at 908-526-1200 x8566

**Starlab Training**
Tuesday & Wednesday, July 26-27, 2005
Tuesday & Wednesday, August 16-17, 2005
Starlab is a portable planetarium made of fabric which is inflated and capable of accommodating up to 35 students. It is compact enough to fit into a small car and is easily set up in 15 minutes.
During the training the participants will learn how to set it up, maintain and repack the system.
At the training teachers work towards meeting the NJ State Science Standards by having students do hands-on science and not just read about it. Abstract ideas, such as the Earth’s daily and annual motions, moon phases, constellations and the reason for the seasons, are easily presented in Starlab.
For more information or questions, contact Jerry Vinski at 908-231-8805 or jvinski@raritanval.edu

Also ask about their summer institute!

---

**The Association for Women in Science**
Invites you to a benefit screening of

**Aliens of the Deep**

*“The Search for life beyond begins below”*

June 10, 2005 at 7:00 pm
Special guest speaker and featured in the film
Dr. Maya Tolstoy
of Columbia University

Lowes IMAX® Theater at Lincoln Square (Broadway at 68th Street, New York, New York)
Walt Disney Pictures and Walden Media presents A James Cameron Film
In IMAX 3D Theaters

For more information check out [www.awis.org](http://www.awis.org)
SOME ENJOYABLE MOMENTS!
Equity and Diversity Issues

On March 10, the first Equitable School Expecting Success: Gender Equity Issues in the Classroom workshop was held for 1st and 2nd year Trenton teachers.

Some comments and observations from the teachers were:

~I learned how to design effective equitable classrooms for different grade levels.

~I learned some strategies for discipline.

~I learned to be more conscious of who I am calling on-girls and boys equally.

~I learned ways to prevent bias in the classroom.

~I will arrange my classroom to display effective and equitable classroom management.

~I would make sure I gave the same amount of attention to both sexes.

~I will give my non-English speaking students time to “think” (“wait time” to translate from English to their language)

~I will be more aware of the type of feedback I give the boys verses the girls [being gender fair in responses to girls and boys, not “how neat the girl’s paper may be” but on the content that is included in the assignment]

One major question that was asked in the evaluation was, “How do I get/hold the girls’ interest in lessons and activities in my classroom?” Check out the next TaLL Times for some suggestions on how to do so!

If you have any questions regarding gender equity and diversity in the classroom please feel free to contact Mary Switzer at switzer@tcnj.edu

Equity and Diversity at The Summer Institute

All participants of the Math and Science Summer Institutes will get to participate in a Mentoring, Gender Equity in the Classroom and True Colors® Diversity Training.

Equity and Diversity Training at Bayard

Mary Switzer is working with the Trenton Teachers through classroom observation with clinical TaLL faculty to evaluate equity training proposed to help them address the educational needs of the underrepresented groups in their classrooms as an ongoing part of the TaLL Program.

After meeting with Vice Principal Edna Margolin in January, Mary worked collaboratively with guidance counselor David Valeri at Robbins Annex at Bayard. She presented three workshops for the 6th grade students on respect, teasing, bullying, sexual harassment, nontraditional career opportunities for girls and boys, and True Colors® gender equity/diversity training.

The 5th graders participated in two workshops on respect, teasing, bullying, sexual harassment, and nontraditional careers.

The 1st and 2nd graders participated in a workshop on respect and “dissing” (a form of teasing/bulling).

Two more workshops will be held for the 3rd and 4th grade students prior to the end of the school year.

If you would like your class or school to participate in training sessions please contact Mary Switzer at switzer@tcnj.edu.
Planning an in-service program? Here are a few ideas:

TaLL Program (Teachers as Leaders and Learners at The College of New Jersey)
- Presentations on Various Science, Math, and Technology Topics
- Such as Connected Math, Kits, Science Curriculum, and Lots More!
- After school workshops, full and half day in-service programs, or various day training sessions
- Contact Michelle Ordini at 609-771-2295 or ordini@tcnj.edu
- Or check out the website at http://tall.intrasun.tcnj.edu

CD&E (Children’s Designing and Engineering at The College of New Jersey)
- Kit and Unit Training
- In class and after school programs
- On location or at our location training
- Videos and hands on units and kits
- Examples include: Germ Busters, Safari Park, Suds Shop, Say it With Light
- Contact Alison Goeke at 609-771-3244 or goeke2@aol.com
- Or check out the website at www.tcnj.edu/~cde

NJACE (The New Jersey Astronomy Center for Education at Raritan Valley Community College)
- Fully customized in astronomy ranging from 1½ hour programs to long-term curriculum development programs.
- At your site or at their center (at their center teachers can experience a state-of-the-art 100 seat planetarium as a part of the program.
- Contact Amie Gallagher at 908-526-1200 x8566 or agallagh@raritanval.edu
Please Save the Following Dates:

- **TaLL Summer Science Institute**
  For Teachers Grades K-5
  August 23-26, 2005

- **TaLL Summer Math Institute**
  For Middle School Teachers
  August 23-26, 2005

- **Summer Science Mini Workshops by Grade Level**
  The TaLL Program is interested in working with grade level groups this summer for your Fall science activities. For example, if you are interested, we are thinking of having all second grade teachers meet and exchange ideas and plan units. If this is of interest to you, please contact us at 609-771-2295 or email us at ordini@tcnj.edu, burrough@tcnj.edu, or cmessers@erols.com

- **Elementary Math Inquiry Institute**
  June 27-July 1, 2005
  July 18-22, 2005
  ***For more information please contact the Trenton Board Office***

- **MATH-594**
  Beginning in the Fall Semester
  (see page 2 for details)

---

The *TaLL Times* staff invites you to send us your comments and suggestions on what you are infusing in your classrooms as a result of participating in the TaLL Program.

**Math:**
- Dr. Cathy Liebars liebars@tcnj.edu
- Co-Principal Investigator (TaLL) Henry Harms harms@tcnj.edu
- Shelly Berman (Trenton District)

**Science:**
- Linda Burroughs burrough@tcnj.edu
- James Messersmith messersm@tcnj.edu

**Co Principal Investigator (TaLL):**
- Dr. Sharon Sherman, Professor and Principal Investigator TaLL and New Jersey Statewide Systemic Initiative shermans@tcnj.edu 609-771-2964

**Project Director:**
- Mary Switzer switzer@tcnj.edu 609-771-2714

**Technology Assistant:**
- Michelle Ordini ordini@tcnj.edu 609-771-2295