



College of Sciences and Mathematics
Educational Outreach Programs
2010 Annual Report

Table of Contents

| | |
|--|--------------|
| Introduction | 1 |
| Mission Statement..... | 1 |
| Goals of COSAM Outreach | 1 |
| COSAM Outreach Summary | 1 |
| 2010 Activities | 1 |
| COSAM Outreach Staff | 2-5 |
| 2010 Outreach Events..... | 6 |
| 2010 Outreach Programs..... | 7-12 |
| AU Explore | 7 |
| AU Math-a-thon | 7 |
| G.E.A.R.S.E.F..... | 7 |
| G.U.T.S..... | 8 |
| Science Investigations..... | 8 |
| Science Matters | 8 |
| Science Olympiad | 9 |
| T.E.A.M.S. | 9 |
| The Y.E.S. Program | 9 |
| BEST | 10-11 |
| Tennessee Valley BEST | 10 |
| War Eagle BEST | 10 |
| The South's BEST | 11 |
| Other Programs Affiliated with COSAM Outreach..... | 12 |
| Advanced Placement Summer Institute for Teachers..... | 12 |
| Arboretum Days..... | 12 |
| Women's Leadership Symposium in Science & Mathematics..... | 12 |
| Program Profiles | 13-44 |
| AU Math-a-thon | 13-14 |
| G.U.T.S. (2.8.10) | 15 |
| T.E.A.M.S. | 16 |
| Science Olympiad – Division B..... | 17 |
| G.U.T.S. (3.4.10) | 18 |
| G.E.A.R.S.E.F..... | 19 |
| Science Olympiad – Division A..... | 20 |
| G.U.T.S. (3.30.10) | 21 |
| Spring Y.E.S..... | 22 |
| G.U.T.S. Backyard Bash | 23 |

| | |
|---|--------------|
| AU Explore | 24-25 |
| Science Matters | 26-27 |
| Advanced Placement Summer Institute for Teachers..... | 28 |
| Summer Y.E.S. Camp | 29 |
| S.W.S.M. Women’s Leadership Symposium | 30 |
| Science Investigations (9.10.10) | 31 |
| War Eagle BEST | 32-35 |
| G.U.T.S. (9.28.10) | 36 |
| Science Investigations (10.8.10) | 37 |
| Tennessee Valley BEST | 38-39 |
| G.U.T.S. (10.21.10) | 40 |
| The South’s BEST | 41-43 |
| Science Investigations..... | 44 |
| | |
| Newsletters | 45-65 |
| January/February 2010..... | 45-48 |
| March/April 2010 | 49-52 |
| May/June 2010 | 53-56 |
| July/August 2010 | 57-60 |
| September/October 2010..... | 61-65 |



Mission Statement

The College of Sciences and Mathematics at Auburn University aims to promote scientific* literacy and interest among K-12 students, teachers, and communities in our region, our state, and our nation.

Goals of the College of Sciences and Mathematics Outreach Program include:

- Encourage interest in the sciences* in K-12 students
- Actively engage K-12 students and teachers in relevant and inspiring experiences in math and science
- To motivate K-12 students to reach their full potential in science by providing them with access to exciting, hands-on laboratory activities, enthusiastic science mentors, and a supportive environment that encourages their intellectual development
- Provide opportunities for Auburn University faculty and undergraduate and graduate students to share their passion for science with a broad audience
- To provide professional development opportunities for K-12 teachers to improve the quality of math and science education.

*The use of “science” in the mission and goals statements represents both science and mathematics.

Summary

To promote careers in science and mathematics among the K-12 students of today, the College of Sciences and Mathematics at Auburn University has designed an innovative outreach program offering special activities, workshops, and programs throughout the year for the general public and K-12 students and teachers. These activities are designed to provide a continuum of programs for students in various stages of their educational development.

2010 Activities

Current outreach program efforts of the College of Sciences and Mathematics are designed to achieve the above stated goals. In 2010 - January to December - over 11,242 students, parents, and teachers were reached through these efforts. A total of 16 programs, with 68 contact days, were hosted / sponsored by COSAM’s Outreach Office. In the following pages, you will find the 2010 Outreach staff, a calendar of 2010 programs, a brief summary of each program offered (including funding sources), program reports for each program’s session, and bi-monthly newsletters distributed to former outreach participants, parents, teachers, and other science outreach supporters.

2010 COSAM Outreach Staff



Mary Lou Ewald

Director of Outreach

Primary Responsibilities:

- Oversees and manages all aspects of Outreach Programs including AU Explore, Science Matters, Y.E.S. Programs, G.U.T.S., D.A.M.E.S., Science Olympiad, G.E.A.R.S.E.F., War Eagle BEST, Tennessee Valley BEST, South's BEST Regional Robotics Championship and Math-a-Thon

Emma Seiler

Assistant Director of Outreach

Primary Responsibilities:

- Assists with management of Outreach Programs and student workers
- Director of Greater East Alabama Regional Science & Engineering Fair (G.E.A.R.S.E.F.)
- Coordinator of G.U.T.S. Program (Spring 2010)
[left office in August 2010]



Kathy Feminella

Administrative Assistant

Primary Responsibilities:

- Responsible for all financial records and information for Outreach Office
- Coordinator of AU Explore Science EXPO
- Coordinator of Middle School and Elementary Science Olympiad competitions
- Hospitality Coordinator for War Eagle BEST & South's BEST Robotics competitions

Jesse Daniel

Office Manager/Outreach Program Coordinator

Primary Responsibilities:

- Responsible for all Office Supply purchasing
- Judging Assistant for War Eagle & South's BEST Competitions
- Creator of Program Profiles and bi-monthly newsletters
[left office in March 2010]



2010 COSAM Outreach Staff

Erin Percival

Outreach Program Specialist

Former Student, Science Education

(Currently teaching at Drake Middle School, Auburn, AL)

Primary Responsibilities:

- Summer Y.E.S. Camp Director
- Science Matters Program Director
- G.U.T.S. Instructor
- South's BEST Hospitality Assistant



Amy Rutherford

Graduate Research Assistant

Graduate Student, Secondary Science Education

Primary Responsibilities:

- Science Matters Program Counselor
- Summer Y.E.S. Camp Counselor
- G.U.T.S. Instructor
- War Eagle & South's BEST Sales Assistant
- Science Investigations Instructor

[left office in December 2010]

Casey Mitchell

Graduate Program Assistant

Graduate Student, Secondary Science Education

Primary Responsibilities:

- War Eagle & South's BEST Registration Assistant
- Science Investigations Instructor



Sallie Martin

Special Programs Assistant

Graduate Student, Entomology

Primary Responsibilities:

- G.U.T.S. Instructor
- Coordinator of Spring Y.E.S.
- South's BEST Volunteer Coordinator



2010 COSAM Outreach Staff

Katy Prince

*Special Programs Assistant
Graduate Student, Biological Sciences*

Primary Responsibilities:

- Summer Y.E.S. Camp Counselor
- Science Matters Program Counselor



Bryan McMeen

*Special Programs Assistant
Student, Mathematics*

Primary Responsibilities:

- Test preparation for 2010 AU Math-a-thon
- War Eagle & South's BEST Head Scorekeeper

Lara Stubbs

*Outreach Program Specialist
Student, Elementary Education*

Primary Responsibilities:

- Summer Y.E.S. Camp Counselor
- Summer Y.E.S. Camp Instructor Assistant
- G.U.T.S. Instructor
- Science Matters Language Arts Instructor
- War Eagle & South's BEST Registration Assistant

[left office in August 2010]



Chelsea Harrison

*Student Program Assistant
Student, Industrial and Systems Engineering*

Primary Responsibilities:

- Science Matters Camp Counselor
- Summer Y.E.S. Camp Counselor
- War Eagle & South's BEST Judge's Assistant
- Webpage Oversight

2010 COSAM Outreach Staff

TJ Nguyen

Student Program Assistant

Student, Mechanical Engineering

Primary Responsibilities:

- Science Matters Camp Counselor
- Summer Y.E.S. Program Counselor
- War Eagle & South's BEST Assistant
- Technology coordinator



Allison Holt

Student Program Assistant

Student, Software Engineering and Applied Discrete Mathematics

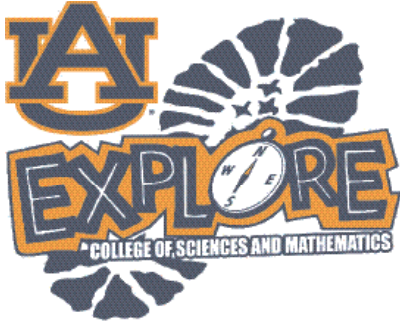
Primary Responsibilities:

- War Eagle BEST Registration Assistant
- South's BEST Judge's Assistant

2010 Outreach Events

| | |
|------------------------|---|
| February 6, 2010 | AU Math-a-thon |
| February 8, 2010 | G.U.T.S. |
| February 26, 2010 | T.E.A.M.S. |
| February 27, 2010 | Middle School Science Olympiad |
| March 4, 2010 | G.U.T.S. |
| March 10, 2010 | Greater East AL Regional Science & Engineering Fair |
| March 27, 2010 | Elementary School Science Olympiad |
| March 30, 2010 | G.U.T.S. |
| April 10, 2010 | Spring Y.E.S. |
| May 2, 2010 | G.U.T.S. Backyard Bash |
| May 4, 2010 | AU Explore |
| June 1 - 4, 2010 | Earth and Worms Science Matters |
| June 7 - 11, 2010 | NASA Design Squad Science Matters |
| June 21 - 25, 2010 | Rocket Challenge Science Matters |
| June 21 - 25, 2010 | Advanced Placement Summer Institute for Teachers |
| June 28 - 2, 2010 | Art in Science Science Matters |
| July 6 - 9, 2010 | BizWorld Science Matters |
| July 12 - 15, 2010 | Summer Y.E.S. Camp |
| July 19 - 23, 2010 | Soda Pop Science Science Matters |
| July 26 - 30, 2010 | Furry Friends Science Matters |
| August 27, 2010 | S.W.S.M. Women's Leadership Symposium |
| September 10, 2010 | Science Investigations |
| September 19, 2010 | War Eagle BEST Kickoff |
| September 28, 2010 | G.U.T.S. |
| October 8, 2010 | Science Investigations |
| October 15-16, 2010 | Tennessee Valley BEST Judging & Game Day |
| October 17, 2010 | War Eagle BEST Mall Day |
| October 21, 2010 | G.U.T.S. |
| October 29 - 30, 2010 | War Eagle BEST Judging & Game Day |
| November 18 - 20, 2010 | South's BEST Robotics Championship |
| December 10, 2010 | Science Investigations |

Programs Offered by COSAM Outreach



AU Explore

AU Explore is COSAM's annual Open House Day for 5th - 8th graders. On Tuesday, May 4, approximately 1525 students and 150 teachers and parents from 23 schools all over Alabama attended this free event on Auburn's campus. Students had the opportunity to experience live animals up close, as well as interact with University faculty and students at the Science and Math EXPOs. Make-n-Take Science Fun Shops and Demo Shows presented by Auburn's finest also occurred throughout the day.

Funding Source: COSAM, Food & T-shirt sales during the event

AU Math-a-thon

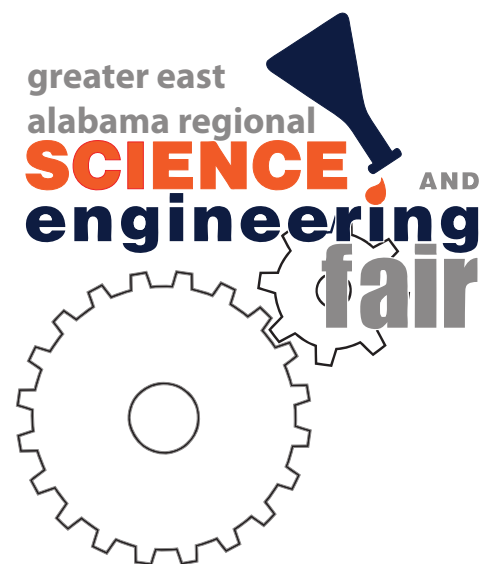
The third annual AU Math-a-thon Tournament was held on Saturday, February 6, 2010. Teams of high school students from across the state competed in this one-day tournament featuring individual tests, team tests, and ciphering. A total of 112 students from 8 schools competed in the 2010 Tournament.

Funding Source: Self-supporting through participant fees

G.E.A.R.S.E.F.

Co-hosted with the Samuel Ginn College of Engineering, the Greater East Alabama Regional Science & Engineering Fair (G.E.A.R.S.E.F.) was held on March 10, 2010. Schools from 22 counties in Southeast Alabama are eligible to compete in the fair. Students in grades 6-12 submitted projects that were judged at this fair. Students that placed 1st or 2nd in their division and category moved on to compete at the Alabama State Science & Engineering Fair in Huntsville in April. Two exceptional students from our region advanced with an all expense paid trip to the International Science & Engineering Fair in San Jose, California in May.

Funding Source: Participant fees, COSAM, Samuel Ginn College of Engineering





G.U.T.S.

G.U.T.S. is a monthly program for kids in grades 1-6 and their parents or grandparents. Each evening session includes dessert followed by a 90-minute science activity featuring a “Getting Under The Surface” theme, such as the G.U.T.S. of Art, the G.U.T.S. of the Gulf Oil Spill, and the G.U.T.S. of Harry Potter’s Magic. In 2010, three sessions were held in the spring, and two sessions in the fall. In May, to conclude the 2009-2010 school year, we held a Backyard Bash with a Plasma Physics Show, hosted by Dr. Ed Thomas, as the year-end finale. Throughout the year, a total of 388 students and parents attended a G.U.T.S. session.

Funding source: Self-supporting through participant fees

Science Investigations (New in 2010)

Science Investigations provides a meaningful science lab experience for home schooled students in grades 6-12. The program is designed to be a learning continuum throughout the semester in which material builds on the knowledge learned the previous session. During Fall 2010, four sessions were held with 37 students returning for each session. Science Investigations helps to prepare home schooled students for collegiate science labs.



Science Matters (New in 2010)



Science Matters is an all new summer enrichment program for elementary students that offers youngsters a supercharged science experience. The program allows participants to explore the world of science through real experiments, fantastic field trips, technology and art projects, and hands-on, make-n-take activities. Seven different science-themed weeks were offered during the summer of 2010. Themes included Furry Friends, NASA Design Squad, and Art in Science. Over the entire seven weeks, 123 students in grades 2-5 filled a total of 226 open seats.

Funding: Self-supporting through participant fees

Science Olympiad



Science Olympiad is a one-day academic track meet, consisting of up to 23 different competitive events.

Division B was held on February 27, 2010. Twenty-two teams of 15 students each in grades 6-9 converged on Auburn's campus to compete. Winners from the middle school division qualify to compete at the state Science Olympiad.

Division A was held on March 27, 2010. Eighteen teams of students in grades 3-6 came to Auburn to compete in various scientific events.

Funding Source: COSAM, T-shirt donation from AU Bookstore

T.E.A.M.S. (Tests of Engineering Aptitude, Mathematics, and Science)

COSAM Outreach and the Samuel Ginn College of Engineering co-sponsored the T.E.A.M.S. competition for students in grades 9-12 held on February 26, 2010. Seventy-two students from 9 schools worked together as teams and used the principles of engineering, math, and science to solve real world challenges. T.E.A.M.S. is a program of the Junior Engineering Technical Society (JETS).



Funding Source: School-based fees, Corporate Sponsorship (Southern Company)

The Y.E.S. Program (Youth Experiences in Science)

Spring Y.E.S. was held on Saturday, April 10, 2010. Spring Y.E.S. is a free program offered every spring for students in grades 3-6. Hands-on courses for the 2010 Spring Y.E.S. included Chemistry in a Bag, Art in Science, Plants & Pollination, Propulsion & Parachutes, and Your Healthy Heart. A total of 116 students attended the 2010 event.

Summer Y.E.S. 2010 consisted of a four day camp for rising 6-9 graders. It was held on Monday, July 12th - Thursday, July 15th 2010. A total of 50 students attended and took part in hands-on courses. The courses offered for this camp included Chemistry and Other Sciences (C.H.A.O.S.), Krashers, River Creatures, Art in Science, and Robots and Avatars.

Funding Source: Participant fees





Boosting Engineering, Science, and Technology (BEST) Robotics

What do you get when you cross robots, a playing field, referees, cheerleaders, and pep bands? The BEST competition ever! BEST is an all-volunteer organization whose mission is to inspire middle and high school students to pursue careers in engineering, science, technology, and mathematics through a sports-like, science- and engineering-based competition. Started in 1993 with 14 schools and 221 students, today BEST has 39 hubs with over 750 middle and high schools and over 12,000 students participating each year. BEST Robotics at Auburn University is a partnership between COSAM, the Samuel Ginn College of Engineering, and the College of Architecture, Design, and Construction.

Tennessee Valley BEST



Tennessee Valley BEST, hosted at Calhoun Community College, had 22 schools compete in 2010. Kickoff was held on Saturday, September 4th, 2010. Teams were given the game theme - Total Recall - and the task for this year - process and package gadgets and gizmos to strive for six sigma quality levels. Four weeks later, on October 3rd, 2010 a practice “Mall Day” was held. On Saturday, October 16th, 2010, approximately 750 students, parents, teachers, and judges came together to compete in “Total Recall”. The BEST Award winner was the Decatur Austin Robotics Coalition (DARC), while the Game winner was Sparkman High School. TV BEST is a partnership between Auburn University and Calhoun Community College in Decatur, AL.

War Eagle BEST

War Eagle BEST had 19 schools from south central Alabama and west Georgia compete in 2010. Kickoff was held on September 19th 2010 in the Student Center Ballroom, where teams were given the game theme - Total Recall - and the task for this year. Four weeks later, on October 17th 2010, a practice “Mall Day” was held at Auburn / Opelika Colonial University Mall. On Saturday, October 30th 2010, approximately 1,000 students, parents, teachers, and judges came together to compete in “Total Recall”. The winner of both the BEST Award and robotics game was Wetumpka High School.

2010 Sponsors

Platinum Level (\$5,000-\$14,999)

Office of Vice President for University Outreach (Auburn)
Briggs & Stratton Engine Power Products Group (Auburn)
Donaldson Company (Auburn)
Alabama Department of Postsecondary Education and The Alabama Technology Network
Hyundai Motor Manufacturing Alabama (Montgomery)
Neptune Technology Group (Tallasse)

Gold Level (\$2,500-\$4,999)

Brasfield & Gorrie Construction (Birmingham)
Rheem Manufacturing (Montgomery)

Bronze Level (\$500-\$1,249)

Alabama Power (Auburn)
Instrumentation Society of America (Birmingham Chapter)





SOUTH'S BEST

The South's BEST

In November 2010, a crowd of over 3500 students, teachers, parents, and industry mentors assembled at Auburn University for the 2010 South's BEST Regional Robotics Championship. South's BEST hosted 61 teams from 13 hubs and 7 states over the weekend of November 18-20, 2010. The 4th annual Women in Science and Engineering Luncheon, sponsored by the WISE Institute and Southern Nuclear, was held on Friday, November 19 and had over 250 attendees. The Friday night "Celebrate BEST" activities included a team video competition and a trivia challenge. Students answered trivia questions related to Auburn University, BEST Robotics, and general science and math while watching videos sent in from competing schools. Over \$5000 in door prizes were also given out to students and teachers throughout the evening. The top eight winners of South's BEST advanced on to the BEST National Championship to be held in April 2011 in Orlando, Florida. The 2010 BEST Award winners were: 1st Place - Decatur Austin Robotics Coalition (Tennessee Valley BEST), 2nd place - Oak Mountain High School (Blazer BEST), and 3rd place - Wetumpka High School (War Eagle BEST). The 2010 Game winners were: 1st place - Merrol Hyde Magnet School (Music City BEST), 2nd place - Central Magnet School (Music City BEST), and 3rd place - DART (Music City BEST).

2010 Sponsors

Corporate Partners (\$15,000+)

Alabama Power
Southern Company

Platinum Level (\$5,000-14,999)

Southern Nuclear Operating Company
Alabama Technology Network



Other Programs Affiliated with COSAM Outreach

Advanced Placement Summer Institute for Teachers

COSAM partnered with the Outreach Program Office and the Truman Pierce Institute to offer 5 different Advanced Placement workshops to 122 high school science teachers and 25 Science in Motion Specialists during the week of June 21-25.

Funding Source: Participant fees

Arboretum Days

Fall Arboretum Days were held once a month on Saturdays in September, October, and November. Programs targeted students in grades K - 5, and were nature-based events lasting approximately 1 hour. There is no fee for the programs, but registration is recommended.

Funding Source: COSAM

Women's Leadership Symposium in Science & Mathematics

Held on August 27, 2010, the Women's Leadership Symposium hosted 56 local high school girls at the Auburn University Hotel and Dixon Conference Center. Students participated in a panel discussion lead by female COSAM graduate students. Following the panel discussion, students had the opportunity to join the panelists in roundtable discussions. The day was capped off with a luncheon and keynote speaker, Dr. Cynthia Carver DeKlotz, resident physician in Internal Medicine and Dermatology at the Washington Hospital Center and Georgetown University Hospital in Washington, D.C., and Auburn University College of Sciences and Mathematics alumna from 2002.

Funding Source: Society of Women in Sciences and Mathematics; internal and external sponsorship.

Program: AU Math-a-Thon

Date: Saturday, February 6, 2010; 8:00am- 3:00 pm

Description: Math Tournament including Individual Test, Ciphering, School Bowl, and Aubie Bowl (Interscholar Competition)

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Sallie Martin, Jesse Daniel, Laura Stubbs, Katie Prince, TJ Nguyen, Bryan McMeen, Andras Bezdek, Dean Hoffman, Edward Slaminka
- **Non-AU:** Eric Harshbarger

Schools Impacted: Auburn High School, Homewood High School, Oak Mountain High School, Handley High School, Minor High School, Hoover High School, Indian Springs High School, Grissom High School

- **Total Number of Students:** 112
- **Age Range:** 9th- 12th grade

Facilities: SCA, SCC, Parker Hall

School Statistics

- Auburn High School
 - Number of Students: 8
 - Comprehensive Level: 8
 - Algebra II w/ Trig. Level: 0
 - Awards:
 - N/A
- Grissom High School
 - Number of Students: 32
 - Comprehensive Level: 15
 - Algebra II w/ Trig. Level: 17
 - Awards:
 - Individual Test: Division I, Comprehensive- 2nd & 5th Place
 - Individual Test: Division I, Algebra II w/ Trig- 1st, 2nd, & 5th Place
 - Overall Individual Test: Division I, Algebra II w/ Trig- 1st Place
 - Ciphering: Division I, Comprehensive- 2nd Place
 - Ciphering: Division I, Algebra II w/ Trig- 1st Place
 - School Bowl: Division I- 2nd Place
 - Aubie Bowl: 1st Place
- Handley High School
 - Number of Students: 14
 - Comprehensive Level: 9
 - Algebra II w/ Trig. Level: 5
 - Awards:
 - Individual Test: Division II, Comprehensive- 1st, 2nd, & 3rd Place
 - Individual Test: Division II, Algebra II w/ Trig- 1st & 2nd Place
 - Overall Individual Test: Division II, Comprehensive- 1st Place
 - Overall Individual Test: Division II, Algebra II w/ Trig- 1st Place
 - Ciphering: Division II, Comprehensive- 1st Place
 - Ciphering: Division II, Algebra II w/ Trig- 1st Place
 - School Bowl: Division II- 1st Place
- Homewood High School
 - Number of Students: 12



- Comprehensive Level: 12
- Algebra II w/ Trig. Level: 0
- Awards:
 - Individual Test: Division I, Comprehensive- 3rd Place
 - Ciphering: Division I, Comprehensive- 3rd Place
 - School Bowl: Division I- 3rd Place
 - Aubie Bowl: 2nd Place
- Hoover High School
 - Number of Students: 16
 - Comprehensive Level: 9
 - Algebra II w/ Trig. Level: 7
 - Awards:
 - Individual Test: Division I, Comprehensive- 1st & 4th Place
 - Individual Test: Division I, Algebra II w/ Trig- 3rd & 4th Place
 - Overall Individual Test: Division I, Comprehensive- 1st Place
 - Ciphering: Division I, Comprehensive- 1st Place
 - Aubie Bowl: 3rd Place
- Indian Springs High School
 - Number of Students: 9
 - Comprehensive Level: 9
 - Algebra II w/ Trig. Level: 0
 - Awards:
 - N/A
- Minor High School
 - Number of Students: 4
 - Comprehensive Level: 2
 - Algebra II w/ Trig. Level: 2
 - Awards:
 - Individual Test: Division II, Algebra II w/ Trig- 3rd Place
- Oak Mountain High School
 - Number of Students: 17
 - Comprehensive Level: 13
 - Algebra II w/ Trig. Level: 4
 - Awards:
 - N/A



Program: Getting Under the Surface (G.U.T.S)

Date: Monday, February 8, 2010; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Lara Stubbs, Jesse Daniel, TJ Nguyen, Bryan McMeen
- **Non-AU:** Rebecca Balkcom- Auburn Junior High School, Mark Jones- Drake Middle School

Schools Impacted: N/A

- **Total Number of Students:** 40
- **Total Number of Parents:** 41
- **Age Range:** 1st-6th Grade

Facilities: Parker Hall 104 & 319, SCL 231 & 310

Science of Sweet

- Developed by: Rebecca Balkcom
- Number of Students: 13 total (4 reporting on survey)
- Student Satisfaction Ranking: 5(out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 1st -3rd Grade



Straight to the Heart

- Instructed by: Mark Jones
- Number of Students: 13 total (6 reporting on survey)
- Student Satisfaction Ranking: 3.6 (out of 5)
- Parent Satisfaction Ranking: 3.6 (out of 5)
- Age Range: 4th-6th Grade

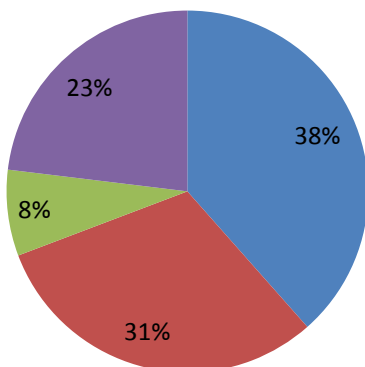


Stuck on You!

- Instructed by: Emma Seiler and Lara Stubbs
- Number of Students: 14 total (6 reporting on survey)
- Student Satisfaction Ranking: 3.8 (out of 5)
- Parent Satisfaction Ranking: 4.5 (out of 5)
- Age Range: 1st -3rd Grade

How did you hear about G.U.T.S.?

- AU Daily
- Other E-mail
- University Employee
- Past Participant



Program: Tests of Engineering Aptitude, Mathematics, and Science (TEAMS) Competition

Date: Friday, February 26, 2010; 12:00 pm- 5:00 pm

Description: Tests provided by the Junior Engineering Technical Society (JETS)

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, George Blanks
- **Non-AU:** Representatives from Alabama Power

Schools Impacted: Briarwood Christian School, Central Education Center, Columbus High School, Hanceville High School, Montgomery Catholic Preparatory School, Northside High School, Priceville High School, Randolph School, Zion Chapel School

Total Number of Students: 72

- **Age Range:** 10th – 12th grade

Facilities: AU Student Center Ballroom

Sponsorship: Southern Company

Winners:

- **9/10 Division**
 - Northside High School
- **11/12 Division**
 - 1st- Columbus High School
 - 2nd-Randolph School
 - 3rd- Northside High School



Program: Science Olympiad- Middle School (Division B)

Date: Saturday, February 27, 2010; 7:30 am- 4 pm

Description: Regional Middle School Olympiad

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Dr. Steve Stuckwisch, Sallie Martin, Lara Stubbs, Chris Sunderman, Stuart Loch, Larissa Parsley, Mark Liles, Paul Noorgard, Xiaoying Han, Molli Newmam, Ashraf Uddin, Brian Helms, Dimitri Glotov, Ron Lewis, TY Tam, Huajan Huang, Mike Fogle, Laura Estep, Geof Hill, Minseo Park, Josh Inwood, Virginia Davis, Claude Ahyi, Teck Lee, William Maddox, Erkan Nane, Yanzaho Cao, Bob Lishak
- **Non-AU:** N/A

Schools Impacted: Auburn Junior High School, Baldwin Arts and Academics Magnet, Beverlye Magnet School, Carver Magnet School, Clanton Middle School, Drake Middle School, Geneva Middle School, Girard Middle School, Marion Academy, Millbrook Middle Junior High School, Saint Paul's Episcopal, Zora Ellis

Total Number of Students: approx. 350

- **Age Range:** 6th-9th grade
Facilities: AU Student Center, Parker Hall, SCL, SCC, Rouse Life Sciences, Petrie Hall, Haley Center

Winners:

- 1st: Auburn Junior High School Team A
- 2nd: Auburn Junior High School Team C
- 3rd: Auburn Junior High School Team B
- 4th: Beverlye Magnet School
- 5th: Carver Magnet School



Exploring the World of Science

Program: Getting Under the Surface (G.U.T.S)

Date: Thursday, March 4, 2010; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Kathy Feminella, Emma Seiler, TJ Ngyuen, Brenda Wood, Sallie Martin, Andrew Henley
- **Non-AU:** n/a

Schools Impacted: N/A

- **Total Number of Students:** 27
- **Total Number of Parents:** 27
- **Age Range:** K-6th Grade

Facilities: Parker Hall 307, SCL 231, 310, & 323

Birds, Bugs & Botany

- Instructed by: Sallie Martin
- Number of Students: 10 total (6 reporting on survey)
- Student Satisfaction Ranking: 4.8 (out of 5)
- Parent Satisfaction Ranking: 4.8 (out of 5)
- Age Range: K-3rd Grade

Getting the Dirt on Dirt

- Instructed by: Brenda Wood
- Number of Students: 7 total (4 reporting on survey)
- Student Satisfaction Ranking: 3.1 (out of 5)
- Parent Satisfaction Ranking: 3.1 (out of 5)
- Age Range: K-3rd Grade

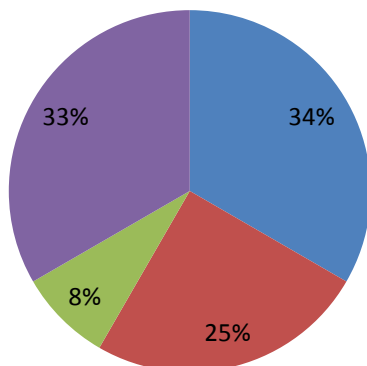
The GUTS of Art

- Instructed by: Andrew Henley
- Number of Students: 10 total (3 reporting on survey)
- Student Satisfaction Ranking: 5 (out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 4th -6th Grade



How did you hear about G.U.T.S.?

■ AU Daily ■ Other E-mail ■ Other ■ Past Participant



Program: Greater East Alabama Regional Science and Engineering Fair

Date: Wednesday, March 10, 2010; 8:00 am - 3:00 pm

Description:

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, George Blanks, Kathy Feminella, Jesse Daniel, Lara Stubbs, Katy Prince, TJ Nguyen, Lt. Col. John Segars- Army ROTC, Cpt. Patrick Bass- Air Force ROTC
- **Non-AU:** N/A

Schools Impacted: Auburn High School, East Memorial Christian Academy, Eclectic Middle School, Glenwood School, Millbrook Middle School, Phenix City Intermediate School, Prattville Christian Academy, Wetumpka High School, Wetumpka Middle School

Total Number of Students: 72

- **Age Range:** 6th-12th grade

Facilities: Student Center Ballroom A&B

Special Awards

- Office of Naval Research
 - Ryan Kramer- Junior Division
 - Katelyn Thornton- Junior Division
 - James Hendrix- Senior Division
 - Dalton Cape- Senior Division
- American Meteorological Society
 - Sarah Gaye Doyle
- Yale Science and Engineering Association
 - James D. Hendrix
- Intel Excellence in Computer Science
 - Kaleb Corcoran
- National Society of Professional Engineers
 - Helen Lee Gresham
- American Psychological Association
 - Scarlett Shine
- US Metric Association
 - James D. Hendrix
- National Oceanic & Atmospheric Association
 - Sarah Gaye Dodge
- US Public Health Service
 - Carley Adams



ISEF Finalists- to represent the region at ISEF in San Jose, CA

- Nicholas Christensen- Wetumpka High School
 - 1 Sun + 8 Bits – H₂O: Digitally Optimizing “Smart” Photovoltaics for a Water Distillation Application
- Pranjal Gupta- Auburn High School
 - Catch More Sun: Affordable Energy

Program: Science Olympiad- Elementary School (Division A)

Date: Saturday, March 27, 2010; 7:30 am- 4 pm

Description: Regional Elementary School Olympiad

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Dr. Greg Harris, Sallie Martin, Lara Stubbs, Katy Prince, TJ Nguyen, Bryan McMeen
- **Non-AU:** N/A

Schools Impacted: Cary Woods Elementary, Clanton Intermediate, Dean Road Elementary, Excalibur Elementary, Geneva Middle School, Highlands Elementary, Lance Elementary, Mountain Gap Elementary, Ogletree Elementary, Richland Elementary, St. Luke's Episcopal, Trinity Presbyterian, Tuscaloosa County Elementary, W.S. Neal Middle School, Wrights Mill Road Elementary, Yarbrough Elementary

Total Number of Students: approx. 520

- **Age Range:** 3rd – 6th grade
- Facilities:** AU Student Activities Center, Parker Hall, SCL, Rouse Life Sciences,



Exploring the World of Science

Program: Getting Under the Surface (G.U.T.S)

Date: Tuesday, March 30, 2010; 6:00 pm - 8:00 pm

Description: Parent/ Child teams are lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Lara Stubbs, TJ Ngyuen, Jennifer Lolley (Forest Ecology Preserve)
- **Non-AU:** Frank Ware (Samford Middle School), Gina Watkiss, (The Heritage Academy)

Schools Impacted: N/A

- **Total Number of Students:** 24
- **Total Number of Parents:** 24
- **Age Range:** K-6th Grade

Facilities: Parker Hall 307, SCL 231, 310, & 323

A Nest Full of Eggs

- Instructed by: Jennifer Lolley
- Number of Students: 10 total (3 reporting on survey)
- Student Satisfaction Ranking: 4.6 (out of 5)
- Parent Satisfaction Ranking: 4.8 (out of 5)
- Age Range: K-3rd Grade

Spring Fling

- Instructed by: Gina Watkiss
- Number of Students: 7 total (3 reporting on survey)
- Student Satisfaction Ranking: 4.8 (out of 5)
- Parent Satisfaction Ranking: 4.7 (out of 5)
- Age Range: K-3rd Grade

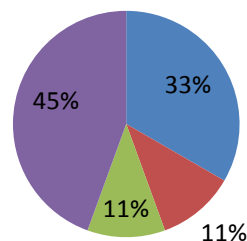
Eggsmosis: The GUTS of Eggs

- Instructed by: Frank Ware
- Number of Students: 4 total (2 reporting on survey)
- Student Satisfaction Ranking: 5 (out of 5)
- Parent Satisfaction Ranking: 5 (out of 5)
- Age Range: 4th -6th Grade



How did you hear about G.U.T.S.?

■ AU Daily ■ Other E-mail ■ Other ■ Past Participant



Program: Spring YES

Date: Saturday, April 10th; 7:45 am- 12:00 pm

Description: Each child participated in hands-on, make-and-take activities related to specific fields of science and math in a half-day academy.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Sallie Martin, Lara Stubbs, Amy Rutherford, TJ Nguyen, Andrew Henley, Elizabeth Lipke, Mary Peterson
- **Non-AU:** Mark Jones (Drake Middle School), Rebecca Balkcom (Auburn Jr. High)
- **Schools Impacted:** n/a
- **Total Number of Students:** 116
- **Age Range:** 3rd-6th Grade

Facilities: Parker Hall, SCL 102, SCL 105

Chemistry in a Bag

- Instructor: Rebecca Balkcom, Auburn Jr. High
- Number of Students:50
 - Course 1-25 students
 - Course 2- 25 students



Art in Science

- Instructor: Andrew Henley, Jule Collins Smith Museum of Fine Art
- Number of Students:35
 - Course 1- 17 students
 - Course 2- 18 students



Plants & Pollination

- Instructors: Sallie Martin, AU Dept. of Entomology & Amy Rutherford, COSAM Outreach
- Number of Students:50
 - Course 1- 25students
 - Course 2- 25 students

Propulsion & Parachutes

- Instructor: Mark Jones, Drake Middle School
- Number of Students:50
 - Course 1- 25 students
 - Course 2- 25 students

Your Healthy Heart

- Instructors: Elizabeth Lipke, AU Dept. of Chemical Engineering, Mary Peterson, AU School of Nursing
- Number of Students:46
 - Course 1- 24 students
 - Course 2- 22 students

Program: G.U.T.S. Backyard Bash

Date: Sunday, May 2, 2010, 4:00 pm - 6:30pm

Description: End of the year celebration for all G.U.T.S. participants which included:

- Hamburger sliders, macaroni and cheese, fruit served outside of Parker 307
- Jello Optics demonstration and dessert
- Dr. Ed Thomas' Plasma Physics show and activities

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Katy Prince, Lara Stubbs, Ed Thomas, Matt Obley

Schools Impacted: N/A

- **Total Number of Participants:** 71
 - 33 students
 - 38 adults
- **Age Range:** 3-13 years

Facilities: Parker Hall, SCL



Program: AU Explore

Date: Tuesday, May 4, 2010, 8:00 am - 3:00 pm

Description: The College of Sciences and Mathematics Science Open House

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, George Blanks, Amy Rutherford, TJ Nguyen, Katy Prince, Bryan McMeen, Sallie Martin, Lara Stubbs, Ed Slaminka, Jennifer Cox, Pam Pearson, Paul Norgaard, Roger Birkhead, Matt Obley, Roy Crowe, Thomas Webb, Wei Zhan, Wendell Sandlin, Aaron Rashotte, Jon Armbruster, Nanette Chadwick, Debbie Folkerts, Shawn Jacobsen, Ken Halanych, Wendy Hood, Mark Liles, Kirby Farrington, Scott Santos, Cathy McVay, Bob Lishak, Tony Moss, Brian Helms, Molli Newman, Christine Sundermann, Roland Dute, Matt Kearly, Smita Mohanty, Kat Milly West, John Simms, James Saunders, Luke Marzen, Ed Thomas, Allen Landers, Minseo Park, Erica Snipes, Dave Patrick, Stuart Loch, Matt Jones, Marllin Simon, Kristi Mann, Wayne Strickland, Beth Hickman, Charles Hendrix, Kaye Storey, David Self, approx. 50 departmental graduate and undergraduate volunteers
- **Non-AU:** n/a

Schools Impacted: Barron Family Home school, Bates Home School, Cary Woods Elementary, Coffee Home School, Doyle Home School, Drake Middle School, Eagle Ranch School, Everest Academy, Faith Academy, First Baptist Opelika Christian Home School, Flynn Home School, Golden Flower Home School, Lee-Scott Academy, May Home School, Montgomery Academy, North side Intermediate, Prince of Peace Home School, Rainey Home School, Ridgecrest Christian School, South Girard School, Vaughn Home School, Williams Intermediate, Wrights Mill Road Elementary, Yarbrough Elementary



Total Number of Students: approx. 1525

- **Age Range:** 5th - 8th grade

Facilities: Parker Hall, SCL, Chemistry Building, Rouse Life Sciences, Parker Lawn

The EXPO- 9:00 - 12:00 - The EXPO is a series of dozens of interactive displays sponsored by each of the departments that comprise the College of Sciences and Mathematics (COSAM) at Auburn – Math/Statistics, Physics, Biology, Chemistry/Biochemistry, and Geology/Geography. Students browsed the displays at their own pace and were able to see, touch, hear, and smell the many wonders of science and math! Included in the Science EXPO are live animal displays, featuring snakes, lizards, turtles, spiders, insects, and many more fascinating creatures!

- SCL, Chemistry Building, Parker Lawn



Science Fun Shops- 9:00 - 2:00- The “Science Fun Shops” are short, hands-on mini-courses focused on a particular topic. The courses typically lasted about 45 minutes and had 25-800 participants.

- All About Eyeballs
 - Instructed by: Bob Lishak
 - 2, 45 minute course; capacity: 36
- Build a Kaleidoscope
 - Instructed by: Erica Snipes
 - 3, 45 minute courses; capacity: 24
- Build a Motor
 - Instructed by: Matt Jones
 - 3, 45 minute courses; capacity: 24
- Buried Treasure
 - Instructed by: Kristy Mann
 - 3, 45 minute courses; capacity: 27
- Cartesian Diver
 - Instructed by: Dave Patrick
 - 3, 45 minute courses; capacity: 40
- Fly Over Alabama
 - Instructed by: Luke Marzen
 - 2, 45 minute courses; capacity: 30
- Fur, Feathers, and Fins
 - Instructed by: Matt Kearly
 - 2, 45 minute courses; capacity: 32
- Genes in a Bottle
 - Instructed by: Mark Liles and Cathy McVay
 - 4, 45 minute courses; capacity: 30
- Medical Technology
 - Instructed by: Kat Milly West
 - 3, 45 minute courses; capacity: 50
- Microscopic Wonders
 - Instructed by: Christine Sundermann & Roland Dute
 - 2, 45 minute courses; capacity: 24
- Physics of Music
 - Instructed by: Stuart Loch
 - 3, 45 minute courses; capacity: 80
- The Private Eye
 - Instructed by: Wayne Strickland
 - 3, 45 minute courses; capacity: 30
- Silly Cilia
 - Instructed by: Tony Moss
 - 2, 45 minute courses; capacity: 24
- Snap Electronics
 - Instructed by: Marllin Simon
 - 2, 90 minute courses; capacity: 24
- Survivor
 - Instructed by: Brian Helms and Mollie Newman
 - 2, 45 minute courses; capacity: 30
- Sun Safety
 - Instructed by: David Self
 - 3, 45 minute courses; capacity: 40
- Sunscreen or Sunburn?
 - Instructed by: Beth Hickman
 - 3, 45 minute courses; capacity: 25

Demo Shows- 9:00 – 2:00

- Wet-n-Wild Science Demo Show- 9:00, 11:00
 - 60 minute sessions, Parker 307 – seating capacity: 250
 - Hosted by Auburn University Science in Motion
- Dr. Webb’s Magic Show- 10:00, 11:00
 - 60 minute sessions, Chemistry 151– seating capacity: 200
 - Dr. Thomas Webb, Professor Emeritus, Dept. of Chemistry / Biochemistry
- Raptor Show – 9:00, 10:00, 11:00
 - 60 minute sessions, Chemistry 151– seating capacity: 200
 - Southeastern Raptor Center
- Glass Blowing Show – 9:00, 10:00, 1:00
 - 60 minute sessions, Parker Hall 305 – seating capacity: 100
 - Wendell Sandlin, Department of Chemistry/Biochemistry
- Science of Glow Show – 10:00, 1:00
 - 60 minute sessions, Parker Hall 319 – seating capacity: 160
 - Dr. Wei Zhan, Department of Chemistry/Biochemistry



Program: Science Matters

Dates: Tuesday, June 1st-Friday, June 4th
 Monday, June 7th-Friday, June 11th
 Monday, June 21st-Friday, June 25th
 Monday June 28th-Friday, June 2nd
 Tuesday, July 6th-Friday July 9th
 Monday, July 19th-Friday, July 23rd
 Monday, July 26th-Friday, July 30th

Times: Regular Day 8:00 am – 3:30 pm; Extended Day 8:00 am – 5:00 pm

Description: Science Matters is a summer enrichment program in which children attend themed weeks filled with experiments, field trips, and make-and-take projects. In addition, the program provided a platform for 15 education students from the AU College of Education to gain valuable classroom experience teaching science content.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Erin Percival, TJ Nguyen, Katy Prince, Chelsea Harrison, Amy Rutherford, Casey Mitchell, Rebecca Hopkins, Ash Umphress, Virginia Stephens, Laura Parker, Ashley Burnette
- **Non-AU:** Rebecca Balkcom-Auburn Jr. High School, Andrew Henley-Jule Collins Museum of Fine Art, Mark Jones-Drake Middle School

Schools Impacted: Bayside Academy, Big Ridge Elementary, Cary Woods, Dean Road, Drake, George Washington Carver Elementary, Jackson Intermediate School, Jeonmin Elementary School, Jeter Primary School, Jones Valley Elementary, Kate Suillion Elementary, Lafayette, Lagdale, Lee-Scott Academy, Moody Elementary, Morris Avenue, Ogletree Elementary, Reagan Elementary, Reeltown, Richland Elementary, Shiver Elementary, Southview Primary, Teasley Elementary, Village Montessori School, Wrights Mill Road, Yarbrough Elementary

- **Total Number of Student Places Filled:** 226 seats
- **Total Number of Students:** 123 students
- **Age Range:** rising 2nd-5th grade

Facilities: Parker Hall

Earth and Worms

- **Dates:** Tuesday, June 1st-Friday, June 4th
- **Instructor:** Rebecca Balkcom
- **Total Number of Students:** 26
 - 2nd -3rd: 16 students
 - 4th-5th: 10 students

NASA Design Squad

- **Dates:** Monday, June 7th-Friday, June 11th
- **Instructor:** Mark Jones
- **Number of Students:** 30
 - 2nd -3rd: 12 students
 - 4th-5th: 18 students

Rocket Challenge

- **Dates:** Monday, June 21st-Friday, June 25th
- **Instructors:** Mark Jones
- **Number of Students:**38



- 2nd-3rd: 18 students
- 4th-5th: 20 students

Art In Science

- Dates: Monday, June 28th-Friday, June 2nd
- Instructor: Andrew Henley
- Number of Students: 32
 - 2nd-3rd: 20 students
 - 4th-5th: 12 students

BizWorld

- Dates: Tuesday, June 6th-Friday, June 9th
- Instructors: Mary Lou Ewald, Erin Percival
- Number of Students: 17
 - 2nd-3rd: 8 students
 - 4th-5th: 9 students

Soda Pop Science

- Dates: Monday, July 19th-Friday, July 23rd
- Instructors: Rebecca Balkcom
- Number of Students: 40
 - 2nd-3rd: 21 students
 - 4th-5th: 19 students

Furry Friends

- Dates: Monday, July 26th-Friday, July 30th
- Instructors: Amy Rutherford
- Number of Students: 43
 - 2nd-3rd: 23 students
 - 4th-5th: 20 students



Program: Advanced Placement Summer Institute for Teachers

Date: Monday, June 21st- Friday, June 25th, 2010

Description: The AP Summer Institute workshop provides teachers with an overview of the curriculum structure and content of specific AP courses. The AP teachers will receive content, skills, and strategies to connect students to college success.

Personnel:

- **AU:** Paul Norgaard, Roger Birkhead, Matt Obley, Mary Lou Ewald
- **Non-AU:** Carol Leibl- College Board Advanced Placement Teacher, Robert Dennison- College Board Advanced Placement Teacher, Sue Biggs- College Board Advanced Placement Teacher, Rene McCormick- College Board Advanced Placement Teacher, William Pell- College Board Advanced Placement Teacher, Chris Bruhn- College Board Advanced Placement Teacher, Chris Averill- College Board Advanced Placement Teacher

Schools Impacted: N/A

- **Total Number of Attending Teachers:** 122
- **Total Number of Attending Science in Motion Specialists:** 25

Introductory Biology

- Instructor: Carol Leibl
- Number of Teachers: 30

Advanced Biology

- Instructor: Robert Dennison
- Number of Teachers: 25

Introductory Chemistry

- Instructor: Sue Biggs
- Number of Teachers: 25

Advanced Chemistry

- Instructor: Rene McCormick
- Number of Teachers: 25

Physics

- Instructor: Chris Bruhn
- Number of Teachers: 17

Program: Summer Youth Experiences in Science (Y.E.S.) Camp

Date: Monday, July 12th- Thursday, July 15rd 2010

Description: Each child participates in hands-on, make-and-take activities related to specific fields of science and math in this 4 day academy.

Personnel:

- **AU:** Mary Lou Ewald, Emma Seiler, Kathy Feminella, Erin Edmondson, Amy Rutherford, Chelsea Harrison, TJ Nguyen, Ash Umphress, Casey Mitchell, Brian Helms, Mollie Newman, Ben Brahim, Daniela Marghitu, Trent Lishak, Andrew Click
- **Non-AU:** Gina Watkiss-The Heritage School, Rebecca Balkcom-Auburn Jr. High School, , Andrew Henley-Jule Collins Museum of Fine Art

Schools Impacted: Auburn Jr. High, Carl Junction Middle School, Cornerstone Academy, DeKalb High School, Drake Middle, Grissom High School, Independence High School, Jackson Intermediate, Morgan Academy, Richmond Hill High School, SLU LAB School, Thompson Middle School, W.F. Burnes Middle School, Wayside Middle School, West FL High

- **Total Number of Students:** 50
- **Age Range:** rising 6th-9th grade

Facilities: SCL, Parker Hall

C.H.A.O.S. – Chemistry and Other Sciences

- Instructed by: Gina Watkiss
- Number of Students: 15
- Age Range: 6th-7th grade

Krashers

- Instructed by: Rebecca Balkcom
- Number of Students: 19
- Age Range: 6th-7th Grade

River Creatures

- Instructed by: Dr. Brian Helms and Mollie Newman
- Number of Students: 12
- Age Range: 8th-9th grade

Art in Science

- Instructed by: Andrew Henley
- Number of Students: 14
- Age Range: 6th - 9th grade

Robots and Avatars

- Instructed by: Dr. Daniela Marghitu and Ben Brahim
- Number of Students: 28
- Age Range: 6th-9th grade



Program: Society of Women in Science and Mathematics (S.W.S.M.) Women's Leadership Symposium

Dates: Friday, August 27, 2010

Description: Female high school students attended this symposium to take part in discussions with women who have been successful in the sciences.

Personnel:

- **AU:** Mary Lou Ewald, Kathy Feminella, Amy Rutherford, Allison Holt, Casey Mitchell
- **Non-AU:**

Schools Impacted: Erickson Academy, Wetumpka High School, Lee-Scott Academy, Stanhope Elmore High School, Loachapoka High School

- **Total Number of Students:** 56
- **Grade Range:** 9th-12th

Facilities: Auburn University Hotel Dixon and Conference Center

Keynote Speaker: Dr. Cynthia Carver DeKlotz, MD

- Graduated from Auburn University in 2002 with a Bachelor of Science in Applied Mathematics
- Gates Cambridge Scholar
- Graduated from Georgetown University School of Medicine in 2007
- Resident in Internal Medicine and Dermatology at the Washington Hospital Center and Georgetown University Hospital in Washington, D.C.

Panelists

- Mary Clair Thompson
 - Pursuing a Ph.D. in mathematics at Auburn University
- Natasha Dunaway
 - Pursuing a Ph.D. in organic chemistry at Auburn University
- Amy Skibieli
 - Pursuing a Ph.D. in biological sciences at Auburn University

Program: Science Investigations

Date: Friday, September 10, 2010; 9:00 AM-11:30 AM

Description: This program provides a meaningful science lab experience for home schooled students from Alabama and Georgia.

Personnel:

- **AU:** Mary Lou Ewald, Amy Rutherford, Casey Mitchell, Allison Holt, TJ Nguyen, Chelsea Harrison, Kathy Feminella, Jacob Gazaway, Amanda Haynes, Shauna Henry
- **Non-AU:** N/A

Schools Impacted: N/A

- **Total Number of Students:** 37
- **Age Range:** 6st-12th Grade

Facilities: SCL

Middle School Class

- Instructed by: Mary Lou Ewald
- Number of Students: 22
- Age Range: 6th-8th grade
- Activities
 - Safety Rules
 - Safety Symbols
 - How to Keep a Science Journal
 - Accuracy vs. Precision
 - Black Box Experiment
 - Toilet Paper Strength Lab

High School Class

- Instructed by: Casey Mitchell and Amy Rutherford
- Number of Students: 15
- Age Range: 9th-12th Grade
- Activities
 - Safety Rules
 - Safety Symbols
 - Accuracy vs. Precision
 - Identifying Mystery Powders Lab
 - Significant Figures
 - Scientific Notation

Program: War Eagle BEST

Date: Sunday, September 19, 2010- Kick Off
Sunday, October 17, 2010- Mall Day
Friday, October 29- Saturday, October 30, 2010- Judging and Game day

Description: A middle and high school robotics competition open to teams in the East Alabama region.

Personnel:

- **Co-Directors-** George Blanks and Mary Lou Ewald
- **Emcee-** Chris McDuffie
- **Event Coordination/Logistics-** George Blanks
- **Floor Boss/Field Construction-** Sid Stubbs
- **Head Judge-** Peter Jones
- **Head Referee-** Stephen Haddock
- **Head Scorekeeper-** Bryan McMeen
- **Hospitality-** Kathy Feminella, Erin Percival
- **Judging Assistants-** Jackie Hundley, Chelsea Harrison
- **Media/Communications-** Cheryl Cobb, Tim Meeks
- **Pit Boss-** Joey Giuliano
- **Referee Assistant-** Jackson McDuffie
- **Registration-** Casey Mitchell
- **Sales-** Amy Rutherford
- **Scorekeeping Assistants-** Kayla Frost, Ben Straub
- **Graphic Design-**Aileen Broaddus, Wally Ridgway
- **Staging-** Roger Birkhead, Christina Bock, Paul Norgaard, Matt Obley
- **Student Assistants-** Allison Holt, TJ Nguyen, Katy Prince
- **Technical Coordinators-** Michael Carroll, Lucas Hunter, William Woodall
- **Webmaster-** Tyler Patterson
- **Alabama Power Support Team-** Mike McCraney (Coordinator), David Freeman, Leah James, Brian Mitchell, Beth Suttle, Jimmy White, Kevin Wiley

Schools Impacted: A-2-Z Home School, Benjamin Russell High School, Brewbaker Technology Magnet High School, Chambers County Career Technology Center, Episcopal Day School, Jordan High School, Lee-Scott Academy, Loachapoka High School, Loveless Academic Magnet Program High School, Mellow Valley Christian Academy, Millbrook Middle/Junior High School, Montgomery Catholic Preparatory School, Northside High School, Opelika High School, Smiths Station High School, Southside Middle School, Springwood School, Stanhope Elmore High School, Wetumpka High School

- **Total Number of Students:** approx. 600-1,000
- **Age Range:** 5th-12th grade

Facilities: AU Student Center Ballroom, Student Activities Center, Auburn/ Opelika Colonial University Mall

2010 Game Description: Total Recall

Goal: Create a robot that is able to successfully process and package as much “good” product as possible while striving for Six Sigma quality levels on each of two independent production lines. Product identified as “defective” are “recalled”. Products to be packaged:

- **Gadgets** – represented by black, yellow, and white golf balls
- **Gizmos** – represented by magnetic and non-magnetic Easter eggs

2010 Game Winners

BEST Award

- 1st: Wetumpka High School – #25
- 2nd: Lee-Scott Academy – #10
- 3rd: Stanhope Elmore High School – #23

Robotics

- 1st: Wetumpka High School – #25
- 2nd: Stanhope Elmore High School – #23
- 3rd: Episcopal Day School – #5
- 4th: Southside Middle School – #21

Category Awards

Best Marketing Presentation Award

- 1st: Wetumpka High School – #25
- 2nd: Lee-Scott Academy – #10
- 3rd: Loveless Academic Magnet Program (LAMP) High School – #9

Best Team Exhibit and Interview Award

- 1st: Episcopal Day School – #5
- 2nd: Brewbaker Technology Magnet High School – #3
- 3rd: Wetumpka High School – #25

Best Project Engineering Notebook Award

- 1st: Lee-Scott Academy – #10
- 2nd: Episcopal Day School – #5
- 3rd: Montgomery Catholic Preparatory School – #14

Best Spirit and Sportsmanship Award

- 1st: Wetumpka High School – #25
- 2nd: Stanhope Elmore High School – #23
- 3rd: Lee-Scott Academy – #10

Best T-shirt design

- 1st: Chambers County Career Technology Center – #4
- 2nd: Southside Middle School – #21
- 3rd: Wetumpka High School – #25

Best Web Page Design

- 1st: Wetumpka High School – #25
- 2nd: Millbrook Middle/Jr. High School – #13
- 3rd: Springwood School – #22

Special Awards

Most Robust Robot: (needed the least amount of repairs)

- 1st: Stanhope Elmore High School – #23
- 2nd: Wetumpka High School – #25
- 3rd: Southside Middle School – #21

Most Elegant Robot: (the machine that performs its function the most effectively)

- 1st: Montgomery Catholic Preparatory School – #14
- 2nd: Chambers County Career Tech Center – #4
- 3rd: Brewbaker Technology Magnet High School – #3

Most Photogenic Robot: (the beauty contest)

- 1st: Chambers Co. Career Technology Center – #10
- 2nd: Millbrook Middle/Jr. High School – #13
- 3rd: Stanhope Elmore High School – #23



Team Exhibit Design and Construction Award (awarded to the team with the most creative and innovative exhibit design)

- Lee-Scott Academy – #10

Founder’s Award for Creative Design: (given in honor of the two founders of BEST, Steve Marum and Ted Mahler)

- 1st: Springwood School – #22
- 2nd: Episcopal Day School – #5
- 3rd: Millbrook Middle/Jr. High School – #13

Sponsor’s Choice Awards

The War Eagle BEST Teacher Leadership Award

A line from the Auburn Creed reads: “I believe in education, which gives me the knowledge to work wisely and trains my mind and my hands to work skillfully.” For inspiring the spirit of the Auburn Creed in her BEST students, this year’s Teacher Leadership Award goes to:

- Mrs. Krista Ashley – Episcopal Day School

igus Top Gun Award (the team that scored the most points in a single round)

- Stanhope Elmore High School – #23

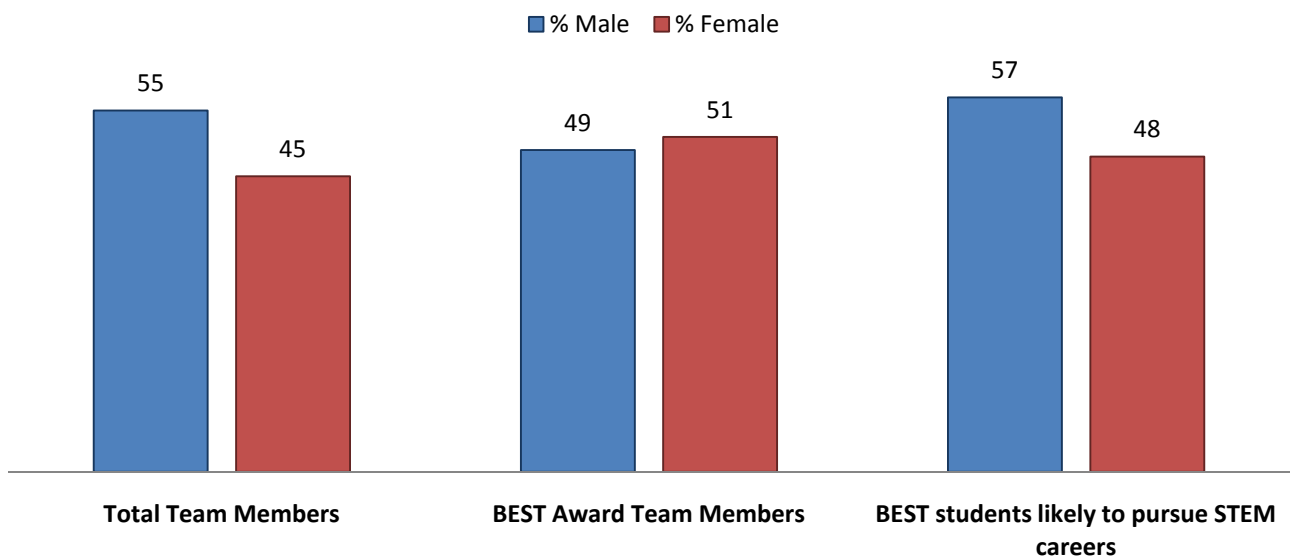
Solid Works CAD Design Award

- Episcopal Day School – #5

Teams Advancing to South’s BEST

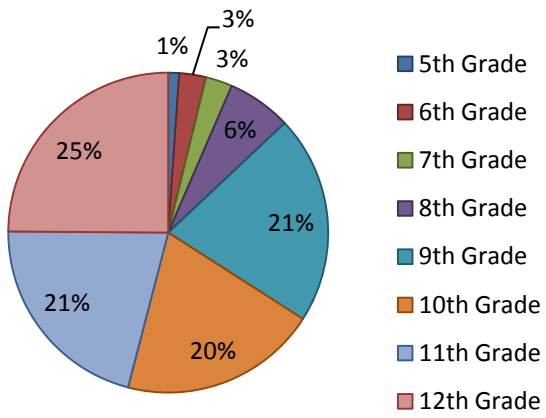
1. Wetumpka High School – #25
2. Lee-Scott Academy – #10
3. Stanhope Elmore High School – #23
4. Episcopal Day School – #5

Participant Breakdown
Gender



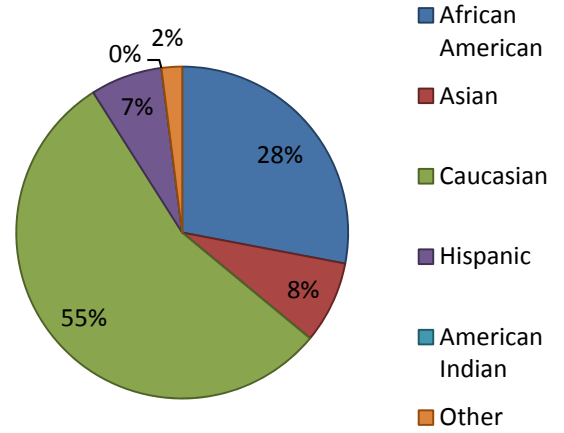
Participant Breakdown

Grade



Participant Breakdown

Race



Program: Getting Under the Surface (G.U.T.S)

Date: September 28, 2010; 5:30 pm - 7:30 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Kathy Feminella, TJ Ngyuen, Allison Holt, Chelsea Harrison, Casey Mitchell, Amy Rutherford, Erin Edmondson, Katy Davis, Dr. Tom Gallagher, Dr. Tony Moss
- **Non-AU:**

Schools Impacted: N/A

- **Total Number of Students:** 31
- **Total Number of Parents:** 31
- **Age Range:** 1st-6th Grade

Facilities: School of Forestry and Wildlife Sciences Building

Crazy Critter Genetics

- Instructed by: Erin Percival
- Number of Students: 11
- Age Range: 1st-3rd Grade

Who Lives Here?

- Instructed by: Katie Davis
- Number of Students: 4
- Age Range: 1st-3rd Grade

Finding Your Way

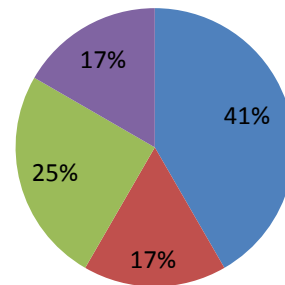
- Instructed by: Dr. Tom Gallagher
- Number of Students: 5
- Age Range: 4th -6th Grade

The GUTS of the Gulf Oil Spill

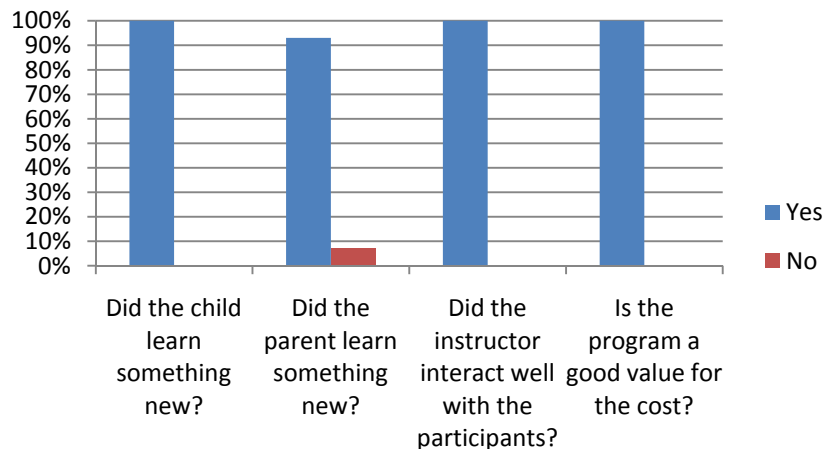
- Instructed by: Amy Rutherford (with assistance from Dr. Tony Moss)
- Number of Students: 11
- Age Range: 4th-6th grade

How did you hear about G.U.T.S.?

■ AU Daily ■ Other E-mail ■ Other ■ Past Participant



Participant Feedback



Program: Science Investigations

Date: Friday, October 8, 2010; 9:00 AM-11:30 AM

Description: This program provides a meaningful science lab experience for home schooled students from Alabama and Georgia.

Personnel:

- **AU:** Mary Lou Ewald, Amy Rutherford, Casey Mitchell, Allison Holt, TJ Nguyen, Chelsea Harrison, Kathy Feminella
- **Non-AU:** N/A

Schools Impacted: N/A

- **Total Number of Students:** 37
- **Age Range:** 6st-12th Grade

Facilities: SCL

Middle School Class

- Instructed by: Ash Umphress and Rebecca Hopkins
- Number of Students: 22
- Age Range: 6th-8th grade
- Activities
 - Finish Toilet Paper Strength Lab
 - Bubble Gum: Calculating Percent Sugar Lab
 - Aluminum Foil Lab

High School Class

- Instructed by: Casey Mitchell and Amy Rutherford
- Number of Students: 15
- Age Range: 9th-12th Grade
- Activities
 - Scientific Method
 - Bioassay Experiment Parts 1 and 2

Program: Tennessee Valley BEST

Date: October 16th, 2010

Description: A middle and high school robotics competition open to teams in the North Alabama/Tennessee Valley region.

Personnel:

- **Co-Directors-** Sue Mitchell, Dr. George Blanks, and Mary Lou Ewald
- **Head Referee-** Ed Green- Hexcel
- **Hospitality-** Lynn Lamb- FPC of Huntsville
- **Pit Boss-** Joey Giuliano (Honda Manufacturing of Alabama)
- **The Pit-** GE Engineering Team
- **Playing Field-** Kirt Mitchell
- **Technical Crew (The “A” Team)-** Dr. Willie Fitzpatrick- U.S. Army
- **Awards and Judging-** Dr. LaRonda Conley
- **Marketing Presentations-** Derek Berry
- **Corporate Sponsor-** Toyota (Wes Woods)
- **Auburn University-** George Blanks (Ginn School of engineering), Mary Lou Ewald (College of Sciences and Mathematics)
- **Calhoun Community College-** Dr. Marilyn Beck (President), Alicia Taylor (Vice President)
- **Business and CIS Department-** Ms. Bethany Clem (Dean)

Schools Impacted: Academy for Science and Language, Athens Bible School, Athens Middle School, Bob Jones High School, Buckhorn High School, Decatur/Austin High Schools (DARC), Decatur Heritage Christian Academy, Faith Christian Academy, Huntsville Middle School, Liberty Middle School, Life Christian Academy, Lion’s Gate Christian School, Madison Academy, Oak Park Middle School, Priceville High School, New Century High School, Lee High School, Columbia High School, Riverside Christian Academy, Russellville City Schools, Sparkman High School, Grissom High School,

- **Total Number of Students:** approx. 600-1,000
- **Age Range:** K-12th grade

Facilities: Noble Russell Building and Kelley Gym- Calhoun Community College

2010 Game Description: Total Recall

Goal: Create a robot that is able to successfully process and package as much “good” product as possible while striving for Six Sigma3 quality levels on each of two independent production lines. Product identified as “defective” are “recalled”. Products to be packaged:

- **Gadgets** – represented by black, yellow, and white golf balls
- **Gizmos** – represented by magnetic and non-magnetic Easter eggs

2010 Game Winners

BEST Award

- 1st: Sparkman High School – #230
- 2nd: Priceville High School – #226
- 3rd: DARC – #217

Robotics

- 1st: Sparkman High School – #230
- 2nd: DARC – #217
- 3rd: Academy for Science and Foreign Language – #211



Best Team Exhibit and Interview Award

- Priceville High School – #226

BEST Spirit and Sportsmanship

- Priceville High School – #226

BEST Marketing Presentations

- Priceville High School – #226

BEST Project Engineering Notebooks

- Athens Bible School – #213

Special Awards**Most Elegant Robot**

- 1st: Academy for Science and Foreign Language – #211
- 2nd: Life Christian Academy – #222
- 3rd: Athens Middle School – #214

Most Robust Robot

- 1st: Academy for Science and Foreign Language – #211
- 2nd: Athens Bible School – #213
- 3rd: Russellville City Schools – #229

Most Photogenic Robot

- 1st: Life Christian Academy – #222
- 2nd: Riverside Christian Academy – #228
- 3rd: Athens Bible School – #213

BEST Webpage Design

- 1st: DARC – #217
- 2nd: Priceville High School – #226
- 3rd: Russellville City School – #229

BEST T-Shirt Design

- 1st: Athens Bible School – #213
- 2nd: DARC – #217
- 3rd: Priceville High School – #226

Founder's Award for Creative Design

- 1st: DARC – #217
- 2nd: Life Christian Academy – #222
- 3rd: Riverside Christian Academy – #228

SolidWorks CAD Design Award

- Lion's Gate Christian Academy – #223

Ignus Top Gun Award

- DARC – #217

Advancing to South's BEST

- DARC – #217
- Priceville High School – #226
- Sparkman High School – #230
- Academy for Science and Foreign Language – #211



Program: Getting Under the Surface (G.U.T.S)

Date: October 21, 2010; 6:00 pm - 8:00 pm

Description: Parent/ Child teams act as lab partners in a 75-90 minute science activity.

Personnel:

- **AU:** Mary Lou Ewald, Kathy Feminella, TJ Ngyuen, Allison Holt, Chelsea Harrison, Casey Mitchell, Amy Rutherford, Erin Edmondson, Dr. Bob Lishak, Sam Hirt
- **Non-AU:** Gina Watkiss, Katie Davis

Schools Impacted: N/A

- **Total Number of Students:** 36
- **Total Number of Parents:** 36
- **Age Range:** 1st-6th Grade

Facilities: Parker, SCL

Bones: Connecting the Living to the Dead

- Instructed by: Katie Davis
- Number of Students: 14
- Age Range: 1st-3rd Grade

Just Eyeball It

- Instructed by: Dr. Bob Lishak
- Number of Students: 9
- Age Range: 4th-6rd Grade

Going Batty with Batman

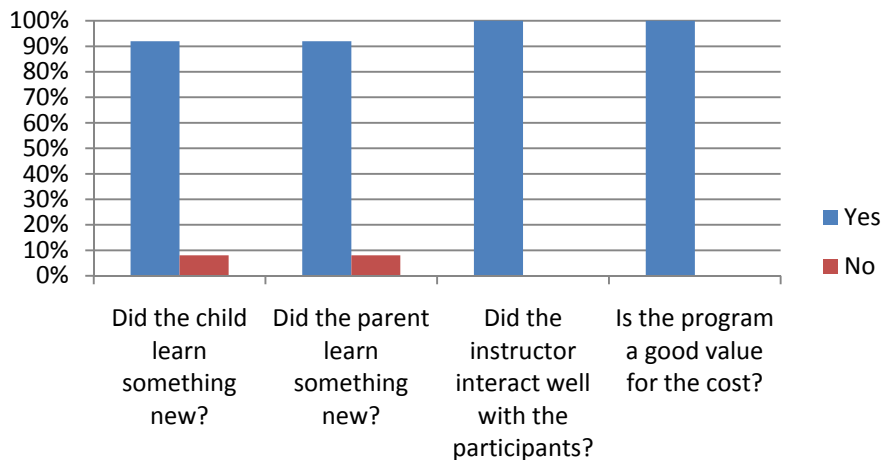
- Instructed by: Sam Hirt
- Number of Students: 5
- Age Range: 4th -6th Grade

The GUTS of Harry Potter's Magic

- Instructed by: Gina Watkiss
- Number of Students: 8
 - Age Range: 4th-6th grade



Participant Feedback



Program: South's BEST Robotics Championship

Date: Thursday, November 18th – Saturday, November 20th 2010

Description: A middle and high school robotics competition open to winning teams from other hubs in the eastern United States.

Personnel:

- **Co-Directors-** Dr. George Blanks, Mary Lou Ewald, Dr. Sid Stubbs
- **Awards & Judging Coordination/Judging Assistants-** Mary Lou Ewald, Jackie Hundley, Chelsea Harrison
- **Event Coordination/Logistics-** George Blanks
- **Floor Boss-** Sid Stubbs
- **Head Judge-** Peter Jones
- **Head Referee-** Ed Green
- **Head Field Referees-** Eric Chapin, Stephen Haddock
- **Hospitality (Food and Facilities)-** Kathy Feminella
- **Media Coordination-** Cheryl Cobb
- **Photographer-** Kim Brumbeloe
- **Pit Boss-** Joey Giuliano
- **Production-** Matt Schuster, SoundSource Productions
- **Registration and Sales-** Amy Rutherford, Casey Mitchell
- **School of Architecture Coordinators-** Rusty Smith, Alan Cook
- **Head Scorekeeper-** Bryan McMeen
- **Signage-** Aileen Broaddus, Wally Ridgway
- **Staging-** Paul Norgaard, Roger Birkhead, Matt Obley, Christina Bock, Sue Mitchell
- **Streaming Video Coordinator-** Greg Ruff
- **Technical and Compliance Coordinators-** Michael Carroll, William Woodall, Stephen Haddock, Alabama Power engineering team
- **Webmaster-** Tyler Patterson
- **Graphic Design-** Wally Ridgway

Schools Impacted: Briarwood Christian School, Homewood Middle School, Isabella High School, Oak Mountain High School, Spain Park High School, The Altamont School, Crosby High School, Louis P. Slade Middle School, Montville High School, Sacred Heart School, STEM Academy Roosevelt Middle School, Bethlehem High School, Woodlawn Beach Middle School, Woodham Middle, Workman Middle School, Fernbank LINKS, Henry W. Grady High School, North Cobb Christian School, North Forsyth High School, Piedmont Academy, Wheeler High School, MACH Mobile Area Coalition of Homeschoolers, McGill-Toolen Catholic High School, St. Dominic Catholic School, St. Paul's Episcopal School, St. Vincent de Paul Catholic School, Sweet Water High School, W.P. Davidson High School, Holy Cross School, Horn Lake Robotics, Lausanne Collegiate School, Starkville Christian Home Educators, Central Magnet School, DART, Merrol Hide Magnet School, Hartselle Junior High School, Holly Pond High School, Weaver High School, C.C.A. Baldi Middle School, Central High School, Murrell Dobbins CTE, Northeast High School, Philadelphia Military Academy at Elverson, SCITECH High School, Swenson Arts and Technology High School, DARC, Priceville High School, Sparkman High School, The Academy for Science and Foreign Language, Episcopal Day School, Lee-Scott Academy, Stanhope Elmore High School, Wetumpka high School, Beverlye Magnet School, Charles Henderson High School, Houston County High School, Covenant Christian Preparatory Academy, Grove City High School, West Middlesex Jr./Sr. High School,

Total Number of Students: approx. 2,500-3,000

- **Age Range:** Kth-12th grade

Facilities: AU Student Center, Beard-Eaves Memorial Coliseum

2010 Game Description: Total Recall

Goal: Create a robot that is able to successfully process and package as much “good” product as possible while striving for Six Sigma³ quality levels on each of two independent production lines. Product identified as “defective” are “recalled”. Products to be packaged:

- **Gadgets** – represented by black, yellow, and white golf balls
- **Gizmos** – represented by magnetic and non-magnetic Easter eggs



2010 Championship Winners

BEST Award

- 1st: DARC – Tennessee Valley
- 2nd: Oak Mountain High School – Blazer
- 3rd: Wetumpka High School – War Eagle

Game Winners

- 1st: Merrol Hyde Magnet School – Music city
- 2nd: Central Magnet School – Music City
- 3rd: DART – Music City
- 4th: Lausanne Collegiate School - Mississippi

Middle School BEST Award

- St. Vincent de Paul Catholic School – Jubilee

Middle School Robotics Award

- St. Vincent de Paul Catholic School – Jubilee

Best Oral Presentation Award

- 1st: Oak Mountain High School - Blazer
- 2nd: Central High School – Philadelphia
- 3rd: Wetumpka High School – War Eagle

Best Team Exhibit and Interview Award

- 1st: DARC – Tennessee Valley
- 2nd: Episcopal Day School – War Eagle
- 3rd: Priceville High School – Tennessee Valley

Best Project Engineering Notebook Award

- 1st: Central Magnet School – Music City
- 2nd: DART – Music City
- 3rd: DARC – Tennessee Valley

Best Spirit and Sportsmanship Award

- 1st: Oak Mountain High School – Blazer
- 2nd: Charles Henderson High School – Wiregrass
- 3rd: DARC – Tennessee Valley

BEST Team Video

- 1st: W.P. Davidson High School – Jubilee
- 2nd: Lee-Scott Academy – War Eagle
- 3rd: Woodham Middle School – Emerald Coast

Celebrate BEST Trivia Challenge

- 1st: DARC – Tennessee Valley
- 2nd: St. Paul’s Episcopal School – Jubilee
- 3rd: Wheeler High School – Georgia

Team Exhibit Design and Construction Award (the most creative and innovative table display design)

- 1st: McGill-Toolen Catholic High School – Jubilee
- 2nd: Oak Mountain High School – Blazer
- 3rd: Central Magnet School – Music City



Founders Award for Creative Design: (given in honor of the two founders of BEST, Steve Marum and Ted Mahler)

- 1st: DARC – Tennessee Valley
- 2nd: W.P. Davidson High School – Jubilee
- 3rd: Central Magnet School – Music City

Most Elegant Robot: (the machine that makes efficiently performs the task it was designed for)

- 1st: Stanhope Elmore High School – War Eagle
- 2nd: St. Vincent de Paul Catholic School – Jubilee
- 3rd: Oak Mountain High School – Blazer

Most Robust Robot: (needed the least amount of repairs)

- 1st: DARC – Tennessee Valley
- 2nd: DART – Music City
- 3rd: Weaver High School – North Alabama

Most Photogenic Robot: (the beauty contest)

- 1st: Holy Cross School – Mississippi
- 2nd: Stanhope Elmore High School – War Eagle
- 3rd: Louis P. Slade Middle School – Connecticut

Best Web Page Design

- 1st: Wetumpka High School – War Eagle
- 2nd: Spain Park High School – Blazer
- 3rd: Oak Mountain High School – Blazer

Best T-shirt design

- 1st: Beverlye Magnet School - Wiregrass
- 2nd: Priceville High School – Tennessee Valley
- 3rd: St. Vincent de Paul Catholic School – Jubilee

igus Top Gun Award (the team that scored the most points in a single round)

- Central Magnet School – Music City

Solid Works CAD Design Award

- 1st: W.P. Davidson High School – Jubilee
- 2nd: Fernbank LINKS – Georgia
- 3rd: Central Magnet School – Music City

Southern Company “Southern Style” Award – This award was determined by ballot and through consultation with the Southern Co. employees who were present. It is being awarded to the team that other teams believed exhibited the qualities important to the Southern Company – honesty, respect, fairness, integrity, safety, teamwork, and diversity.

- DARC – Tennessee Valley

Teams Advancing to National Championship

- 1st place Robotics: Merrol Hyde Magnet School – Music City
- 2nd place Robotics & 4th place BEST Award: Central Magnet School – Music City
- 3rd place Robotics & 5th place BEST Award: DART – Music City
- 4th place Robotics: Lausanne Collegiate School – Mississippi
- 1st place BEST Award: DARC – Tennessee Valley
- 2nd place BEST Award: Oak Mountain High School – Blazer
- 3rd place BEST Award: Wetumpka High School – War Eagle
- 6th Place BEST Award: Central High School – Philadelphia

Women in Science and Engineering (W.I.S.E.) Luncheon

- Guest Speaker: Celeste Baine
- Female Student Attendance: 256



Program: Science Investigations

Date: Friday, December 10, 2010; 9:00 AM-11:30 AM

Description: This program provides a meaningful science lab experience for home schooled students from Alabama and Georgia.

Personnel:

- **AU:** Mary Lou Ewald, Casey Mitchell, TJ Nguyen, Kathy Feminella
- **Non-AU:** N/A

Schools Impacted: N/A

- **Total Number of Students:** 37
- **Age Range:** 6st-12th Grade

Facilities: SCL

Middle School Class

- Instructed by: Mary Lou Ewald
- Number of Students: 22
- Age Range: 6th-8th grade
- Activities:
 - Lemon Juice Lab
 - Field Trip – Leach Science Center

High School Class

- Instructed by: Casey Mitchell and Amy Rutherford
- Number of Students: 15
- Age Range: 9th-12th Grade
- Activities
 - Field Trip – Leach Science Center
 - Bioassay Experiment Results Discussion
 - Vitamin C Analysis Lab
 - Mole Concept and Relative Mass



AUBURN UNIVERSITY

**COLLEGE OF SCIENCES
AND MATHEMATICS**

January / February 2010

Volume 1, Issue 6

$E=mc^2$

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events and Programs 1-2

Experiment of the Issue 3

Since last issue... 3-4

Schedule of Events

- February 6– Math-a-thon
- February 8 – G.U.T.S.
- February 26 – TEAMS
- February 27 – Middle School Science Olympiad

Please visit our website for a complete listing of all our programs!

www.auburn.edu/cosam/outreach

Upcoming Events & Programs:

G.U.T.S.

The 2010 spring sessions of Getting Under the Surface (G.U.T.S.) will begin on Monday, February 8. G.U.T.S. is a monthly program for 1st-8th graders and their parents.

Registration for the February 8 session will be available on our website, www.auburn.edu/cosam/outreach, later this month. The \$18 registration fee will include dessert and all course materials for each student/adult pair per session. Other sessions for this spring will be held on March 4, March 20, and April 21. The year-end “GUTS Backyard Bash” is tentatively scheduled for Saturday, May 1.

Auburn University Math-a-thon

On February 6, Auburn will host the 3rd annual Math-a-Thon Tournament for high school students. Teams from across the state will compete on two levels—comprehensive and Algebra II with Trigonometry. Individual tests, team tests, & ciphering will be offered during this one day event. Any school (9th-12th grade) is welcome to attend. A registration fee of \$7 per student is required for participation. For more registration information, go to www.auburn.edu/cosam/outreach and click on “Math Tournament” in the Upcoming Events section.

TEAMS

In conjunction with Engineering Day on February 26, COSAM Outreach will co-sponsor the TEAMS (Testing Engineering Aptitude, Mathematics, and Science) competition at the New Student Center for students in grades 9-12. Students work together and use the principles of engineering, math, and science while solving real world challenges. This year, the theme is “Water, Water, Everywhere.” TEAMS is sponsored by the Junior Engineering Technical Society (JETS). Pre-registration is required. For more information or to pre-register, go to www.jets.org/teams/registrationform.cfm.

Middle School Science Olympiad

Science Olympiad is a one-day academic track meet, consisting of up to 23 different competitive events. Teams of Students in grades 6-8 will converge on Auburn’s campus on February 27 to compete in events ranging from Anatomy to Robots. Winners from the middle school division qualify to compete at the state Science Olympiad. Pre-registration is required. For more information or to register, contact Dr. Steve Stuckwisch at stuckse@auburn.edu.



Upcoming Events & Programs, cont'd:

GEARSEF



On March 10, COSAM will host the 2nd annual Greater East Alabama Regional Science and Engineering Fair. Over 100 students from 20 schools across Eastern and South Alabama will compete in the fair. The winners in each division and category will be eligible to compete at the Alabama State Science and Engineering Fair in April. The top two winners in grades 9-12 will advance to compete in the Intel International Science and Engineering Fair in San Jose, CA May 9-15. If your school is interested in participating, contact Emma Seiler at ees0011@auburn.edu or 334-844-7449.



For more information about the Intel International Science & Engineering Fair, visit:

www.societyforscience.org/ISEF/

AU Explore



AU Explore is COSAM's annual Open House Day. Approximately 1500 5th– 8th grade students from all over Alabama are invited to attend this FREE event on Auburn's campus to participate.

Students will have the opportunity to experience live animals up close, as well as interact with University faculty and students at the Science and Math Expo. Make-n-Take Science Fun Shops and Demo Shows presented by Auburn's finest will also be occurring throughout the day. Also, students may catch a glimpse of Auburn's lovable mascot, "Aubie", while here on AU's campus.

Final date (tentatively scheduled for May 4) and registration information can be found in mid-February at www.auexplore.auburn.edu. Pre-registration is required. Public, private, and home school groups are invited.

Summer Programs

Details about summer programs are coming soon! We will be offering the following programs this summer:

- **NEW! Science Matters** - Summer Enrichment program for elementary students. This summer, we will offer seven science-themed weeks for students in rising 2nd through 5th grades. Sample weeklong programs will include Biz World (math and entrepreneurship), Art in Science (in collaboration with the Jule Collins Smith Museum of Art), NASA Week (design challenge), Mysterious Mixtures (chemistry), and All About Animals (biology), plus more. Each 5-day program will include dozens of hands-on activities and a field trip day, all based on the science theme for that week. Students can come just one week or all seven! Discounts will apply for multiple camp attendance. Science Matters dates are: June 1-4, June 7-11, June 21-25, June 28-July 2, July 5-9, July 19-23, and July 26-30. Each program will be limited to 40 students. Program details and pricing will be available by February 1 on our website (www.auburn.edu/cosam/outreach).
- **Summer YES** (Youth Experiences in Science) is for rising 6th—9th graders and will be held July 11-15. Residential and non-residential options will be offered. Students participate in two dynamic, hands-on courses such as Claymation Science, Physics of Toys, or Nano Nonsense.
- **BEST Summer Institute for Teachers** will be June 13-16. Teachers will get hands-on training in the use of BEST's equipment and software and learn successful strategies and practices in both the Robotics and BEST Award Divisions.
- **Advanced Placement Summer Institute** (APSI) will be June 21-25. The APSI is designed to aid the professional development of teachers, counselors, and administrators who are involved with Advanced Placement (AP) courses.

Dates, fees, and registration information will be available in the March/April issue of our newsletter and online at www.auburn.edu/cosam/outreach.

Experiment of the Issue

Snow Ice Cream

What It 's All About...

Long ago people figured out the easiest way to make ice cream is to use snow. The secret was to lower the freezing point of snow in order to freeze the cream. How? The scientific secret is *SALT!* Here's a scientific recipe that you can use at home to make your own ice cream.

Materials

- Large plastic jar, approx. 1 gallon
- Half & Half
- Snow
- Rock Salt

- 2 quart size Ziploc bags
- Vanilla extract
- Sugar
- Towel (or winter gloves)

Procedure

1. Fill the plastic jar about half full with snow.
2. Add about 6 tbsp. of rock salt to the snow. Seal the jar and shake the snow & salt for about 5 min. Wear your gloves! The temperature will get down to about 14 degrees F!
3. Use 1 quart size bag to mix the following: 1/2 cup of half & half, 1 tbsp. sugar, and 1/2 tsp of vanilla

4. Seal tightly, allowing as little air to remain in the bag as possible.
5. Place this bag inside the other quart-size bag, again leaving as little air as possible.
6. Place the two bags inside the jar with snow and seal the jar. Wrap the jar in the towel or put your gloves on and shake, rock, roll and mix that jar! Your ice cream should be ready in 15-20 min.
7. Once mixed, remove the inner bags from the jar and rinse them well with water. You don't want any salt accidentally getting into your ice cream.

The Science Behind It...

What does the salt do? Just like we use salt on icy roads in the winter, salt mixed with ice in this case also causes the ice to melt. When salt comes into contact with ice, the freezing point of the ice is lowered. The lowering of the freezing point depends on the amount of salt added. The more salt added, the lower the temperature will be before the salt-water solution freezes. For example, water will normally freeze at 32 degrees F. A 10% salt solution freezes at 20 degrees F, and a 20% solution freezes at 2 degrees F. When salt is added to the ice (or snow), some of the ice melts because the freezing point is lowered. Always remember that heat must be absorbed by the ice for it to melt. The heat that causes the melting comes from the surroundings (the warmer cream mixture). By lowering the temperature at which ice is frozen, you were able to create an environment in which the cream mixture could freeze at a temperature below 32 degrees F into ice cream.

Since last issue...

G.U.T.S.

Tuesday, November 17, marked the last session for the 2009 year. Four courses— Edible Science, taught by Paul Norgaard and Matt Obley, The G.U.T.S. of DNA taught by Ms. Erin Edmondson, Microscopic Wonders taught by Dr. Mark Jones, and Tiggers for Tigers, taught by Evi Paemelaere and Lind Pastorello of Tigers 4 Tigers— were offered at this session. A total of 41 pairs of students and parents attended.



Students and parents work together during the November session of G.U.T.S.



Since last issue ...

South's BEST

On Saturday, December 12, 2009, Alabama Gov. Bob Riley joined over 3500 students, parents, teachers and mentors for the South's BEST Robotics Regional Championship, hosted by COSAM and the Samuel Ginn College of Engineering. "I've heard about BEST but did not fully appreciate the power of robots and this program to engage and excite." said Riley. BEST (Boosting Engineering, Science & Technology) is one of the nation's leading science, technology, engineering and math programs and is designed to pique student interest in careers in engineering and the sciences and develop the workforce of the future. Fifty-five schools from 11 hubs and 9 states competed in the championship event.

Participating Hubs included:

- | | |
|-----------------------------------|-------------------------------------|
| Blazer BEST– Birmingham, AL | North Alabama BEST– Hanceville, AL |
| Bulldog BEST– Starkville, MS | Music City BEST– Nashville, TN |
| Connecticut BEST—New Britain, CT | Philadelphia BEST– Philadelphia, PA |
| Emerald Coast BEST– Pensacola, FL | Tennessee Valley BEST– Decatur, AL |
| Georgia BEST– Marietta, GA | War Eagle BEST– Auburn, AL |
| Jubilee BEST– Mobile, AL | |



For more information on South's BEST, go to www.southsbest.org

D.A.M.E.S.

D.A.M.E.S. (Daughters and Mothers Exploring Science) is an initiative of the Society of Women in Sciences and Mathematics (SWSM). Twenty-four pairs of mothers and daughters in grades 5-8 came together on Saturday, November 14 and participated in courses such as Buggin' Out, DNA Jewelry, Exploring the Amazon Basin, Glamour Girl Chemistry, and Shrinky Dinkin'. The event ended with a luncheon and the mother-daughter speaking team of Dr. Patricia Wade and Jessica Williams.



A mother-daughter team working together in the Glamour Girl Chemistry course.



College of Sciences and Mathematics K-12 Outreach

315 Roosevelt Concourse
131 Science Center Classrooms
Auburn University, AL 36849
Phone: 334-844-5769
Fax: 334-844-5740
E-mail: cosam_outreach@auburn.edu



Visit our YouTube channel!! New videos will be updated following outreach programs.

www.youtube.com/AUCOSAMOutreach

Keep up to date with programs and information by visiting:
www.auburn.edu/cosam/outreach



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

March/ April 2010

Volume 2, Issue 2

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events and Programs 1-2

Experiment of the Issue 3

Since last issue... 3-4

Upcoming Events & Programs:

G.U.T.S.

The spring 2010 Getting Under the Surface program will continue on Thursday, March 4th. Courses will include:

- Getting the Dirt on Dirt- Brenda Wood, AU Department of Agronomy and Soils
- Birds, Bugs, and Botany- Sallie Martin, AU Department of Entomology
- The GUTS of Art- Andrew Henley, Julie Collins Smith Museum of Fine Art

The \$18 registration fee for each session includes dessert and all course materials for each student/adult pair per session. Additional sessions this semester are scheduled for **March 30th** and **April 21st**. Registration for each of these programs will be available on the outreach site, www.auburn.edu/cosam/outreach.

Schedule of Events

- **March 4** – G.U.T.S.
- **March 10** – GEARSEF
- **March 27** – Elementary Science Olympiad
- **March 30** – G.U.T.S.
- **April 10** – Spring Y.E.S. Camp
- **April 21** – G.U.T.S

Please visit our website for a complete listing of all our programs!

www.auburn.edu/cosam/outreach

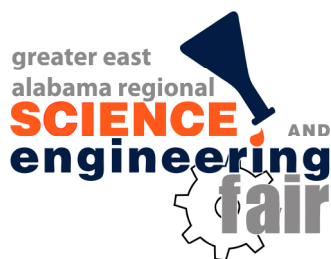
G.U.T.S.
at
Auburn University



Getting Under the Surface

GEARSEF

On March 10th, COSAM will host the 2nd annual Greater East Alabama Regional Science and Engineering Fair. Over 100 students from 20 schools across Eastern and South Alabama will compete in the fair. The winners in each division and category will be eligible to compete at the Alabama State Science and Engineering Fair at UAH in April. The top two winners in grades 9-12 will advance to compete in the Intel International Science and Engineering Fair in San Jose, CA May 9-15. For more information, please visit www.societyforscience.org/ISEF/



Upcoming Events & Programs, cont'd:

Elementary Science Olympiad

The Division A Science Olympiad will occur on Saturday, March 27th. Division A competition is geared toward students in grades 3-6. The event will take place on the Auburn University campus and will run from 8:30-3:30.



Please visit
www.auburn.edu/~harriga/olympiad
for more information
about Elementary
Science Olympiad at
Auburn University.

Spring YES

The Spring Youth Experiences in Science program at Auburn University will occur on Saturday, April 10th. Registration is now available on the outreach website, www.auburn.edu/cosam/outreach. Students in grades 3-6 will sign up for camp courses on the morning of the event, beginning at 8:00 am. The day will consist of a variety of hands-on, minds-on courses. Topics will include chemistry, design, and biology. Spring Y.E.S. is a free program, and space is limited, though pre-registration is required.



Students enjoying Y.E.S. camps.

Summer Program Announcement

Registration for the new summer program, Science Matters, is now available on the outreach website. The new program for 2nd-5th graders will offer 7 weeks of science-themed camps beginning June 1st. You may choose to enroll in as many weeks as you would like and you may choose Regular Day (8:00am -3:30 pm) or Extended Day (8:00am - 5:00pm) options. More information is available on the outreach website.

For up-to-date program information from the COSAM Outreach Office, sign up for our new listverv, AU4kids. To become a member, send an e-mail to cosam_outreach@auburn.edu and let us know you would like to enroll.

Experiment of the Issue

Cloud in a Bottle

What It 's All About...

The Spring months are always filled with crazy weather patterns. This experiment allows you to make your very own cloud in a bottle. (Note that the results of this experiment are not as striking as others featured in the newsletter, but still very interesting.)

Materials

- **1 Liter plastic bottle with cap**
- **Warm Water**
- **Match**

Procedure

1. **Place enough warm water in the bottle to cover the bottom.**
2. **Now, put some smoke particles in the bottle. Light the match and let it burn for a few seconds. Immediately place the head of the match into the bottle. Let the smoke fill the bottle. After a few seconds, the smoke will begin to disappear- but the particles are still floating in the bottle.**
3. **Quickly screw on the cap, not letting too much smoke out.**
4. **Firmly squeeze the bottle 6-7 times (or more if necessary). Squeeze the bottle again holding it for a few seconds, then quickly release.**
5. **Look quickly at what happens in the bottle!**

The Science Behind It...

The fog that forms in the bottle is an actual cloud! There are tiny water droplets in the air at all times. Most of the time, these molecules are bouncing around in the air and don't stick together. When you squeeze the bottle, you compress the molecules. On the release, the air expands and cools, which makes it easier for the molecules to stick together. The tiny droplets are the same type of droplets that form clouds. The smoke in the bottle aids this process by giving the water particles a nucleus to stick to.

Clouds on earth form when warm air rises and pressure drops. The air expands and cools and clouds form when the temperature reaches the dew point. The smoke particles in this experiment represent things such as pollution, dust, smoke, or even dirt in the atmosphere that the particles adhere to.

Since last issue...

Math-a-Thon

The year in Outreach began with the 3rd Annual Auburn University Math-a-thon which took place on February 6th, 2010. Teams competed in Comprehensive (Pre-Calculus) Level and Algebra II with Trigonometry Level Individual Tests, Team Tests, Ciphering, and the Aubie Bowl Interschool Tests. This year, LEGO artist, puzzle designer, and mathematician Eric Harshbarger spoke to students about the interesting tract he followed after obtaining his mathematics degree. The Aubie Bowl Interschool test also featured a math digits puzzle developed by Mr. Harshbarger.



Students explore a variety of puzzles designed by Mr. Eric Harshbarger. You can find out more by visiting his website, www.ericarshbarger.org.





AUBURN UNIVERSITY
COLLEGE OF SCIENCES
AND MATHEMATICS



Since last issue ...

G.U.T.S.

Students and parents enjoyed a night of science together on February 8th at Getting Under the Surface. This was the first G.U.T.S. session of 2010. During this Valentine's Day themed night, participants learned about topics that ranged from magnetism to the gross anatomy of hearts. Three additional sessions and the end of the year "G.U.T.S. Backyard Bash" are still available for interested families.

TEAMS

On Friday, February 26th, schools from across the region competed in the TEAMS competition at Auburn University. TEAMS is a timed national engineering & science competition, sponsored by the Junior Engineering Technical Society (JETS), that asks high school students to solve real-world challenges. Winners from the AU competition included Northside High School (9th/10th Grade Division Winner and 11th/12th Grade Division 3rd Place), Randolph School (11th/12th Grade Division 2nd Place), and Columbus High School Team A (11th/12th Grade Division 1st Place).

Science Olympiad

The 2010 Division B Science Olympiad took place on Saturday, February 27th on the Auburn campus. Middle School events throughout the day ranged in subject matter that spanned all areas of the science course of study. Winners of the competition were Auburn Junior High School Team A – 1st place, Auburn Junior High School Team C- 2nd place, Auburn Junior High School Team B- 3rd place, Beverly Magnet School- 4th place, and Carver Magnet School- 5th place. These teams will qualify for the 2010 Alabama State Science Olympiad at Huntingdon College on March 13th.

Students and parents enjoy a night of science together at the February 8th G.U.T.S.



College of Sciences and Mathematics K-12 Outreach

315 Roosevelt Concourse
131 Science Center Classrooms
Auburn University, AL 36849
Phone: 334-844-5769
Fax: 334-844-5740
E-mail: cosam_outreach@auburn.edu



Visit our YouTube channel!! New videos will be updated following outreach programs.

www.youtube.com/AUCOSAMOutreach

Keep up to date with programs and information by visiting:
www.auburn.edu/cosam/outreach



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

May/June 2010

Volume 2, Issue 3

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events and Programs 1-2

Experiment of the Issue 3

Since last issue... 3-4

Schedule of Events

- May 2— G.U.T.S. Backyard Science Bash
- May 4— AU Explore
- June 1-4—Earth and Worms *Science Matters* program
- June 7-11—NASA Design Squad *Science Matters* program
- June 21-25—Rocket Challenge *Science Matters* program
- June 21-25—AP Summer Institute for Teachers
- June 28-July 2—Art in Science *Science Matters* program
- July 6-9—BizWorld *Science Matters* program
- July 12-15—Summer YES Camp
- July 19-23—Soda Pop Science *Science Matters* program
- July 26—Furry Friends *Science Matters* program

Upcoming Events & Programs:

Science Matters

Summer Enrichment for Elementary Students

Does your child like exploring the outdoors? Is he creative or always taking things apart? Does she love solving problems? Do your kids excel at math or science? If you found yourself answering yes to any of these questions or you have a rising second through fifth grade child who shows high interest or aptitude in science, math, or technology-related subjects you should definitely send your child to *Science Matters* at Auburn University! They'll have a blast, and you'll feel great about positively contributing to your child's summer break!

Science Matters is an all new summer enrichment program for elementary students in grades 2-5 that offers youngsters a supercharged science experience. The program allows participants to explore the world of science through **real experiments, fantastic field trips**, technology and art projects, and hands-on, **make-n'-take activities**. During this action-packed program, kids can design and build, **dabble in the art of chemistry**, "become a flight specialist", **see amazing critters**, and more!

Science Matters offers seven different science-themed weeks. Your child can delight in as many weeks as they like! Parents can choose between the Regular Day option from 8am-3:30pm daily or the Extended Day option from 8am-5pm daily. Multiple child and multiple week discounts are available.

Program Fees Include: **All materials** for all courses, fantastic **field-trips** each week, first-class experienced instructors and staff, all snacks (morning and afternoon breaks), special *Science Matters* **T-shirt and backpack**, and a **Certificate of Achievement**.

For more information or to request a registration form, contact *Science Matters* at COSAM_Outreach@auburn.edu or by phone at (334) 844-7449 or visit our website.

Science matters

Summer Enrichment for Elementary Students

Please visit our website for a complete listing of all our programs!

www.auburn.edu/cosam/outreach

Upcoming Events & Programs, cont'd:

Summer YES Camp



The College of Sciences and Mathematics will host the Summer Youth Experiences in Science (YES) camp July 12-15 for rising sixth- through ninth-grade students. Summer YES is a great opportunity for students to explore the many wonders of science by participating in hands-on experiments related to Chemistry, Robotics, River Creatures, Art in Science and much more. Students can choose a half-day, full-day or residential option. Summer YES was the only middle school camp in the state of Alabama to be featured in the national

publication, "The Ultimate Guide to Summer Opportunities for Teens," in 2008. Information and registration forms can be found at www.auburn.edu/cosam/outreach. Register by May 21 to receive the early bird discount. For more information, contact COSAM Outreach at 844-7449 or eesoon@auburn.edu.

AP Summer Institute for Teachers

The Advanced Placement Summer Institute is designed for the professional development of teachers, counselors, and administrators involved in Advanced Placement (AP) courses as well as teachers and administrators who are involved in implementing vertically aligned curricula that prepare 6th-12th grade students for AP courses. These workshops will be held on the campus of Auburn University during the week of June 21-25, 2010. Tuition is \$500 per workshop. Please add a \$50 lab fee for all Science workshops. The tuition fee covers all instruction, breaks, and course materials. Each workshop has limited enrollment. Registration is completed when processed on-line or when received in the Office of Professional & Continuing Education with payment. For more information or to register, go to <http://www.auburn.edu/outreach/apsi/>.

Auburn University in cooperation with the College Board will host workshops in the following areas:

Introductory Biology
 Advanced Biology
 Environmental Science
 Physics

English Language and Composition
 Calculus AB
 English Literature and Composition

Introductory Chemistry
 Advanced Chemistry
 US History

Women's Leadership Symposium on Science and Mathematics

On August 27, 2010, COSAM will host its annual Women's Leadership Symposium on Science and Mathematics. Held every August, the Symposium was established to showcase distinguished women in the fields of sciences and mathematics. Fifty area high school girls with leadership potential are invited to campus to be a part of this dynamic one-day experience. The morning opens with a panel discussion featuring accomplished women from various disciplines, then follows with a luncheon that features a keynote speech delivered by a woman distinguished in her discipline. Past panelists and keynote speakers have included women from NASA, the Centers for Disease Control, The Wharton School, and a Jefferson Science Fellow recipient. Our goal is to provide a platform for young women to meet many different female role models in sciences and mathematics. This event is sponsored by the Society of Women in Sciences and Mathematics. For more information, go to http://www.auburn.edu/academic/science_math/swsm/.

For up-to-date program information from the COSAM Outreach Office, sign up for our listserv, AU4kids. To become a member, send an e-mail to cosam_outreach@auburn.edu

Experiment of the Issue

Disappearing Act

Materials Needed:

- 2 large beakers (Must be big enough that you can completely submerge the Pyrex objects in them)
- 2 Test tubes, or other small Pyrex objects (stirring rods, small beakers, etc.)
- Wesson brand vegetable oil (enough to fill one beaker)
- Water (enough to fill one beaker)
- Rubber gloves (optional)
- Tongs (optional)

Procedure

1. Fill one beaker with water and another with oil.
2. Place the test tube in the water-filled beaker and note its appearance.
3. Now submerge the beaker partway in the oil, but don't let the oil fill the test tube.

The outside edges should be nearly invisible, but the inside edges should be easy to see.

4. Fully submerge the test tube, allowing oil to fill it completely. Now its edges should be very difficult to see.

The Science Behind It...

We see the edges of objects because light is either reflected or refracted at their boundaries. In the case of clear objects, such as glass and some plastics, refraction allows us to discern their edges from the surroundings. For instance, water and glass have different indices of refraction, which makes the light bend at the boundary between the two materials. This makes the sides of a submerged test tube clearly visible when held underwater.

When a test tube is submerged in vegetable oil, however, the boundaries are invisible because the oil and Pyrex glass have the same index of refraction. This means that the light is not at all refracted when it crosses the boundary between the oil and glass.

Since last issue...

GEARSEF

On March 10th, 2010 COSAM hosted the 2nd annual Greater East Alabama Regional Science and Engineering Fair. Over 70 students from 20 schools across Eastern and South Alabama competed in the fair. The two ISEF finalists who will be attending the Intel International Science and Engineering Fair (ISEF) in San Jose, CA May 9-15 are Nicholas Christensen from Wetumpka High School and Pranjul Gupta from Auburn High School. For more information on ISEF, please visit www.societyforscience.org/ISEF/





Since last issue ...

G.U.T.S. Backyard Science Bash

In celebration of the huge success of the Getting Under the Surface science program, we hosted our second annual Backyard Science Bash on Sunday, May 2, 2010. The Bash opened with dinner followed by a jello optics dessert activity and a special presentation of the “Phun with Physics” Show. The show was performed by one of Auburn University’s very own physicists, Dr. Ed Thomas.



AU Explore Open House

AU Explore is COSAM’s annual Open House Day for middle school students. Approximately 1500 5th– 8th grade students from all over Alabama participated in this year’s event, which occurred on Tuesday, May 4. Students experienced live birds of prey, reptiles, and insects up close, interacted with University faculty and students at the Science and Math EXPOs, built motors and dissected sheep eyes at the Science Fun Shops, and watched hydrogen balloons explode at the Wet and Wild Science Show.



Spring YES

Spring YES, our annual free Saturday academy for third—sixth grade students was held on Saturday, April 10, 2010. Over 115 third-sixth graders had the opportunity to take two of the following courses: Plants and Pollination, Art in Science, Chemistry in a Bag, Propulsion and Parachutes, and Your Healthy Heart.

College of Sciences and Mathematics K-12 Outreach

315 Roosevelt Concourse
 131 Science Center Classrooms
 Auburn University, AL 36849
 Phone: 334-844-8161
 Fax: 334-844-5740
 E-mail: cosam_outreach@auburn.edu



Visit our YouTube channel!! New videos will be updated following outreach programs.

www.youtube.com/AUCOSAMOutreach

Keep up to date with programs and information by visiting:
www.auburn.edu/cosam/outreach



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

July/August 2010

Volume 2, Issue 4

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events and Programs 1-2

Experiment of the Issue 3

Since last issue... 3-4

Upcoming Events & Programs:

Women's Leadership Symposium 2010

Schedule of Events

- July 6-9—BizWorld *Science Matters* program
- July 12-15—Summer YES Camp
- July 19-23—Soda Pop *Science Matters* program
- July 23-24—BEST Robotics Teacher-Mentor Workshop
- July 26—Furry Friends *Science Matters* program
- August 27—Women's Leadership Symposium on Science and Mathematics

On August 27, 2010, COSAM will host its annual Women's Leadership Symposium on Science and Mathematics at the Auburn University Hotel and Conference Center. Held every August, the Symposium was established to showcase distinguished women in the fields of sciences and mathematics. Fifty area high school girls (9th—12th grades) with leadership potential will be invited to campus to be a part of this dynamic one-day experience. The morning opens with a panel discussion featuring accomplished women from various disciplines, then follows with a luncheon that features a keynote speech delivered by a woman distinguished in her discipline. Past panelists and keynote speakers have included women from NASA, the Centers for Disease Control, The Wharton School, and a Jefferson Science Fellow recipient.

This year's distinguished keynote speaker is Dr. Cynthia Carver DeKlotz, Resident physician in Internal Medicine and Dermatology at Georgetown University Hospital. Dr. DeKlotz is a 2002 graduate in Biomedical Sciences from COSAM and was the only AU student who received the USA Today All-American distinction during her senior year at Auburn.



The Symposium is sponsored and hosted each year by the Society of Women in Sciences and Mathematics (SWSM), an organization that aims to provide a platform for young women to meet many different female role models in sciences and mathematics. For more information, go to http://www.auburn.edu/academic/science_math/swsm/. Girls in 9th—12th grades are invited to submit an application to attend the Symposium at no cost to them (see below).

Please visit our website for a complete listing of all our programs!

www.auburn.edu/cosam/outreach

To request an application form, contact us at COSAM_Outreach@auburn.edu or by phone at (334) 844-8161 or visit our website. www.auburn.edu/cosam/outreach
Application forms due by August 9th

Upcoming Events & Programs, cont'd:

Summer YES Camp



The College of Sciences and Mathematics will host the Summer Youth Experiences in Science (YES) camp July 12-15 for rising sixth- through ninth-grade students. Summer YES is a great opportunity for students to explore the many wonders of science by participating in hands-on experiments related to Chemistry, Robotics, River Creatures, Art in Science and much more. Students can choose between half-day, full-day or residential options. Summer YES was the only middle school camp in the state of Alabama to be featured in the national publication, "The Ultimate Guide to Summer Opportunities for Teens," in 2008. Information and registration forms can be found at www.auburn.edu/cosam/outreach. Limited space still available. For more information, contact COSAM Outreach at 844-7449 or eesoon@auburn.edu.

BEST Robotics Teacher-Mentor Workshop

BEST is a middle and high school robotics competition held each fall at 40 different locations across the country. BEST is currently the second largest educational robotics program in the U.S., with over 12,000 students at 700+ schools participating. Auburn University is the national headquarters for this rapidly growing program. This fall, schools in Alabama—public, private, and home schools— can participate at one of SIX different competition sites. The program is FREE to schools, thanks to generous sponsorship from higher education institutions and industry in Alabama. If you are interested in registering a team for this fall, please contact Mary Lou Ewald (ewaldml@auburn.edu).

The six competition sites in Alabama include:

- Blazer BEST (University of Alabama-Birmingham)
- Jubilee BEST (Mobile)
- North Alabama BEST (Wallace Community College, Hanceville)
- Tennessee Valley BEST (Calhoun Community College, Decatur)
- War Eagle BEST (Auburn University, Auburn)
- Wiregrass BEST (Dothan)

The University of Alabama-Birmingham (Blazer BEST) will host this year's Teacher-Mentor Workshop on July 23-24 on the campus of UAB. The workshop is free to attend. Experienced and new teachers and mentors are invited to attend (pre-registration required), as are individuals who may be interested in starting a team. To register for the workshop, contact Mary Lou Ewald (ewaldml@auburn.edu) by July 14.

For up-to-date program information from the COSAM Outreach Office, sign up for our listserv, AU4kids. To become a member, send an e-mail to cosam_outreach@auburn.edu

Experiment of the Issue

Red, White and Blue Soda Geysers

Keep the summer doldrums away by shooting [Red, White and Blue Soda Geysers](#) using Mentos and 3 bottles of Diet Sprite or another clear soda. Color two of the sodas using red and blue food coloring. Strawberry soda and blue Mountain Dew Voltage also work. Drop the Mentos in for your own daytime fireworks show!

Materials Needed:

- Three rolls or box of Mentos® mints
- Three 2-liter bottles of diet Sprite (diet *or* regular soda will work, but diet soda is not as sticky) or another clear soda
- Red and Blue food coloring
- Piece of paper
- Paper towels

Procedure...

1. This activity is probably best done outside in the middle of an abandoned field, or better yet, on a huge lawn.
2. Carefully open each bottle of soda. Add red food coloring to one bottle and blue food coloring to the other bottle.. Position the bottles on the ground so that it will not tip over.
3. Unwrap each roll of Mentos. The goal is to drop a role of Mentos into each bottle of soda at the same time (which is trickier than it looks). One method for doing this is to roll a piece of paper into a tube just big enough to hold the loose Mentos. You'll want to be able to position the tube directly over the mouth of the bottle so that all of the candies drop into the bottle at the same time.
4. Don't drop them into the bottle just yet! Warn the spectators to stand back. Okay, you're going to drop all of the Mentos into the bottles at the same time and then get truckin' (move out of the way... so long... bye- bye... hasta la vista!)

The Science Behind It...

From SteveSpanglerScience.com

Here's the question of the day... Why do Mentos mixed with soda produce this incredible eruption? You should know that there is considerable debate over how and why this works. As you probably know, soda pop is basically sugar (or diet sweetener), flavoring, water and preservatives. The thing that makes soda bubbly is invisible carbon dioxide gas, which is pumped into bottles at the bottling factory using tons of pressure. Until you open the bottle and pour a glass of soda, the gas mostly stays suspended in the liquid and cannot expand to form more bubbles, which gases naturally do.

But there's more... If you shake the bottle and then open it, the gas is released from the protective hold of the water molecules and escapes with a whoosh, taking some of the soda along with it. What other ways can you cause the gas to escape? Just drop something into a glass of soda and notice how bubbles immediately form on the surface of the object. For example, adding salt to soda causes it to foam up because thousands of little bubbles form on the surface of each grain of salt. Many scientists claim that the Mentos phenomenon is a physical reaction, not a chemical one.

Water molecules strongly attract each other, linking together to form a tight mesh around each bubble of carbon dioxide gas in the soda. In order to form a new bubble, or even to expand a bubble that has already formed, water molecules must push away from each other. It takes extra energy to break this "surface tension." In other words, water "resists" the expansion of bubbles in the soda.

To find out more about the science behind it, go to <http://www.stevespanglerscience.com/experiment/00000109>.



Since last issue ...

Science Matters

So far this summer, we have completed four of seven weeks of the new **Science Matters** summer enrichment program for elementary students. The responses from student participants and their parents have been extremely positive and we are looking forward to several more exciting weeks of the program. Here are some fun photos from June programs.

Science matters

Summer Enrichment for Elementary Students



Rocket Challenge—Starbase Maxwell Field Trip



College of Sciences and Mathematics K-12 Outreach

315 Roosevelt Concourse
 131 Science Center Classrooms
 Auburn University, AL 36849
 Phone: 334-844-8161
 Fax: 334-844-5740
 E-mail: cosam_outreach@auburn.edu



Visit our YouTube channel!! New videos will be updated following outreach programs.

www.youtube.com/AUCOSAMOutreach

Keep up to date with programs and information by visiting:
www.auburn.edu/cosam/outreach



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

September/October 2010

Volume 2, Issue 5

E=mc²

Engaging More Community Connections

A Science and Math Outreach Newsletter

Inside this Issue

Upcoming Events and Programs 1-2

Experiment of the Month 3

Since last issue... 4-5

Upcoming Events & Programs:

G.U.T.S.

Getting Under The Surface

Schedule of Events

- September 10—Science Investigations
- September 11—Arboretum Days: Aliens!
- September 28—G.U.T.S.
- October 8—Science Investigations
- October 9—Arboretum Days: Pollination (with JCSMFA)
- October 17—War Eagle BEST Mall Day
- October 21—G.U.T.S.
- October 29—War Eagle BEST Game Day

Fall 2010 G.U.T.S. Dates

Tuesday, September 28

Thursday, October 21

Thursday, December 2

This year's Getting Under The Surface (G.U.T.S.) program will begin on September 28th. We are excited to announce that we are offering many brand new courses for the fall! As always, the \$18 G.U.T.S. registration fee will include a snack and all course materials for each student/adult pair per session. For descriptions of our September 28th courses and information about registration visit the COSAM Outreach website at www.auburn.edu/cosam/outreach. See the legend at the left for all Fall 2010 G.U.T.S. dates.

We look forward to seeing you at our Fall G.U.T.S.!



Arboretum Days

The College of Sciences and Mathematics would like to invite all science enthusiasts to participate in the Arboretum Days program this fall at the Donald E. Davis Arboretum! Arboretum days will begin at 9:00 AM on the first Saturday of September, October, and November. Each program will consist of a one hour nature-based activity lead by AU faculty and other qualified instructors. Programs are designed for children ranging from Pre-Kindergarten through 5th grade. Pre-registration is encouraged, and registration forms can be found on the Arboretum website: www.auburn.edu/arboretum/

September 11: Aliens!

October 9: Pollination (2-hour program in conjunction with the Jule Collins Smith Museum of Fine Art)

Parents' Night Out

Are you tired of never having "alone time" to spend with your spouse? Consider Parents' Night Out, a new event being offered by our office. Parents' Night Out is an educational childcare event for children ages 6-12. Participating children will be able to experience science-based activities and entertainment, such as building structures with K'Nex kits, watching *The Magic School Bus*, and playing science games and puzzles. Our first Parents' Night Out will be **Friday, October 1**, from 6:30 PM until 10:00 PM. There will be a fee of \$20 for the first child in each family and \$15 for each additional child. Pizza will be served. If you are interested in registering your child or children for this event, please visit our website to access the registration form.

Please visit our website for a complete listing of all our programs!

www.auburn.edu/cosam/outreach

For up-to-date program information from the COSAM Outreach Office, sign up for our listserv, AU4kids. To become a member, send an e-mail to cosam_outreach@auburn.edu

Upcoming Events & Programs, cont'd:

War Eagle BEST

Each fall, students from central Alabama and west Georgia gather at Auburn University to compete in a robotics competition called BEST. BEST (Boosting Engineering and Science through Technology) is a non-profit, volunteer-based organization whose mission is to inspire students to pursue careers in engineering, science, technology, and math through participation in a sports-like, science-based and engineering-based robotics competition. BEST is designed to engage students through teamwork, self-directed learning, apprenticeship, and problem solving. Students participating in BEST are responsible for all the work involved in designing, building, and operating a robot. Team mentors—engineers, technical professionals, and scientists from industrial backgrounds—serve as guides to shepherd the students through the engineering design process.



WAR EAGLE
BEST

To participate in BEST, each team of students must design and build a radio-controlled machine that can accomplish several pre-defined tasks in a game-type format. Six weeks before the competition, the teams gather for Kick-Off Day in September at local competition sites called hubs. At Kick-Off, each team receives identical kits of equipment (motors, r/c units, batteries, etc.) and raw materials from which to build their machines. The robots they create cannot weigh more than 24 pounds, must fit within a 24-inch cube, and must be built only from the raw materials supplied by the hub.

The BEST competition is held each fall at 40 different locations across the country. BEST is currently the second largest educational robotics competition program in the United States with over 12,000 students at 700+ schools—public, private, and home schools—participating each year. Auburn University is currently the National Headquarters for this rapidly-growing program. The BEST program is FREE to participating schools, thanks to generous sponsorship from higher education institutions and industry in Alabama.

Teams participating in the 2010 War Eagle BEST Competition:

| | | |
|---|----------------------------------|-----------------------------|
| A-2-Z Homeschool | Lee-Scott Academy | Randolph County Schools |
| Benjamin Russell High School | Loachapoka High School | Selma High School |
| Brewbaker Technology Magnet High School | Mellow Valley Christian Academy | Smiths Station High School |
| Chambers County Career Tech Center | Millbrook Middle/Jr. High School | Southside Middle School |
| Episcopal Day School | Montgomery Catholic Prep School | Springwood School |
| First Assembly Christian School | Northside High School | Stanhope Elmore High School |
| Holtville High School | Opelika High School | Wetumpka High School |
| Jordan High School | Opelika Middle School | Woodland High School |
| LAMP | | |

Dates for the 2010 War Eagle BEST Competition:

September 19 - Kick-Off Day

Teams receive kits and game rules and begin working on the design of their machines.

October 17 - Mall Day

Teams meet at Colonial Mall in Auburn to test their robot designs on a fully-functional, full-sized playing field.

October 29-30 –War Eagle BEST Game Day

Teams meet at the Student Activities Center to compete for the title of War Eagle BEST Champion.

**The general public is welcome and encouraged to attend both Mall Day and Game Day. Come support the teams as they put their robots to the test! All events are free to attend.

For more information about BEST, please visit the BEST Inc. website at www.bestinc.org or the War Eagle BEST website at www.wareaglebest.org.

Experiment of the Month

Think of it as a science burrito...

Anyone can stack blocks, boxes, or books, but only those with a steady hand and a little understanding of chemistry can stack liquids. What if you could stack different liquids in different layers? Think of it as a science burrito.

Materials:

Light corn syrup
Water
Vegetable oil
Colored dish soap (such as blue Dawn)
Rubbing alcohol
Honey
A clear glass
Food coloring
Several small cups



Procedure

1. Measure out small amounts of each liquid (about 8 ounces) into the small cups.
2. Add food coloring to the liquids. Each liquid should be a different color. *Note: Vegetable oil and honey will not be very easy to color. You can leave these two liquids in their natural state to avoid a big mess.
3. Pour the liquids from the small cups into the clear glass in the following order: honey, corn syrup, dish soap, water, vegetable oil, and rubbing alcohol. *Note: It is important to pour all liquids slowly and directly into the center of the glass. The liquids should not come into contact with the sides of the glass while pouring. It is okay if the liquids mix a little as you pour. They will separate again.
4. As you pour, the liquids will layer on top of one another. After all the liquids have been poured, you will have scientifically stacked six different liquids. It's a science burrito!

The Science Behind It...

To understand this experiment, you will need to know a little about density. Scientifically, density is defined as mass per unit volume (density = mass/volume). Consider this example: Think of two rooms that are exactly the same size. Now put 10 people into one room, maybe all your friends from school or all the teachers that you know. Think about how much space everyone would have to move around. Don't forget about the other room, though! Instead of 10 people, put 250 people in the other room. They're really packed in there! Think about how much room each of those 250 people would have to move around. Probably not very much room at all. Since density is mass per unit volume, and the volumes of the two rooms are the same, the room with 250 people in it has more mass per unit volume and is, therefore, more dense. Have you ever wondered why ice floats on water? Since they are both the same substance, you would think that they would have the same density values. However, the molecules in liquid water are more tightly pressed together than the molecules in ice. That's why the ice floats! It's less dense! Differences in density allow you to stack liquids in this experiment. Vegetable oil and rubbing alcohol are less dense than honey and corn syrup. That's why the liquids will float on one another in colorful layers!

Engaging More Community Connections



Since last issue ...

Science Matters

The new **Science Matters** summer enrichment program for elementary students was a great success! Approximately 125 students in grades 2-5 participated in seven weeks of science-themed activities and field trips. The program received overwhelming positive feedback from both parents and students alike. 94% of parents reported that they were interested in sending their child to Science Matters again next summer, and 97% reported that they would recommend the program to other parents. As a result, we will be offering **Science Matters** again in Summer 2011, so be on the watch for the registration form after Christmas break! Below are a few photos from this summer's program. Check out our YouTube site (<http://www.youtube.com/watch?v=DAX2PW19mlc>) to see video footage from each week of **Science Matters**!



Science Matters Themes

June 1-4
Earth and Worms

June 7-11
NASA Design Squad

June 21-25
Rocket Challenge

June 28-July 2
Art in Science

July 6-9
BizWorld

July 19-23
Soda Pop Science

July 26-30
Furry Friends



Since last issue... cont'd

Summer Y.E.S.

Fifty students in grades 6-9 participated in Summer Y.E.S. this past July. Each student attended two of the five courses that were offered: River Creatures, CHAOS (Chemistry And Other Sciences), Robots and Avatars, Art in Science, and Krashers.



SWSM Women's Leadership Symposium

The Society for Women in Science and Mathematics' (SWSM) 2010 Women's Leadership Symposium was, once again, a great success. Fifty female students and teachers from surrounding high schools including Lee-Scott Academy, Loachapoka, Wetumpka, Stanhope-Elmore, and Erickson Academy joined AU faculty and community members of SWSM for the symposium. Through this and many other activities, SWSM fulfills its mission of being leaders and role models committed to increasing awareness of opportunities available for women in the field of sciences and mathematics, as well as providing support to ensure success.

College of Sciences and Mathematics K-12 Outreach

315 Roosevelt Concourse
131 Science Center Classrooms
Auburn University, AL 36849
Ph: 334-844-5769
Fax: 334-844-5740
E-mail: cosam_outreach@auburn.edu



Visit our YouTube channel!! New videos will be updated following outreach programs.

www.youtube.com/AUCOSAMOutreach

Keep up-to-date with programs and information by visiting:
www.auburn.edu/cosam/outreach