



AUBURN UNIVERSITY

COLLEGE OF SCIENCES
AND MATHEMATICS

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Engaging More
Community Connections

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COSAM Outreach Newsletter
Summer 2015



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Current Events & Programs: Robotics University

In 2013, researchers from the College of Sciences and Mathematics, the College of Education, and Alabama Math, Science and Technology Initiative (AMSTI) received a 3 year \$630,000 grant from the Alabama State Department of Education to provide professional development for teachers and engage students in project-based science, technology, engineering and mathematics education. The grant supports the RE²-FoCUS Initiative (Robotics and Engineering Education Fostering the Conceptual Understanding of Science) to offer professional development for Alabama middle school science and math teachers.

This summer, COSAM Outreach hosted two concurrent sessions of Robotics University, a collaboration of COSAM faculty and Visual Edge, Inc. from Indiana. The two courses used VEX robotics kits, and provided STEM instruction and guidance on teaching the kits in the classroom.

Right: Teachers design a robot during free build.





Above: 2014 Middle School AMP'd featured a pirate theme.

Middle School AMP'd

Co-hosted by the College of Sciences and Mathematics Outreach Office and the Department of Mathematics and Statistics, AMP'd is the Auburn Mathematical Puzzle (AMP) challenge. The one-day math competition event is geared towards 7th and 8th grade students and will be held on September 19, 2015, at Auburn University. AMP'd is currently open for registration: see this year's description below!

Are your students ready to go boldly on a mathematical mission? The crew of the Starship Sohcahtoa needs your students' help exploring space: the final frontier! Boost your students' math and problem solving skills on this arithmetic adventure that's bound to rocket them to new heights!

Students will

- Work as a crew to solve mathematics puzzles
- Use practical applications of mathematics
- Acquire competence and confidence through self-directed learning
 - Engage in applied technology
- Develop leadership, teamwork, and organizational skills
 - And have a **BLAST** while learning!

If you would like to register a crew for the mission, please contact

Kristen Bond

(e) – kristen.bond@auburn.edu ♦ (p) - 334-844-5769

Download registration forms at www.auburn.edu/cosam/ampd

Deadline to register is TUESDAY, SEPTEMBER 1ST, 2015

Outreach Calendar

July

- 6 Science Matters – Week 4
- 7 Robotics University
- 13 Science Matters – Week 5
TASSAL – Save the Animals
- 20 AP Institute
- 27 Science Matters – Week 6

August

- 17 First day of classes - AU
- 27 War Eagle BEST Kick-Off

September

- 19 Middle School AMP'd
- 27 War Eagle BEST Mall Day



Activity of the Issue

Paper Bag Volcano*

Materials:

- Large brown paper bag
- Empty plastic water/soda bottle
- 1 cup vinegar
- ¼ cup baking soda
- Paper, markers
- Red food coloring (optional)

What to do:

- 1.) Remove lid from the bottle and invert the paper bag, placing the bag on top of the bottle. Make sure the entire experimental set up is sitting on a tray or something that can get messy!
- 2.) Tear open the bottom of the bag along the flaps and loosely tape the bag to fit around the open top of the bottle. (Do not tape the bag to the bottle itself!)
- 3.) Decorate, crinkle, or color the bag as desired to emulate a volcano!
- 4.) Remove the bottle from under the bag and pour in the vinegar and red food coloring to create lava.
- 5.) Replace the bag over the bottle.
- 6.) Using a funnel (or a folded piece of paper) *quickly* add all of the baking soda into the bottle.
- 7.) Enjoy the eruption!

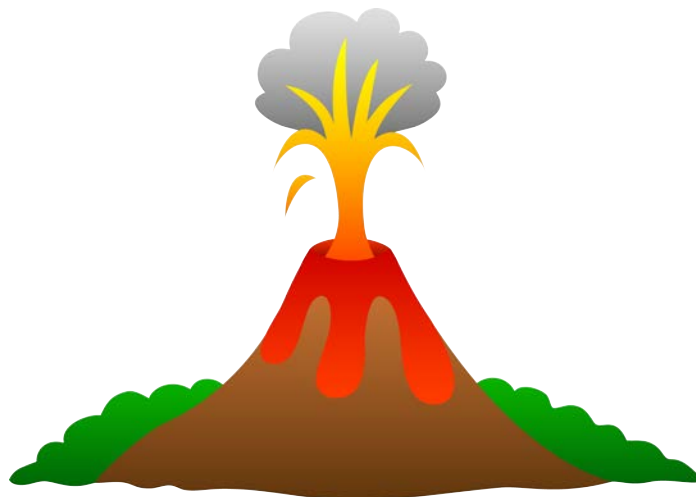
Questions to Consider

1. When baking soda and vinegar mix, what is created that causes the eruption?

Carbon dioxide, CO₂, gas is created by the mixture. Gas takes up more volume than liquid phases, so the newly forming “lava” is pushed up and out of the bottle causing your eruption.

*This activity was developed by and adapted from *The Kitchen Pantry Scientist*; for more ideas visit:

<http://www.kitchenpantryscientist.com>



Since the last issue:

Summer Science Institute

This program for outstanding 11th-12th grade students interested in science and mathematics was open to students

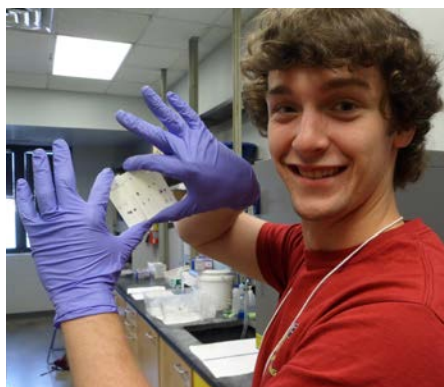
residing in Alabama or Georgia. Acceptance was limited to 16 (8 females and 8 males) and was granted on an academically competitive basis.

During the program students engaged in real-world applications with practitioners of science, performed experiments using cutting edge research

equipment, and partnered with COSAM researchers to gain lab skills not taught in high school.

The program was fully funded through generous

support from the National Science Foundation, the AU Physics Department, and the Society for Women in Sciences and Mathematics.



Since the last issue

Science Matters: The first three weeks of Science Matters Academy for Elementary Students were a huge success! Classes thus far have included courses such as Slip & Slime, It's Electric!, School of Law, LEGO Mania, Wonder of Weather, and many more. Visit our Facebook page at <https://www.facebook.com/cosamoutreach> and follow us on Twitter (@COSAMOutreach) to see pictures and receive weekly updates!

Project Lead the Way (PLTW): COSAM Outreach partnered with the WISE Institute at Auburn University to host PLTW core teacher training during the entire month of June. Thirteen different PLTW courses were offered in engineering and biomedical sciences, and over two hundred teachers participated in the training. The training was very rigorous and designed to prepare teachers to implement hands-on, project based learning in their classrooms. COSAM Outreach is the PLTW Biomedical affiliate site for the state of Alabama.



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131 Sciences Center Classrooms Bldg.
315 Roosevelt Concourse
Auburn University, AL 36849

auburn.edu/cosam/outreach
[facebook.com/cosamoutreach](https://www.facebook.com/cosamoutreach)
[@COSAMOutreach](https://twitter.com/COSAMOutreach)

Phone: 334-844-7449
Fax: 334-844-5740

For more information about
any of our programs visit:

www.auburn.edu/cosam/outreach

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