



MathCamp 2012 Special Report

Summer 2012 Volume VI



Deepening Understanding

MathCamp engages students in learning mathematics in a way that defies standard convention - it is fun.

The Center for Mathematics and Science Education created the MathCamp program to expose students to methods of learning mathematics and science concepts that are participatory, hands-on, and challenging. At MathCamp, teachers no longer stand in front of the classroom and lecture - they ask questions and lead students to figure out the answers. The rooms buzz with active student participation and discussion. Talking is encouraged. Students frequently work in groups to complete tasks in which they have to solve problems and be critical thinkers.

Students in grades 5-8 arrive at camp often being encouraged by their parents because who can imagine that a week of doing math and science all day could be fun? The students who come to this camp are students who have not performed well in mathematics so far, but their teachers think that with the appropriate motivating environment, they could do better. Students usually leave camp with a completely different view of mathematics. As camp concludes, students are saddened that the week has passed so quickly. Many express an interest in

returning next year for Alumni MathCamp. Those who have completed Alumni MathCamp plead a case for having a camp for third year campers.

The instructional strategies used in the MathCamp classrooms are based on current research. All the tasks used are aligned with *Common Core State Standards for Mathematics* and the *National Council for Teachers of Mathematics (NCTM) Process Standards*. These standards outline expectations for students to be engaged in problem solving, communication, representation, reasoning and proof, and making connections to mathematics content as well as real world situations.

The goal of MathCamp is to allow students to have a positive experience in learning mathematics and science while at the same time deepening their understanding of concepts. The students learn that they possess the capabilities to solve mathematical problems. They leave with increased confidence and many times with a new attitude about something they may have disliked only one week earlier.

PROMOTING INTEREST



Going Further - Benefits for MathCamp Instructors

In order for teachers to inspire their students, they must first be the ones who are inspired.

While MathCamp is a program that seems to only benefit students, MathCamp instructors gain from the experience as well. MathCamp is an opportunity for both pre-service and in-service teachers to practice implementation of research-based teaching strategies in a classroom atmosphere. These MathCamp instructors have been through our extensive professional development training and are excited to be able to put their knowledge to use in the classroom. Many of the instructors maintain a long standing relationship with the CMSE and take advantage of the many programs and resources that are offered through the CMSE.





Building Confidence

“If your children tell you that they cannot do something, do not believe them because this week [during MathCamp] they have shown us they can!”

-Elizabeth Wells, CMSE Fellow, MathCamp Instructor



MathCamp

In early July, 77 students came to Ole Miss to experience their first year of MathCamp. The theme “Mission to Mars” guided tasks in geometric concepts such as polygons and nets. Students also explored unit conversion and velocity during the central task of the week in which they compared the velocity of calculator-programmed miniature rovers to the velocity of “Curiosity”, the rover that landed on Mars this summer.

Throughout the week, instructors encouraged students to make observations and communicate mathematically, thus raising both student understanding and confidence in mathematics.



Alumni MathCamp

In June, the CMSE welcomed back 33 “Alumni” campers to participate in this year’s Alumni MathCamp entitled, “A Mathematical Journey Around the World.” Students had to complete mathematical tasks in order to “travel” to each location “around the world.” These included developing a budget for the journey, recreating the Great Pyramids in Egypt, passing through customs and even Crossing the English Channel!

Campers explored topics in Algebra like finding patterns in perfect squares, prime numbers, area, volume, creating equations, and solving quadratics. This allowed instructors to build skills, confidence, and interest in mathematics through group work, problem solving, and critical thinking.



Science Portion

The Science portion of all the camps followed the theme “Mission to Mars”. Students participated in a solar system walk across campus utilizing everyday objects to make a true scale of the planets.

The students developed miniature rovers and worked with these throughout the week. With these rovers, the students completed several tasks, some of which involved other simple machines. A camp favorite was building their “Rube Goldberg” machine and seeing whose worked the best.

Students also had an opportunity to visit and experience the solar system up close with a trip to the CMSE portable planetarium.

Expectations



MathCamp is full of different expectations for everyone involved. Campers expect to have fun. Parents, teachers and administrators look forward to the presentations at the end of the camp that showcase what their child has learned. Instructors expect to be able to inspire a student. Our staff expects all of this to happen and more! MathCamp is a large part of the CMSE and gives a good overview of the mission that has been set in place. MathCamp provides the opportunity to meet the various expectations of those looking to the CMSE for results. Each summer prior camps are evaluated and goals are set to go above and beyond the previous year. It is with great pride that the CMSE rises to meet these expectations.

Year	Recommended	New Campers	Alumni Campers	Return Percentage
2007	87	40	---	---
2008	172	60	21	52.5%
2009	180	71	36	60.0%
2010	272	73	41	57.7%
2011	191	102	51	69.9%
2012	194	77	33	46.0%

2012 Impact
77 First Year Campers
33 Alumni Campers
57 Males
53 Females
29 Counties
56 Schools

Rewards



MathCamp offers rewards to all those involved. The selection process for the campers is unique. Teachers are asked to nominate students based on the criteria that the student shows potential in Math, but for whatever reason is not living up to that potential. The campers are rewarded with a week of fun that they didn't expect, and leave with confidence they may not have had prior to attending. Instructors have the distinct pleasure of touching a child's life in a way they may not have had an opportunity to before. The teachers in the schools reap the rewards as their students return to the classroom excited about mathematics. The staff of the CMSE is rewarded by the overwhelming words of thanks as well as the hugs that are a reminder of what a difference a week has made.

For more information on this program, as well as all programs offered by the CMSE, contact Susan Peterson, Outreach Coordinator shpeters@olemiss.edu

