

Mason Scientists Play Key Role in VISTA Elementary Science Institute

Mason professors Rajesh Ganesan and Harold Geller, along with doctoral student Prabal Saxena, served as advisors and collaborating experts during the 2012 summer camp for elementary teachers held at George Mason University. Here, they report on their experience.

Ganesan is Associate Professor, System Engineering & Operations Research. Geller is Associate Professor/Director, Observatory, School of Physics, Astronomy, and Computational Science.

What role did you play in the 2012 VISTA summer camp?

Ganesan: I served as engineering STEM faculty advisor, helping teachers throughout the summer camp.

Geller: I sit on the VISTA STEM advisory committee, which reviews the Virginia Standards of Learning (SOL) results for grades 3, 5, 8, and high school; determines in which areas of science the students are performing poorest; and selects the topic for the VISTA summer camps. I also served as the physical science expert for the Mason summer camp, and served as a judge of the projects that the summer campers developed during their camp experience.

What did you think of the experience?

Ganesan: It was rewarding to be able to work with the teachers who are genuinely interested in bringing engineering into K-12. I discussed my research, and provided examples to distinguish pure science and engineering (applied science) at the same time reiterating that science and engineering both go hand-in-hand in solving problems.

Geller: I was able to see the teachers go through the process of working up a problem-based learning (PBL) scenario as if they were campers themselves. I was on hand to help with any understanding of physical principles,

and took the teachers on a field trip to a local area astronomical observatory. I also shared many workshop activities that could be utilized for the basic science principles that they were trying to get across to the students.

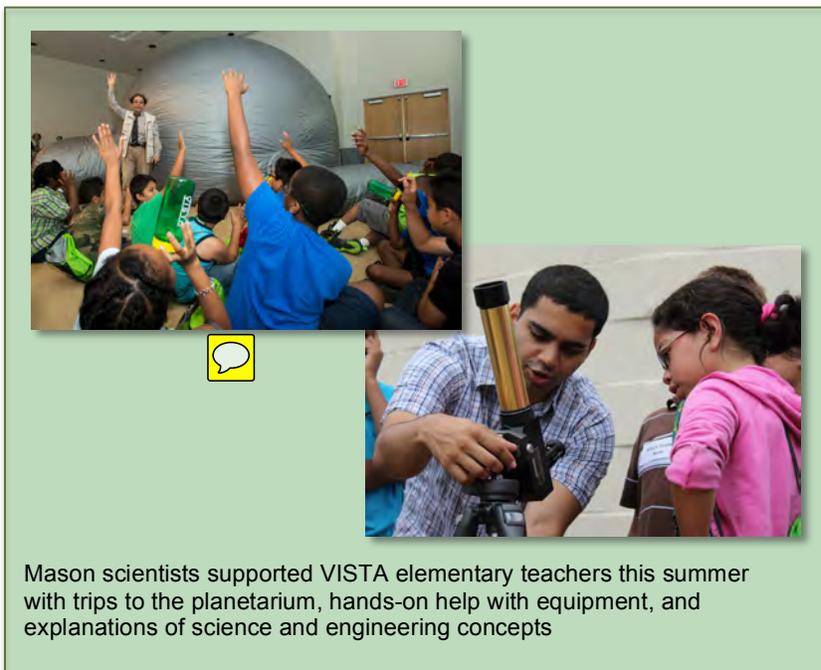
All in all, it was a thoroughly enjoyable experience. Perhaps my biggest disappointment was seeing some of those results from the Virginia SOLs. But working with the VISTA staff in arranging the development of the scenarios was as much fun as working with the teachers and the campers. It's great to see that the kids still really enjoy hands-on experiences in science exploration. They need to get their heads away from the computer screens to really experience science. In fact, my experience isn't over yet; I have agreed to help a teacher evaluate projects that her students performed this semester, next week at her school.

What impact do you think the VISTA program will have in improving STEM education in our schools?

Ganesan: Knowledgeable teachers can make all the difference in how a child learns the basic tenets of science. VISTA is geared toward creating a cohort of teachers who not only expand their STEM knowledge but also through practices such as hands-on, inquiry-based and problem-based styles of learning are more effective in imparting their knowledge to the K-12 children. This will impact the learning experience of STEM topics in schools very positively and is poised to have more students interested in STEM careers, which will benefit the growth of the nation's STEM workforce in the long run.

Geller: I do believe that those teachers who have gone through the experience of the summer camp,

learn not only about the PBL approach, but about the basic laws of nature as expressed in the laws of physics, chemistry and biology. It also provides them with resources that they can really use. But most of all perhaps is the conviction that science can be a fun and rewarding experience.



Mason scientists supported VISTA elementary teachers this summer with trips to the planetarium, hands-on help with equipment, and explanations of science and engineering concepts