Outreach in Conjunction with the Optical Science Discovery Program

Final technical report

Summary

We proposed to provide a high impact science experience for a group of 12-20 middle and grade school girls. We accomplished this by sponsoring a SPICE! (formerly the Optical Science Discovery Program) club meeting entitled: ***Rogue Robots! Using household objects to make moving machines.***

Participants

Mara Downing	Mila Butler	Tiernan Pietsch
Elizabeth Sliwa	Grace Lutz	Cailtin Cunningham
Hanneh Hope	Evie Lutz	Dylan Purcell
Riley Johnson	Rebecca Bowers	
Jessie Liu	Grace Stuhr	

Activities

Participants listened to a brief talk (10 minutes) about BEAM bots and how to use simple machines available in the home to construct vibrating robots. Participants then built their own "vibrobots" using pager motors and watch batteries as motion generators. They attached their motors to various household objects such as tooth brushes, floral wire and paper cups. The girls made a variety of bots including bristlebots, bugbots, scribblebots and glidebots.

Girls also got a chance to play with a water-bot constructed by the camp instructors.

As a part of the activity, the instructors discussed directional motion, surface tension and periodicity.

Rogue Robots! was one of several SPICE activities conducted during the year including the Great Egg Drop and LaserFest. SPICE was able to recruit three new members (Mara Downing, Riley Johnson and Mila Butler) thanks to the Rogue Robots! activity.

SPICE will be adapting the Rogue Robots! activities into a full week long camp in mechanics and robotics in June of 2011.

Please find attached pictures of the girls and the bots they build, a summary of expenses (the full financial report will be sent by our central research office) and a flyer from the event.

Summary of Expenses

Electronic Components (diodes, motors, photovoltaic cells, leads, batteries)	$181.85
Pager motors	$72.00
Book – "Junkbots, bugbots and bots on wheels"	14.69
Craft Supplies	$26.29