

# Math Machines Workshop

## Connecting Math, Science and Technology

**5-Day Institute: August 3 - 7, 2009 (Monday through Friday, 8:00 – 4:00)**

**One-Day Follow-Up: Saturday, Nov. 7, 2009 (tentative date)**

**Miami Valley Career Technology Center**

**6800 Hoke Road, Clayton, OH 45315**

### Overview:

Teachers of mathematics, science and technology are invited to build their own Algebraically Controlled Vehicle (ACV) and two other “math machines” for use in their classroom. They will learn to use the ACV and other materials in activities where students apply mathematics and science concepts to authentic, work-related tasks. The ACV and other math machines give an immediate, physical expression to free-form algebraic functions.

$$v = v_0 - 6 * t$$
$$v = 75 * \sin(\pi(2) * t / 10)$$



### Who Should Participate?

Applicants should be teachers (grades 7-12) of Math, Science, or Technology in Ohio public schools who want to use authentic real-world activities in their classrooms. Preference will be given to teams of teachers who can continue to collaborate during the school year. **No prior experience with computer programming or electronics is required!**

### What Will Participants Take Back to their Classrooms?

Participants will make-and-take the ACV, a Pointer and an RGB Color Mixer, plus a Vernier SensorDAQ interface and 3 Vernier probes. Each of the three Math Machines can be operated with **either** a computer **or** a TI-83/84 family calculator, and participants will receive a CD with classroom activities and the necessary computer and calculator programs. If purchased separately, the cost for this equipment would be over \$1000.

### What Do Participants Provide?

All participants must bring a personal or school laptop computer on which the control programs can be installed. (Participants will receive all other hardware and software needed for *computer control* of the Math Machines. We will also provide the computer software which allows participants to download and transfer calculator programs.)

For *calculator control*, participants should also bring a TI-83 or TI-84 calculator (any version) and either a CBL2 or LabPro interface. (We will have calculator interfaces available for use during the workshop, but participants will need their own CBL2 or LabPro for calculator control of the Math Machines in their own classrooms.)

### What about Expenses?

Thanks to support from the Martha Holden Jennings Foundation, the cost for teachers in MVCTC Partner School Districts is only \$200, including the workshop, three Math Machines, SensorDAQ interface, 3 Vernier probes and the control software. Morning and afternoon snacks will be provided; travel and meals are the responsibility of the participants or their school.

### Can I Earn Credit for the Workshop?

Participants will have the option of receiving graduate credit through Ashland University.

### How Do I Apply?

Complete the attached application form and submit it as soon as possible. Selection of participants will begin April 15, 2009 and continue as long as space is available.

### For additional information, please contact:

Dr. Fred Thomas  
Learning with Math Machines, Inc.  
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Englewood, OH 45322

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### Workshop Facilitators:

Fred Thomas, Physical Science, Learning with Math Machines  
Robert Chaney, Mathematics, Sinclair Community College  
Nick Weldy, Math/Science Coordinator, Miami Valley CTC

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