

MVCTC – Math Machines Workshop

Connecting Math, Science and Technology
Miami Valley CTC, Clayton, Ohio – August 3-7, 2009
 8:00 – 4:00 Monday through Friday

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|-------------------|----------|----------|----------------------|
| 1. The workshop helped improve my understanding of the connections between mathematics, science and technology. | 7 | 9 | | |
| 2. I am now better qualified to include examples of technical applications in my teaching. | 9 | 6 | 1 | |
| 3. Before taking this workshop I was comfortable with the concepts of basic electronics. | 3 | 3 | 9 | 1 |
| 4. I am now better able to discuss electrical or electronic applications with my students or colleagues. | 5 | 9 | 2 | |
| 5. I plan to use the ACV and other equipment from the workshop with my students. | 11 | 5 | | |
| 6. The interaction among teachers from different disciplines was an important feature of the workshop. | 11 | 4 | 1 | |
| 7. The interaction between high school and college teachers was an important feature of the workshop. | 10 | 5 | 1 | |
| 8. I am now more qualified to guide students in inquiry activities related to technical applications of science or mathematics. | 8 | 6 | 2 | |
| 9. Technical applications such as working with SAM can make learning more enjoyable for my students. | 11 | 5 | | |
| 10. By incorporating technical applications I can help my students learn more effectively. | 9 | 7 | | |
| 11. Hands-on inquiry activities in math and science are important for all students, not just those who plan to complete a 4-year university degree. | 12 | 4 | | |
| 12. I would recommend that other mathematics, science and technology teachers participate in this workshop. | 10 | 6 | | |
| 13. I am looking forward to showing the ACV to my students and colleagues. | 11 | 6 | | |

| | | | |
|---|-----------|----------|----------|
| 14. It's fun to experiment with electronics. | 11 | 5 | |
| 15. I expect to use the Workshop's internet web site to keep up with the latest calculator programs and classroom activities. | 11 | 4 | 1 |
| 16. I will use some of the equipment I made in the workshop for activities in at least one of my classes next year. | 11 | 5 | |
| 17. I want to maintain connections with other participants in the workshop. | 6 | 9 | 1 |
| 18. I enjoyed attending this workshop. | 10 | 6 | |

Are you planning on attending the follow-up session this fall? YES **15** NO **1** (can't)

What aspects of the workshop were most beneficial to you?

- Sam building and basic programming.
- Construction of boards/equipment. Programming and sharing of ideas.
- Giving time to work with the robot and programs. Using Bob & Fred to help troubleshoot programming errors.
- All aspects.
- Assembly of equipment. Using & writing calculator programs.
- The time to play, experiment, explore, refresh.
- Learning how to program TI calculator, use Vernier sensors/outputs and data collection H/W & S/W.
- Networking with teachers. Seeing connections between learning content and applying the technology.
- Building the math machine. Using the software to make the machine work.
- Learning how the electronics go together.
- I enjoyed the usage of the various sensors with the TIs and I enjoyed learning a bit about the calculator programming.
- Fred & Bob's openness to share materials & knowledge.
- Activity Presentations.
- Hands on working & Experimenting.
- The light activity & the airplane with the vectors was very helpful.
- Hands on building and programming of the equipment.

What aspects of the workshop most need to be improved?

- Since many of us do not have CBLs or Labpros, we cannot go home and use the robot. Building a CBL2 into the cost factor might be beneficial.
- Integration of other disciplines.
- The passing out of parts was slow – perhaps have them presorted into labeled bags/trays to expedite the process.
- A written summary refreshing my brain as to what each machine that was made, the functions of the board, & what programs run that board.
- Room was too cold.
- More boards ☺
- Nothing – very challenging w/ no wasted time.
- Seeing importance of certain tasks. Some demonstrations were not applicable to me.
- How to troubleshoot the equipment.
- I think the programs and SAM need to have a more direct and obvious relationship to Algebra. (ie. Make SAM walk with the line $y=3x+1$).
- A list of goals to achieve during the work time.
- Computer App. For Robot w/ servo.
- I would like to see more ways to display higher math with SAM.

What other kinds of things would you like to see in way of programs that operate the equipment?

- Maybe create a separate Math Machines workshop geared specifically toward physical science/ physics.
- LabPro should be included.
- Circuits to operate multiple servos simultaneously. Ie. Arm, lift, grab.
- None.
- More equipment.
- Program that runs multiple servos with computer control.
- Display rates of change.

What additional functionality would you like to see the equipment have?

- Ability to accelerate SAM using the calculator board.
- I am very satisfied.
- None.
- The computer be able to run more equipment.
- It would be nice if it could model curves.