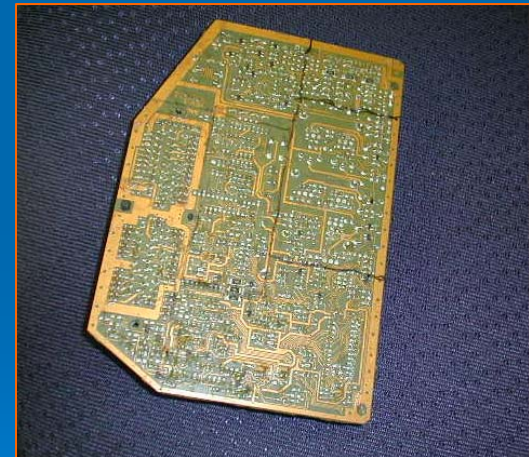


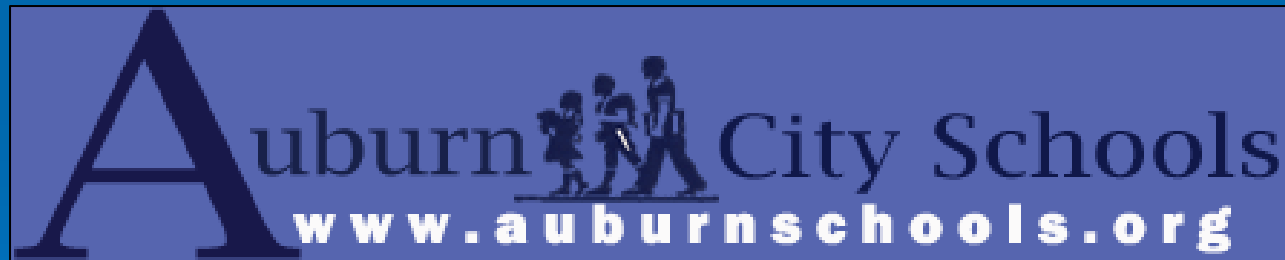


- Existing project, EEC 0002669, "Relating field data to accelerated life testing," sponsored by NSF and the NSF Industry / University Center for Advanced Vehicle Electronics (**CAVE**)
- Studies degradation of solder joints on under the hood automotive circuit cards as supplied by DaimlerChrysler
- Solder joints are tested through shear testing for strength and by examination using scanning electron microscope (SEM)



RET Beginnings

- Supplement (\$20K) granted in May 2002
- **Auburn City Schools** - local public school system with 5 elementary schools, 1 middle school, 1 junior high and 1 high school



- Diverse in income level, ethnic background, culture - approximately 33% African American and 30% low income

Teachers

- **Cynda Fickert**, math teacher at Auburn Junior High School (8th graders)
- **Mark Jones**, science teacher at Drake Middle School (6th and 7th graders)



Activities over the Summer

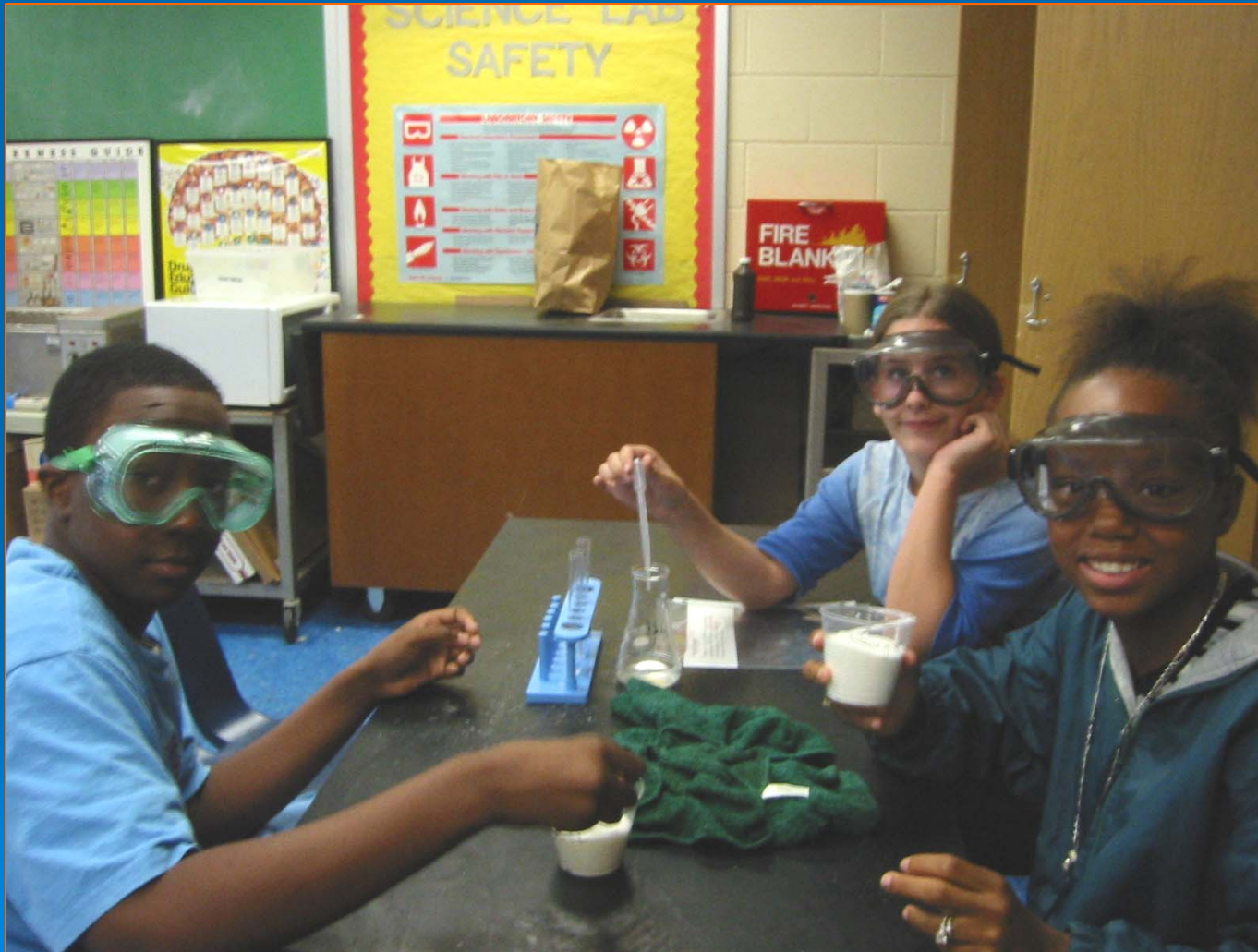
- Cynda worked in the lab and also on the data analysis of shear strength
- Mark worked in the lab and also on the SEM of grain structure
- Both developed classroom materials to use starting in fall with their young students



7th Graders soldering - October Drake Middle School



And we get to wear safety glasses



Are we having fun, or what?



Field Trip to CAVE Labs

- Over 100 students from four science classes
- Rotated through three stations - CAVE clean room lab, print lab, mini Baja car + Formula racing car

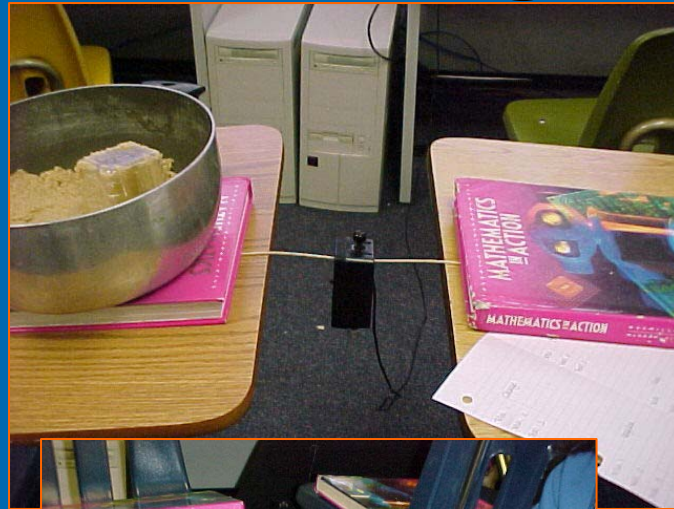


At the different stations



8th Grade Pre-algebra - December Auburn Junior High

Using wood sticks of different thickness and wood and data loggers, add sand to bucket until stick breaks. Record and analyze data.

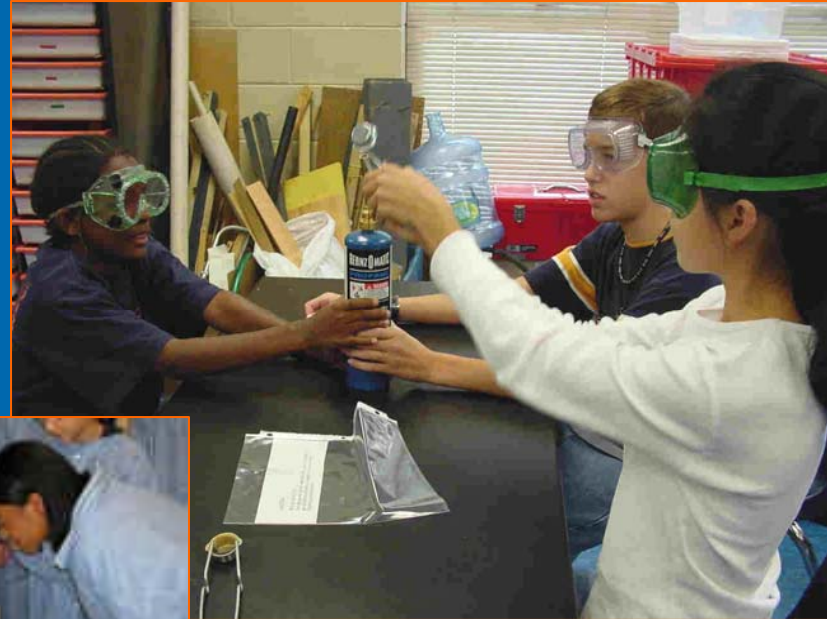


We made a mess but learned about shear strength and data analysis



Summary

- We plan additional activities with these teachers and their young students
- Second RET to have teachers assess impact on their students in terms of learning and stimulating thoughts of engineering as a career choice during spring 2003



Parting Shots

(and, yes, even a lab coat made it back to Drake Middle School...)

