

## ASM Materials Camp – Peoria Chapter

July 9-13, 2007



This was the third annual ASM Peoria Chapter Materials Camp and the best one yet! With 17 students and 29 volunteers, the event was a huge success. The students started the camp with a warm welcome from Dr. Richard Johnson followed by icebreaker games to get to know each other. The morning of the first day was filled with a hands-on introduction to Material Science. Afterwards, the students attended four workshops throughout the day in the fields of microstructures, failure analysis, materials processing, and mechanical properties. The workshops included exercises such as mounting, polishing, and studying microscope samples, drawing microstructures, analyzing spring and gear failures, making silly putty, casting figurines, and measuring the mechanical properties of various materials. The day concluded with a competitive game of Materials Jeopardy with questions related to the projects they worked on throughout the day.

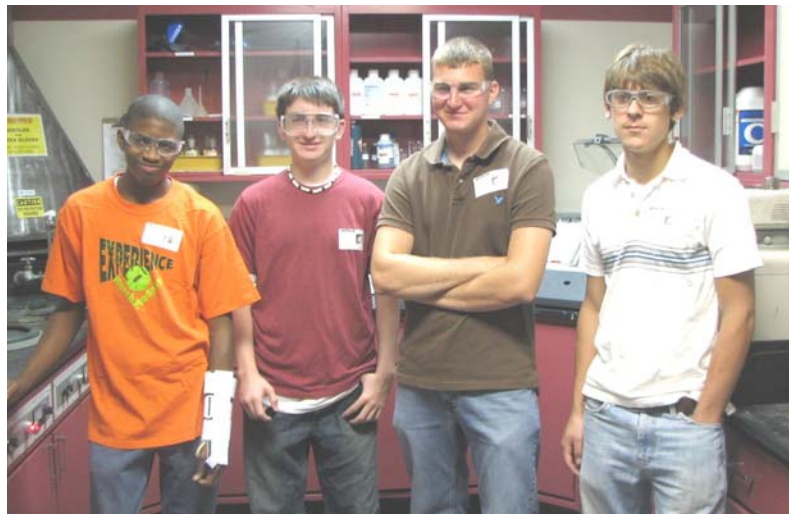


During the week the students divided into four project teams:

1) Investigative Metallurgy. This team tested track links from a tractor and determined the heat treatment that would be the most cost effective while still achieving the desired properties.



2) Differences between Diesel and Gasoline and Engines. This team examined pistons from gasoline and diesel engines and performed an investigation into their material properties.



3) Let's Get Crankin'. This team tackled a failure analysis of an engine flywheel assembly and was able to determine the root cause and sequence of events that led to the ultimate failure.



4) Excellent Earth Friendly Plant Based Lubricants. This team measured the performance of soy, canola, and synthetic based lubricants with wear testing and evaluated the wear scars with sensitive analytical equipment.



In addition to working on their group projects, the students had the opportunity to attend three tours throughout the week. The tours included stops at the Caterpillar Mapleton Foundry, Shamrock Plastics, and Bud Harvey's Forge Shop. Each tour exposed the students to a different side of material science engineering.



On Graduation Friday at Caterpillar Building CV, all the students presented their team project to parents and sponsors, and afterwards they received their well-earned graduation certificate. The camp ended with a celebration lunch and an excitement to do the camp next year.



## Student Participants

<b>Investigative Metallurgy</b>	<b>Joshua Eckhardt</b>	Sophomore	Home School
	<b>Andrew Johnson</b>	Senior	Home School
	<b>Sumeet Shah</b>	Sophomore	Richwoods
	<b>Shane Markham</b>	Sophomore	East Peoria
	<b>Jeff Li</b>	Junior	Dunlap
<b>Differences between Diesel and Gas Engines</b>	<b>Nick Burek</b>	Senior	Notre Dame
	<b>Jonathan Duren</b>	Senior	Richwoods
	<b>Jim Lewellyn</b>	Junior	Dunlap
	<b>Kyle Patterson</b>	Senior	Pekin
<b>Let's Get Crankin'</b>	<b>Arnima Bhasin</b>	Junior	Richwoods
	<b>Feifei Ye</b>	Junior	IMSA
	<b>Daniel Wang</b>	Junior	Dunlap
	<b>Sebastian Tien</b>	Junior	IMSA
<b>Excellent Earth-Friendly Plant-Based Lubricants</b>	<b>Alisa Holtman</b>	Junior	Dunlap
	<b>Maryam Atta</b>	Junior	Dunlap
	<b>Sarah McCoy</b>	Junior	Washington
	<b>Daryn Harrell</b>	Senior	Richwoods

## Volunteers and Sponsors

<b>Allison Arndt</b>	Monday session (Ice breakers/Jeopardy game)
<b>Constant Bissahoyo</b>	Publicity Assistant
<b>Iqbal Shareef</b>	Bradley University Representative, Van Driver
<b>Jackie Earle</b>	Publicity Coordinator, Distributor
<b>Briana Bichler</b>	Fundraising
<b>Ken Burris</b>	Fundraising w/ CAT Foundation, Publicity, Van Driver
<b>Kate Chen</b>	Food/snacks coordinator
<b>Dr. Richard Johnson</b>	Materials Camp Welcome at Bradley University
<b>Jeff Jensen</b>	Micros Workshop, Website Publicity
<b>Daren Breid</b>	Failure Analysis Workshop
<b>Nate Devore</b>	Failure Analysis Workshop
<b>Mike Johnson</b>	Materials Processing Workshop
<b>Scott Wiseman</b>	Mechanical Properties Workshop
<b>Tom Majewski</b>	Mechanical Properties Workshop
<b>Scott Magner</b>	Project Mentor for Investigative Metallurgy
<b>Chris Richerson</b>	Project Mentor for Investigative Metallurgy
<b>Umesh Patil</b>	Project Mentor for Diesel and Gas Engines
<b>Chirayu Garud</b>	Project Mentor for Diesel and Gas Engines, Shamrock Plastics Tour Coordinator
<b>Mike Schockley</b>	Project Mentor for Let's Get Crankin'
<b>Jim Rickey</b>	Project Mentor for Let's Get Crankin'
<b>Girma Biresaw</b>	Project Coordinator for Excellent Earth Friendly Plant-Based Lubricants
<b>Natalie LaFranzo</b>	Project Mentor for Excellent Earth Friendly Plant-Based Lubricants
<b>Linda (Xiaozhou) Cao</b>	Project Mentor for Excellent Earth Friendly Plant-Based Lubricants
<b>Catherine Heath</b>	Mapleton Tour Coordinator
<b>Bud Harvey</b>	Forging Demo Tour
<b>Jack Hathaway</b>	Shamrock Plastics Tour
<b>Natalie Vanderspiegel</b>	Graduation Organizer, Group Photos
<b>Eugene Pascual</b>	Co Chair
<b>Shelley Peterson</b>	Co Chair
<b>Ron Morgan</b>	MC for Friday graduation session

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**Struers Inc.**

**Tri-City Machine Products Inc.**

**Caterpillar Foundation**

**ASM Materials Education Foundation**

**ASM Peoria Chapter**