



**Designing the Future**  
**Student Breakout Session Descriptions**  
**GAITE Exploratory Saturday**  
**Thomas Nelson Community College**  
**November 15, 2008**

**Introduction to Smart Materials for Designing the Future**

This session will introduce students to smart materials that are currently being developed in the scientific technical community. Unlike many materials that are typically passive, these materials are active and undergo a specific change in response to a stimulus. Students will participate in hands-on activities, activating their own smart wings on simple airplane models. Students will design and create their own unique airplanes out of paper, and test them during a competition.

**CAD Applications, Digital and Rapid Prototyping**

This session will take students through a journey of the manufacturing process. This will start with basic sketching and lead to the digital prototype, and on to the rapid prototype. The students will get to see the benefits of both: digital prototyping and rapid prototyping. Demonstration of the rapid prototyping process will be ongoing throughout the morning, and the students will use Google Sketch-Up to get a hands-on feel for the 3D modeling applications that feed the other processes.

**Modeling and Simulation Thermodynamics Activity: Exploring Your Surroundings**

This session will present a brief introduction to MODSIM technology and related career opportunities. MODSIM technology will be demonstrated using the TELS (Technology Enhanced Learning Science) module *Thermodynamics: Exploring your Surroundings*. Students will investigate thermodynamics at a macroscopic level and then observe the microscopic correlation using TELS simulations.

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**Parent/Guardian Breakout Session Descriptions**  
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**The STEM Concept and the Workforce Pipeline – Engineering vs. Engineering Technology**

Given the increasing significance of scientific and technological innovation in the 21<sup>st</sup> century, the national spotlight has been placed on the importance of STEM (Science, Technology, Engineering and Mathematics) education. The National Science Board has recognized that in order to succeed in this new information-based and highly technological society, all students will need to develop their STEM capabilities beyond what was considered acceptable in the past. Due to the projected growth of technology-based careers, the demand for a highly skilled workforce continues to increase. Engineers and Engineering Technologists are in great demand and this trend is expected to continue for years to come. This session introduces the STEM and workforce pipeline concepts, and addresses the increasing significance of STEM education. The session also considers the similarities and differences between “Engineering” and “Engineering Technology.”

**The Youth Career Café – Career Pathways, Exploration, and Planning**

The Youth Career Café is a workplace readiness center for youth ages 14-21. The mission and services provided by the Youth Career Café include career assessments and career planning advice. Jobs and careers in engineering technology will be described and the education and skills needed to work in this field will be discussed. With huge numbers of baby boomers retiring soon, a tremendous workforce shortage in engineering technology is projected. Local employers of engineering technologists and the local workforce demand will be presented. Increasing global competitiveness and demand for the applications of technology are making engineering technology jobs extremely vital to the U.S. workforce. The Youth Career Café is committed to providing enrichment activities and other career readiness programs to promote engineering technology.

**College Decisions: How to Get There, How to Choose the Right Classes, and How to Pay For It**

This session will guide parents on what to consider when looking for a college. It will also provide tips on postsecondary options and how parents can help to plan for their child’s future.