

## **Tyngsborough Education Foundation - Grant update**

### **"Physics of Space Technology"**

Since the awarding of our grant, we have been able to purchase Lenovo Netbook computers for students to use in the 7th grade science classrooms. The computers were chosen because they are designed to be inexpensive and still provide fast performance for web-based applications perfect for the learning environment.

This year, the Middle School began a "Content Seminar" class that allowed us to incorporate more technology standards within small, trimester-based classes. We decided to do the project during the seminar period since the ideology of the class seemed to coincide with the goals of our project and allowed us to work with a smaller student population. In addition, we determined that the trimester schedule would allow us to reevaluate the project's design before implementing it with the next group of trimester students.

At the start of the trimester each student used the Netbooks to take an online learning styles inventory test for evaluating their individual strengths. Based on the results, we grouped students with complimenting strengths and assigned a job that best suited their learning style. Each student was assigned a job of either a Flight Director, Systems Engineer, Mechanical Engineer, or Structural Engineer. Once jobs were assigned, students were assigned into groups based on their interest in one of five space technology topics: International Space Station, Space Shuttle, Rockets, Unmanned Spacecraft, Robotic Rovers. Since the project was designed to be collaborative across the seventh grade teams, each group had representatives from both Mr. Bellerose's and Mr. Edwards's science classes.

The students used their Google Apps accounts to create a presentation on their assigned topic. Each student was able to use a Netbook computer, funded by the grant, to research and collaborate in real-time on their group's presentation. Each group member was responsible for researching and explaining a specific set of physics principles, learned in science class, as it pertains to their topic.

The resulting project culminated as a collaborative overview of the physics principles learned as they applied to a sophisticated piece of Space Technology.

Since each student was assigned a specific responsibility, they became an integral part of the group's success. Because students became comfortable in their area of expertise, they appeared to become more confident sharing knowledge and ideas. We believe that this level of comfort allowed them to be more creative and thorough in the design of their overall project. Since this was the first time implementing the project, we realistically did not expect all of our expectations to be met due to unforeseen challenges; however, we were pleasantly surprised that few problems occurred. The students did a great job creating projects that were thorough, creative, and informative.

As much as we were pleased with the project's results, there are some improvements that we would like to implement to increase its effectiveness. This could be done by providing students with a more specific outline of the information that they should be including in their projects. This would be necessary because the interpretation of information was sometimes more complex than originally anticipated.

The technology funded by the grant, for this project, has been used for many additional science and content seminar lessons. Students regularly use the computers to record, compile,

and analyze data from science labs and do online research. As a result of funding, students have had more frequent access to computers and have become more proficient with their use. It is not an uncommon site to have students collecting and recording data on separate computers. Despite using separate computers, the group's data is entered into a shared document, via the internet, which allows students to analyze and graph class data.