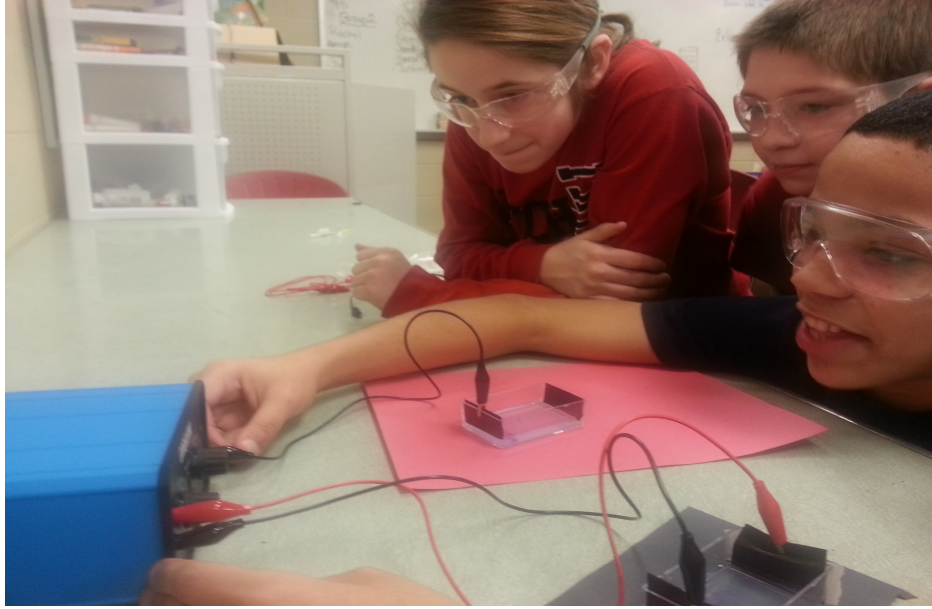


Electrifying & Engaging Experiments in STEM Class

The STEM (Science, Technology, Engineering, and Math) program housed at Austintown Middle School is in partnership with the Mahoning County Educational Service Center and offers 7th and 8th grade students a project-based and student-centered learning environment with a focus on 21st century skills.

Austintown Middle School's STEM program is the only self-contained STEM program in Mahoning county. This means that students are engaged in hands-on, stimulating interdisciplinary projects for most of their school day. The core subjects such as Math, Science, Social Studies, and Language Arts are blended together within the STEM curriculum . This interdisciplinary approach to education requires the students to think critically and apply their research along a broad spectrum of content area measures. Student, parent, and community interest has allowed the program to double in size pairing an 8th grade class with the existing 7th grade for the 2013-2014 school year.

Recently, 7th grade STEM students finished a unit called Medical Detectives. They used numerous math and science concepts in combination with the scientific method to solve a murder mystery. They calculated the time of death using various math equations and temperature conversions. They were able to collect DNA evidence and use gel electrophoresis, a method of separating DNA based on its size and charge, to match the DNA of the suspect with that collected at the crime scene. Students also used the basic principles of electricity to decipher their results and determine the murderer. It was an engaging and exciting lesson of *who done it?*

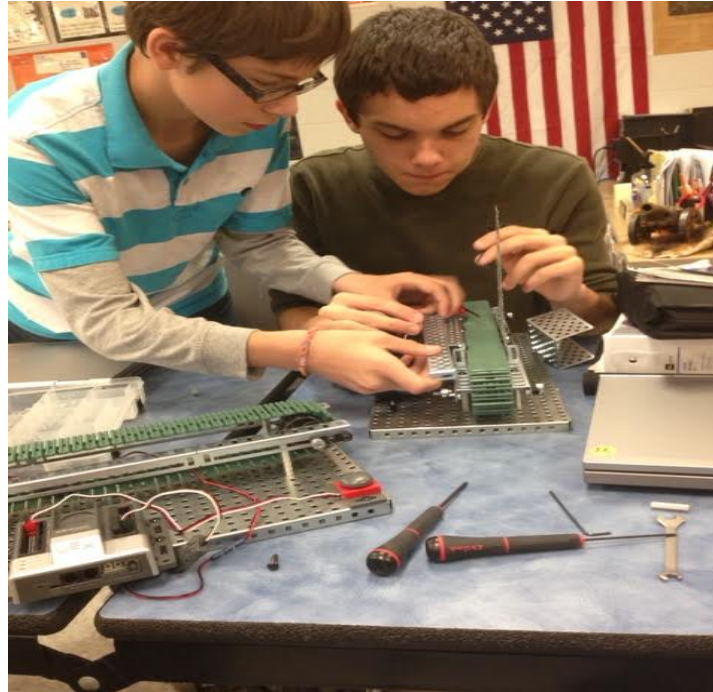


Above: Seventh graders (from left) Taylor Posey, Cedric Ross, and Christian Collins, prepare and run their DNA gels by hooking up to a power supply.



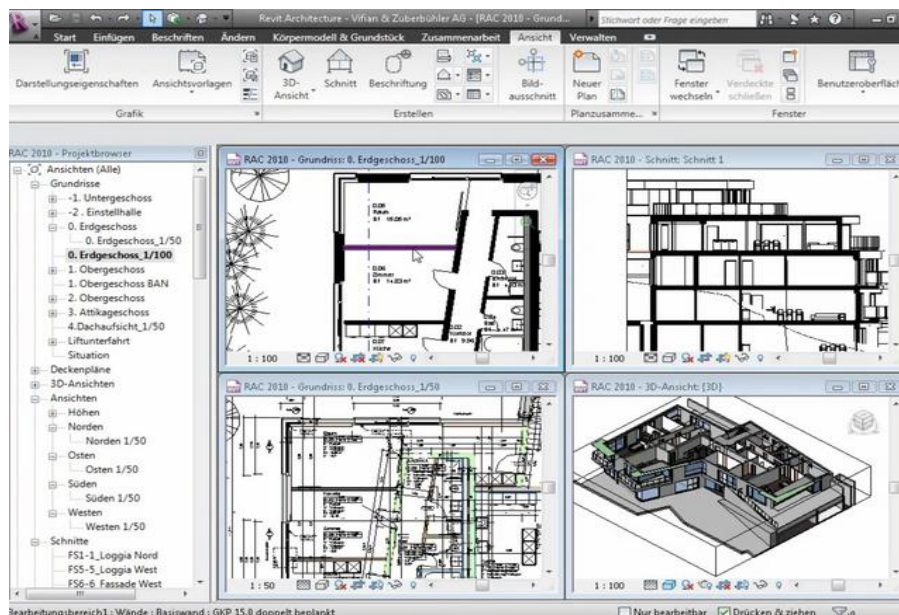
Above: Seventh grader Andrew Hall uses a syringe to fill DNA of the suspects and evidence into his gel. The students will analyze the DNA using gel electrophoresis.

The eighth grade STEM students recently completed a unit on Automation and Robotics requiring them to solve problems through research, design, and construction of automated robotic systems.



Above: Walter Woods and Joe Jadue design a conveyor belt for the Automation and Robotics unit.

The 8th graders are now involved in a unit called Green Architecture. They are currently learning how to measure, scale, and create floor plans on paper, in the classroom with



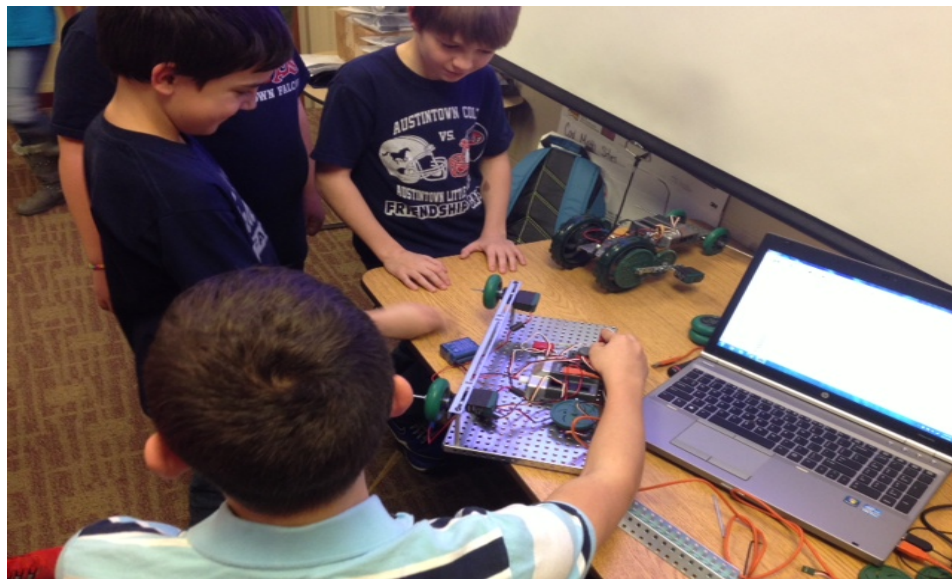
scaled dimensional lumber, as well as using professional architectural software. They will eventually be designing their own building within a budget and going through every phase of the planning, design, and building process. This is a great unit that incorporates all of the core content areas.

This month, the students will be receiving their own 3D-printer for the classroom made possible by a grant from a generous inmate work group at the Trumbull County Correctional Facility.



Above: 3D printed STEM block created by the students

The 7th and 8th graders have teamed up to start a *Jr STEM Program* after school once a month to introduce 6th graders to STEM activities.



The 7th and 8th graders volunteered to set up a STEM booth at the FLL Robotics competition recently held at Austintown Middle School. They were very professional and did a great job demonstrating to the public all of the interesting things that we do.



Above: Students demonstrate some of the STEM projects at the District First Lego Robotics Tournament at AMS on Jan. 11.



Above: Lucy West, an 8th grader describes the features of one of the Soap Box Derby cars at a display at the District First Robotics Lego League Tournament at AMS on Jan. 11.

This school year STEM students will compete in the STEM Gravity Challenge held at Derby Downs in Akron, Ohio on May 17th. The AMS STEM students received sponsorship from several local businesses, parents, and various members of the community to enable them to build and race three Soap Box Derby cars last year. This year due to increasing support they will compete with six cars.



Above: The three competing Soap Box Derby cars from the STEM program for the 2012-2013 school year.

For more information about the STEM program at AMS, visit their class website, designed and maintained by the students themselves, AMSSTEM.com.



Above from left: Tylor Pompura, Robert Malizia and Joe Jadue are 8th grade STEM students learning about circuits in the Magic of Electronics unit this past fall.