Seneca Middle School STEM Action Plan

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Big Ideas:

Develop a STEM day for early release days in the Spring and Fall.

Goals and Objectives:

Teaching a problem solving framework across disciplines and develop critical thinking skills to complete tasks. Develop a school wide familiarity with the engineering design process. Create posters to display in classrooms and around building. Days will be November 19, 2014 and March 11, 2015. Each Grade level will develop own STEM activity and each content teacher develops a content portion of the lesson.

Timeline:

August 11 – 15 Introduce school wide plan to have first STEM day on early release days and grade levels begin to plan activities and lesson plans. September 17th early release day grade levels will meet to finalize plans for November. January 16th teacher workday Introduce school wide plan to have second STEM day on early release days and grade levels begin to plan activities and lesson plans. January 28th early release day grade levels will meet to finalize plans for March 11th.

Assessments:

Each student will have a completed design process worksheet and product. Rubrics will be used to assess final product.

Resources:

Materials need to complete project

- Community and business support to donate possible materials and personnel
- Articles or other literature related to project
- Websites to investigate further

Learning Experiences:

Science classes will provide opportunities for the application of the STEM Engineering Design process through short STEM activities. Such As:

Lunar lander

Paper table

Building bridges

Spring into action

Kitchen Utensil

Paper towel tower

Paddle boat

Penny Boat
Example:

Lunar Lander Project:

Design and build a shock-absorbing system that will protect two “astronauts” when they land.

In this activity students will follow the engineering design process to

• Design and build a shock absorbing system out of paper, straw, and mini marshmallows.
• Attach their shock absorber to a cardboard platform
• Improve their design based on testing results

Supplies needed:

• Paper cup
• Cardboard
• Marshmallow
• Fold index card