Crescent High School

STEM & Alternative Energy

Amanda Burton, Brian J. Roach, Andrew Watson

1. **Big Idea** -
   - The development of alternative energy
     - Researching solar energy
     - Construction of a “home-made” solar panel

2. **Goals & Objectives** -
   a. Joint venture between the Agriculture, Science, Math, and Electronics departments.
   b. Students will research the science and technology behind solar energy.
   c. Students will design and construct a functional solar panel.

3. **Timeline** -
   a. First Nine Weeks-
      i. Research solar energy
      ii. Research how solar panels function
      iii. Research electrical circuits
   b. Second Nine Weeks-
      i. Design panels
      ii. Explore the viability of a variety of designs
      iii. Gather materials for construction
   c. Third Nine Weeks-
      i. Construct panels
      ii. Construct circuit boards
   d. Fourth Nine Weeks-
      i. Test solar panels
      ii. Work out potential “bugs” in the system

4. **Assessments** –
   Students will be assessed throughout the project using a variety of methods:
   a. Journal of daily reflections that explore the discovery and planning process
   b. Detailed designs of the solar panel and circuit boards
   c. A detailed diagram of how solar energy is produced
   d. The success of the finished product
5. **Resources** -
   b. [http://www.greenearth4energy.com/build_solar_panel.html](http://www.greenearth4energy.com/build_solar_panel.html)

6. **Learning Experiences**
   a. Research solar energy using the internet
   b. Research how to construct a solar panel using the internet
   c. Design solar panels (different designs?)
   d. Design electrical circuits
   e. Calculate voltage based on number of solar cells in the panel
   f. Research how to stop “reverse current”
   g. Research the limitations of solar energy

7. **Example**
   - Creating biofuels and converting an engine to run off biofuels.