The HSE Program has been very successful at Melvindale High School. Parents and students have been the ambassadors for this program. The program was new this year, so we did not really know what to expect. Joining the program was a complete leap of faith for many of us. The program was also a first of its kind for the Melvindale community, but they have embraced it wholeheartedly. Now, the program is really taking off. The administration is behind the program one hundred percent. They are seeing first hand that the program is making a difference in our lives. Since our return from the Michigan Technological University Expo, we have been spreading the word about the program. The conference really inspired us and opened up our minds to many new possibilities.
Team Introduction

This is the first year of our program, which is designed to be student driven with Mr. Thomas as its advisor. The program is divided into various divisions (e.g., business, marketing, web page design, CAD, welders, body design, material orders, etc...). During the general meetings, each division must report their new business and target objectives for the upcoming meeting. The students are the main governing body of the HSE Program. There are currently thirty-three students in the program. These students are in grades nine through twelve.

Name of the Team: “The Cards”

Mission Statement

“If you are believer in your dreams, then they will come true.”
The Alternative Energy Program is designed to allow students to push their creativity and imagination to the maximum level. The program is student operated with group involvement in the daily operations.

Team Logo: A Cardinal

Team Photo

*See attachment for team photo

Assistance/Sponsorship

Square-One and Dassault/Delmia
Project Introduction and Summary

Our assignment was to design and build an alternative energy vehicle that was functional, efficient, and capable of becoming a means of transportation. Since this was the first year of our program, we also had to establish a system of working together and independently to achieve our goals.

The students within the program were really energized to meet and exceed the objectives of HSE Project. Most members didn’t foresee the amount of time needed to complete our objectives, but they stepped up to the plate and put in the time. As a student, I enjoy being a part of the team. Mr. Thomas has helped us to work together to form a common solution. The new members, who entered the program since the MTU Expo, are really a good addition to the program.

The team started out with the idea of building a functional alternative energy vehicle. The team had to research numerous factors before building the vehicle. We sent a great deal of time researching the type of alloy metal for building the inner frame of the vehicle. We feel that we now have a much better understanding of all of the work that goes into a program such as this.
Initial objectives and goals to the project

(a) Research the chosen topic.
(b) Examine various materials and resources to build the vehicle.
(c) Begin the building process.

The project timeline was stalled until we could secure a safe working environment within our school system. This issue was resolved after three months. During this time we were able to establish a clear understanding of the topic and the proper materials necessary to build our vehicle. Presently, the team is looking at late summer, for the final product to be completed.

Modified objectives and goals to the project

(a) The students will examine the various types of alloy metal.
(b) The students will research the tactile strength of various types of alloy metals.
(c) The students will examine the tactile strength verses the weight of the metal in question.
(d) The students will CAD various structural appearances for the outer shell of the vehicle.

(e) The students will examine the CAD selections and determine the best form.

(f) The students will build plywood and Styrofoam models of the outer shell.

(g) The students will use the model to make a fiberglass outer shell for the vehicle.

(h) The students will research the various types of electric motors for energy output.

(i) The students will research the best type of rims and tires for the vehicle.

(j) The students will research a braking system for this type of vehicle.

(k) The students will weld the inner skeleton of the vehicle.

(l) The students will examine the possible usage of a shock system for the vehicle.

(J) The students will find ways to achieve maximum energy output with minimal energy waste.
Project Timeline

Initially, the team established a target date of July 1, 2010. Now, we are looking at late August of 2010. The team will be working through the summer to hit our final target date.

Team Accomplishments

This year, we have been successful in our quest to design, and build an alternative energy vehicle. We have presented our project at the MTU/Expo at Michigan Tech. We also presented our program to the other schools in our district and community.

This year, the students have identified the following objectives.

(a) Research the chosen topic for HSE Program.
(b) Examine various materials and resources to build the vehicle.
(c) Begin the building process.
Roadblocks and Solutions

The team’s biggest challenge was the ability to secure a safe environment to work on our HSE Project. Eventually, we were given a space that enables us to work on the project. We have learned to work as a team. We have learned to listen to each other and brainstorm together. We have become a real team.