



South Gwinnett High School
Technology Education
TE 336 – Engineering II - Dynamics
Electromagnetic Junkyard Wars

Rationale:

This exercise is intended to demonstrate the use of the steps of problem solving and the essential elements that make up a transportation technology. This reinforces the AKS for chapters 1, 2, and 3 of Technology: Today and Tomorrow. This exercise will also invoke the essential creative thought process in achieving most engineering solutions.

Group Selection:

The students will be placed in groups of three. Each group will develop solution to the engineering challenge.

Challenge:

Musty the mouse is trying to feed his family. Ima Stoonad left a 2.5lb ring of cheese on her counter. Musty wants to push the cheese to the end of the counter so he can push it along the floor. The counter is 5 feet long. He needs your help. You have been given an electromagnetic engine, a 9 volt battery and the connection wires. You must design a device used to push or pull the 2.5 pound ring of cheese across the 5 foot surface.

Specifications and Limitations:

The device must:

- Use the engine, battery and connection in some manner.
- Be no larger than 12" x 6" x 6". Tow lines are not considered part of the device.
- Not use animals, live or dead.
- Use no explosives, internal combustible engines or any device that requires fire.
- Not use any other engine other than the engine that you have been given.
- Have no wheels or tires that come in direct contact with the surface of the counter. Tape or paper attached to a tire will be considered part of the tire.

Definitions:

A wheel or tire is a round object that spins on any device that can be considered an axle including ping pong balls or the like..

“Animals” include but is not limited to gerbils, ducks, cats, dogs and horses.

Materials:

All other materials are fair game. Any items that may be considered dangerous or a weapon must be cleared with Mr. Kachmar prior to bringing it to South Gwinnett High School.

Assignments:

Your group is required to turn in the following items:

1. A design brief describing how you intend to solve the problem. (25 points)
2. A list of the materials you plan to use in the solution to the problem. (25 points)
3. A schematic drawing/sketch of how the device will work. (25 points)
4. The device itself. (50 points)
5. Teamwork points (documentation of each member of the group contribution) (25 points)

Total points: 150