# Be Prepared To Have Your Mind Blown….

Could it be?

# Mr. O'Connell's Electric Car Challenge

- 4 person teams
- Requires an environmentally friendly battery
- Car must fit in a shoebox and have a mass of <2 kg
- Targeting a travel distance of 10+ meters.

***Anything goes class for extra credit!***

# History of Electric Cars

**1832: Top Speed ~14 mph**

**2008 Tesla Roadster: 125mph**

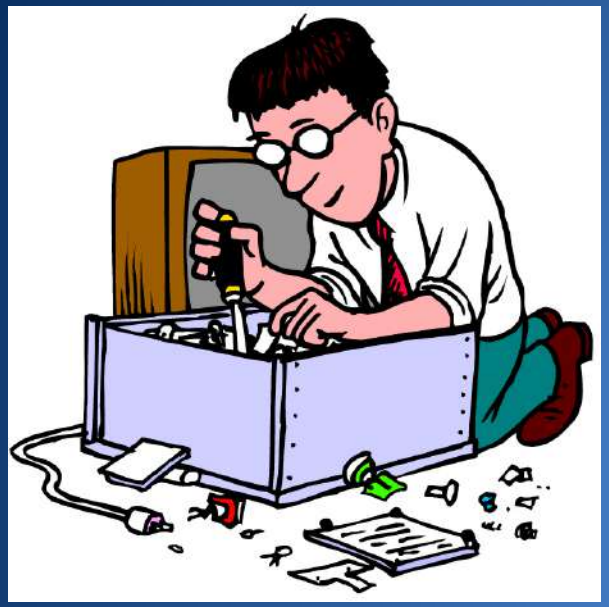
2015 Wilsonville HS
Mr. O'Connell's Chemistry Class
Slightly under 125 mph…

https://Wilsonville Chem Car Drag Race

# Electric Car Development Timeline

| Date | Major Milestones | Milestone |
|---|---|---|
| November 14-18 | Project Kick Off | Mechanical Report Due |
| November 21-25 | Vacation | Background Work |
| November 28-Dec. 2 | | |
| December 5-9 | Battery Development | Battery Report Due |
| December 12-16 | Car Development | Design Report Due<br>Individual reflective essays in progress |
| December 19 –Jan 1 | Vacation | Background work |
| January 2-6 | Functioning Prototypes | |
| January 17 | | Extra credit if car complete early |
| January 20 | Car Races and Final Reports Due | Project Engineer Report Due |

# Project Team Assignments



## Mechanical Engineer:

1. Responsible for physically building the car
2. Supplies tools to construct chassis
3. Obtains materials from others
4. ***Responsible for the Car Design Proposal due Nov 18***


## Battery Engineer:

1. Does background work and decides what reactions will be run. Needs to get information to management ASAP!
2. Obtains the needed chemical from the teacher to test reactions…. MUST BE DONE AT WHS!!!
3. ***Responsible for the Final Chemical Report Due Dec. 9***

## Design Engineer:

1. Scale diagrams using ruler and metrics or constructs (using CAD or similar software)
2. Track of modifications and updates plans as necessary, may build prototype.
3. Assist with background research & citations.
4. ***Responsible for Car Design Progress Report on Dec. 16.***

## Project Manager:

1. Organize and plans access to materials
2. Communication within team and management.
3. Overall responsibility for background research and citation.
4. ***Responsible for ALL reports to be turned in.***

# But Mr. Powers-I Have Questions….

- We will provide materials for fabricating the cars
  - KNEX kits with motors.  You cannot use a pre-made kit car, although other building methods may be acceptable.
  - Wiring and soldering (in class only)

- You can purchase motors and other components if you wish

- “Environmentally Friendly”= Can go in trash with or without pH balancing.

- Edited examples of previous reports will be available in class.

# But Mr. Powers-I Have Questions….

- Good Background Information
  - http://www.knex.com
  - http://www.inlandhobby.com/v/vspfiles/files/battery_pack/building_rc_battery_packs.htm
  - http://sci-toys.com/scitoys/scitoys/echem/batteries/batteries.html
  - http://www.chemforlife.org/teacher/topics/build_a_battery.htm
  - http://www.wikihow.com/Make-a-Homemade-Battery
  - http://www.livescience.com/50657-how-batteries-work.html


Mad Dog Powers says…
“Let’s make us some cars!”