

# North Montco Technical Career Center

Senior Project Expo

May 5, 2009

Automotive Technology Presentations



# Vehicle Maintenance



# Comparing/Contrasting 2-stroke vs. 4-stroke Engines



# Vehicle Restoration



# Hydrogen Fuel Cell Functionality

A student with curly hair, wearing a black shirt and tie, stands next to a project board. The board is titled "Hydrogen Fuel Cells" and "How They Work". It includes sections for "Types of Cells", "Efficiency", "Storage", and "The Future". The board also features a diagram of a fuel cell, a list of "Four Main Parts", and a bar chart comparing efficiency. The student is standing in front of a window with blinds.

**Types of Cells**

- PEMFC (Polymer Exchange Membrane)
- SOFC (Solid oxide)
- AFC (Alkaline)
- MCFC (Molten-carbonate)
- PAFC (Phosphoric-acid)
- DMFC (Direct methanol)

**PEMFC (Polymer Exchange Membrane)**

- Generates High amount of power while still staying relatively cool
- Low temp allows cell to generate electricity at the maximum level more quickly
- Makes it more suitable for Automotive applications

**Efficiency**

Year	Efficiency (%)
2000	0.5
2005	1.5
2010	3.5
2015	5.5

**Storage**

Hydrogen Storage Tanks

Hydrogen Storage Tank

**The Future**

Hydrogen Fuel Cell Car

**Jeremy Kiser**

**Mr. Kirkpatrick**

**Automotive Souderton**

**How They Work**

**Four Main Parts**

- Anode
- Cathode
- PEM Electrolyte
- Catalyst

**Electric Motor**

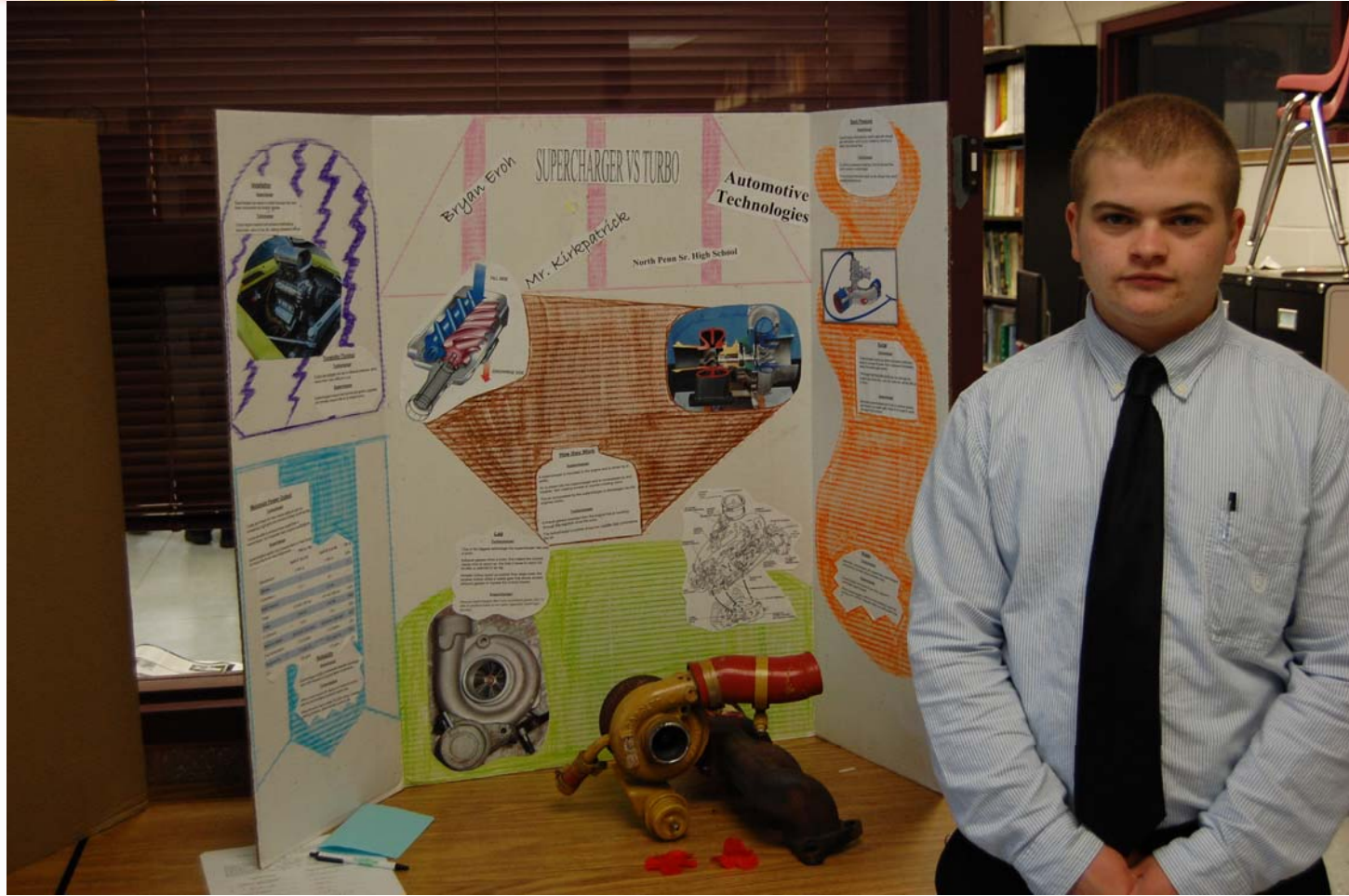
# Installing a "Tuned" Exhaust System



# Rotary (Wankle) Engine Operation



# Supercharger Functionality



# Fuel Injection Functionality



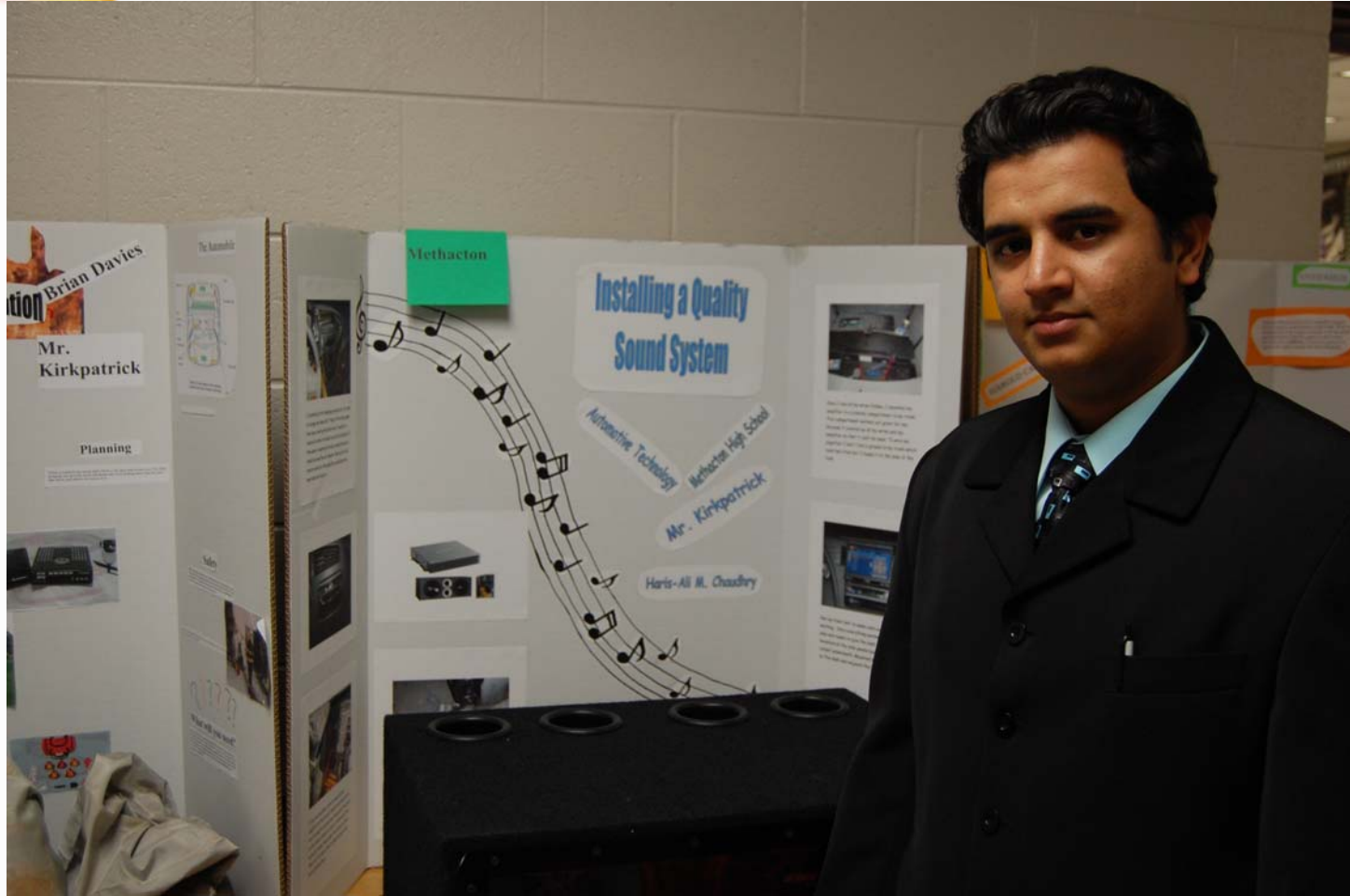
# Hydrogen Fuel Cell Technology



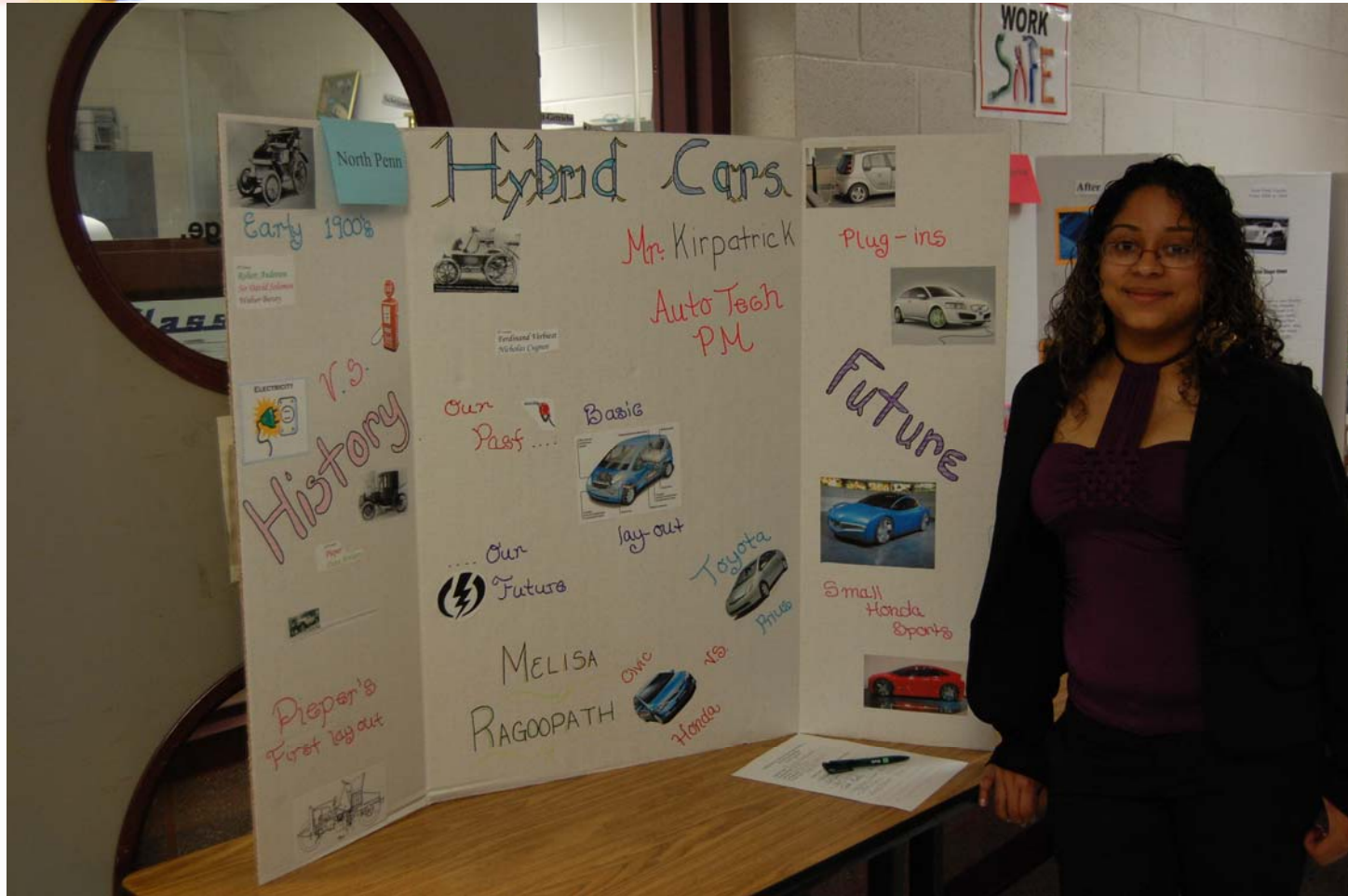
# Nitrous Oxide (NOS) Fuel System Operation



# Installing an Upgrade Sound System



# Hybrid Vehicle Operation



# Vehicle Extraction





# Automotive Detailing



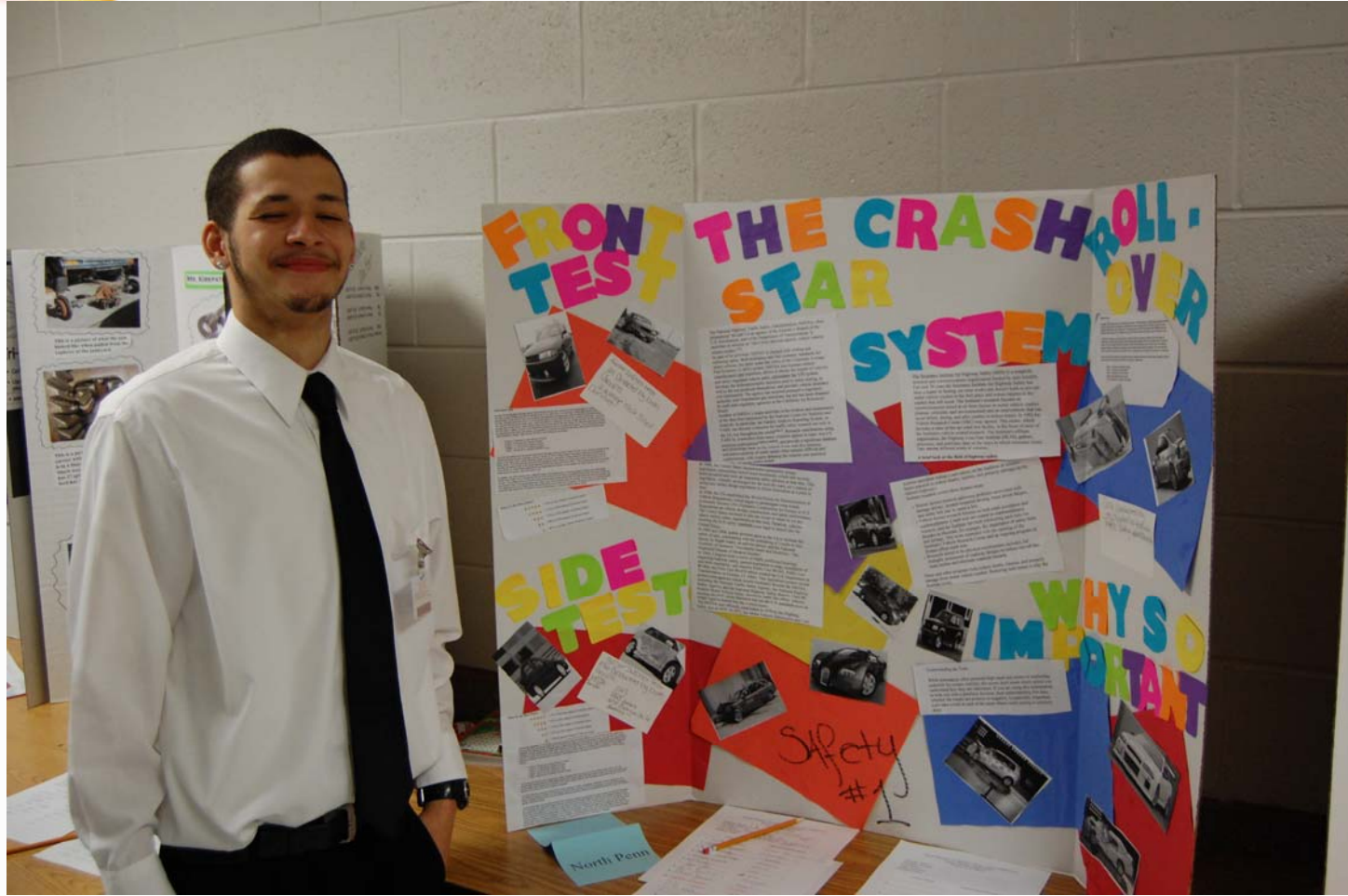
# History of Ford Trucks



# Drive train Swap



# Automotive Crash Safety Systems





## 2009 Senior Project Expo



The students and faculty of the NMTCC Automotive Technology program thank you for your support! Please visit [www.nmtcc.org](http://www.nmtcc.org) or [www.AutoTechL.com](http://www.AutoTechL.com) for additional information.