2003 Transportation Education Academy Activities

Middle School Activities: Modes

Fuel Cell Car Activity

LEARNING AREA: Inquiry & Research
EDUCATIONAL LEVEL: Middle School
CONTENT STANDARDS: New Product Development

STANDARD: A student shall research, develop, and test a new product to demonstrate an understanding of needs analysis; specific material or technologies; material processing of design techniques, or both, by;

1. Researching the need and the market of fuel cell technology
2. Designing a new or improved product that meets criteria of fuel cell vehicles
3. Creating the new or improved product;
4. Testing and evaluating the product; and
5. Assessing the impact of production, use and eventual disposal of the products produced by fuel cell technology on the environment, society, and health, as applicable.

WHAT THE STUDENTS WILL LEARN:

Students shall research past and present fuel cell vehicles and assess the benefits and negative impacts of this technology.

Students will:
1. Research information about fuel cell vehicles, specifically automobiles.
2. Assemble a fuel cell vehicle kit.
3. Analyze vehicle performance: vehicle makeup, operating systems etc.
4. Analyze collected data, make conclusions on data.
5. Analyze benefits and impacts on environment.
6. Have a class competition.

OVERVIEW:

Statement of Purpose

Objective:
Explore fuel cell technology, research past and present; assemble purchased fuel cell vehicle kit.

Problem:

Discover automobile related pollution problems and assess the benefits of fuel cell technology in the automobile sector. Discover the cost and problems of converting society into hydrogen power.

Solution:
Research fuel cell vehicles and assemble a fuel cell vehicle kit. Compare students' designs and discuss conclusions, have a final competition.

CHECKLIST:

STUDENT	TEACHER	The Formal Report
_____	_____	1. Explain briefly how fuel cell technology works.
_____	_____	2. Explain briefly history of fuel cell technology.
_____	_____	3. Include at least one drawing of a fuel cell stack.
_____	_____	4. Include an appendix of scientific definitions.
_____	_____	5. Include reference page.

STUDENT	TEACHER	The Laboratory Report
_____	_____	1. Include a model fuel cell vehicle.
_____	_____	2. State the title, purpose, procedures and conclusions.

STUDENT	TEACHER	Enrichment Activity
_____	_____	1. Compete with other students' vehicles.