

West Side Science Club – Event #25 – “Building Fuel Cell Cars”

Original Presentation

Date: 8 March 2014
Time: 10 am to 12 pm
Site: West Side Science Club

Big Questions

- These questions are meant to frame the day’s event and might be written on the chalkboard
 - (1) How do fuel cell cars work?
 - (2) How can you make your fuel cell car go faster?

Concepts

- Concepts to cover from the “Work of CCI Solar” Mind Map: Storage- fuels, batteries; Social Aspects- CO₂, greenhouse gases, climate change, global energy demand, fossil fuels, renewable vs. nonrenewable; Devices- design, cost-effectiveness

Lesson Plan

Student Objectives

- Understand how fuel cells work
- Think about innovation and design
- Relate aesthetics and functionality when making improvements to the car

Schedule/Agenda

- Build the horizon fuel cell cars from the kit (30 min)
- Improve the shell of the car through decoration and innovation (1 hr 30 min)

Materials

- Horizon fuel cell car kits
- Power supply
- Various arts and crafts materials

Safety

- Follow instructions of the kit to not hurt the fuel cell.

Review of Previous Event: Fuel cells and catalysts

- Recall the activity: How do fuel cells work? What are some ways to improve upon fuel cells?

Facilitation Questions

- Can you change the catalyst used on the fuel cell?
- Are there other ways to improve efficiency of the energy you get from the fuel cell (ie lightening the load)?

Activity:

Procedure

1. Follow the kit instructions to build the initial shell of the fuel cell car
2. Use engineering skills and knowledge about fuel cells to modify the car
3. Decorate the car as you would like!

Facilitation Questions and Concepts

- What changes can you make to the fuel cell or motor?
- Are there ways to make a car go faster without changing the fuel source or motor?
- How do other vehicles travel? Are there innovations there that you can borrow?

Check for Understanding

- What did you learn about fuel cells and catalysts that you are applying to the car design?

Wrap Up: Event #26 Preparation

- Next time is the race! Get the car finished as much as possible and prepare by brushing up on fuel cell knowledge

References

- (1): "Horizon Fuel Cell Car Science Kit"
<http://www.horizonfuelcellshop.com/americas/product/fuel-cell-car-science-kit/>