Hydrogen Technology Webquest

An Internet Webquest on Hydrogen

**Introduction**

In this activity, you will explore how hydrogen can be used as a fuel. You will also find out how using alternate fuels can reduce pollution.

**Task**

In this Webquest you will explore how hydrogen can be used as a fuel, why finding alternative fuels is important, you will also need find out how using alternate fuels can reduce pollution. To demonstrate what you have learned, you will answer a set of questions about hydrogen fuels and alternative fuels. By completing this webquest, you should achieve the following goals: 1) develop an interest in the study of Hydrogen; 2) Use the power of the Internet for advanced exploration; 3) learn information about key aspects of Hydrogen; 4) realize that complex topics can be looked at from various perspectives.

**Process**

You will be working individually on this webquest. You will use the following links to find the answers to the questions below.

**Background Information**
Fuel reserves are becoming limited, and the future of world's energy will have to rely on renewable alternatives to these limited resources. A promising alternative is going to be the use of hydrogen. Hydrogen is the most abundant element in the universe. Hydrogen is manufactured using water, wind and sun. Hydrogen is a secure, inexhaustible, emission-free fuel for consumers. It can power electronics, heat and electricity, and hopefully the next generation of highway vehicles.

**Directions**
Read through the following questions. Then research the Internet sites that are listed after them. As you explore each site, look for answers to the questions. Keep a record of the sites where you find answers.

 **Research**

*Smart Challenge* - <http://auto.howstuffworks.com/fuel-efficiency/alternative-fuels/hydrogen-powered-vehicle-quiz.htm>

*Fuel Cells* - <http://auto.howstuffworks.com/fuel-efficiency/alternative-fuels/fuel-cell.htm>

*Fuel Cell Program Overview* - <https://www.nrel.gov/hydrogen/hydrogen-production-delivery.html>

Use the above links to answer the following questions (You may also want to search for answers in Google):

1. What is hydrogen and where can we find it?

2. What percentage of the universe is made up of hydrogen?

3. When was hydrogen first used?

4. Is Hydrogen safe?

5. What was the Hindenburg tragedy?

6. What did we learn from this tragedy?

7. Who developed the first modern successful hydrogen fuel cell (back in 1932)?

8. What are fuel cells?

9. Why would we want to use fuel cells?

10. What are the biproducts from an operating fuel cell?

11. What are some fuel cell problems?

12. Why is storage a problem for hydrogen fuel?

13. Name two advantages of using fuel cells for vehicles.

14. Name two disadvantages of using fuel cells for vehicles.

15. Is Hydrogen safe?

16. Where do you buy hydrogen?

17. How much will hydrogen run cars cost the consumer?

18. Take the Get Smart Challenge at the smart challenge link above.

**Reaching Consensus**
You have all learned about different parts of Hydrogen. Use information, pictures, movies, facts, opinions, etc. from the web sites you explored to write an answer to the overall question:

Do you feel that hydrogen is going to be a good alternative energy in the future?

**Conclusion**

It's easy to come up with an answer that may not be completely right. It's the same for understanding a topic as broad or complex as Hydrogen: when you only know part of the picture, you only know part of the picture. Now you all know a lot more. Nice work. You should be proud of yourselves! How can you use what you've learned to see beyond the black and white of a topic and into the grayer areas? What other parts of Hydrogen could still be explored? Write a summary on what you learned about this topic.