**Hydrogen**

Hydrogen is a clean, no emissions alternative *fuel* which can be produced from many resources. Hydrogen is *abundant* on earth but it is almost always *bound* to other elements. This makes it necessary to produce it from hydrogen containing *compounds* such as water (H2O(l)). Organic *matter* and *hydrocarbons* such as methane (CH4 (g)) are also *sources* of hydrogen.

However, hydrogen production from these sources is not easy so hydrogen is mostly produced from natural gas (methane/ CH4 (g)). Once hydrogen is produced, it can be used to create electricity through a controlled reaction with oxygen (highly exothermic). For this, liquid nitrogen (N2(l)) and liquid oxygen (O2(l)) *are carefully reacted* in *fuel cells* which transfer the reaction energy into electrical energy which then *power*s the *vehicle*.

While hydrogen can power fuel cells from electric vehicles without producing emissions, it is not commonly used as an alternative fuel due to problems with safe *storage* and transport. Hydrogen is very explosive especially when reacting with oxygen to produce water, a highly exothermic reaction. *Space flights*, however, have been *fueled* by hydrogen since the 1950s.

Hydrogen is one of the most *researched* alternative fuels today, due to its environmental advantages. Upon *combustion* of hydrogen, only water is produced. Therefore, Hydrogen is a very clean and *environmentally friendly* alternative to *gasoline* and it has often been called the fuel of the future.

**Assignment**

*Read your article carefully and make a poster to present the information to your classmates.*

On the poster you should answer the following questions:

1. What is the alternative fuel presented in your article?
2. How can the alternative fuel be produced?
3. What are the fuels’ characteristics?
4. What are the environmental *advantages/disadvantages* of using this fuel?
5. Is the alternative fuel currently being used and how?