**Group Members:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Student Sheet: Where’s the Chemistry?**

As leading researchers in the field of alternate fuel chemistry, you and your team have been invited to be guests on the very popular TV show “Where’s the Chemistry?” This week’s episode will be devoted to the chemistry of alternative fuel vehicles, so you will be competing against other scientists in your field of expertise. You will be given five minutes to let the audience know the chemistry of your alternative fuel source. Your audience will expect a clear explanation of the chemistry as well as a brief understanding of the potential of this energy source. At the end of the show, the audience will vote for their favorite alternative fuel chemistry team.

**Essential Question:**

* Where is the chemistry in alternative fuel vehicles?
* Which energy source is the most cost effective and readily available?

**Product:** Students will create a five-minute TV spot that explains the chemistry and its viability as a source of fuel or energy. This may be done in person, through a video or through power point.

![C:\Documents and Settings\mahenry\Local Settings\Temporary Internet Files\Content.IE5\25IQWMHG\MC900437695[1].wmf]()**Activity:**

1. Identify your alternative fuel option.
2. Research your fuel and determine the following:
	* How is it made?
	* Do we have enough resources to produce and distribute this fuel?
	* How cost effective is this source?
	* What will it take to make this energy source a reality?
3. Prepare a list of five different reference sources used doing your research.
4. Prepare a five-minute segment for the “Where’s the Chemistry?” show.
5. Prepare an outline detailing the major points from your presentation.
6. Be ready to air your segment live in class on \_\_Monday April 25th\_\_.

Group Members:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For this project, we must first start by researching the alternative fuels so that you can decide which one your group would like to make a presentation on. Use the list below to do some preliminary research. You will be working in a group of 2-3 so you may divide up the work between your partners. FOR EACH FUEL TYPE YOU MUST HAVE THESE FOUR THINGS:

1. what is the origin of the resource (what is it made from?)
2. how is it obtained (how do we access/remove the resource?)
3. how is it converted (how do we get from resource to energy?)
4. what are its current uses (what do we use it for?)

*Each student must write these NEATLY on a separate piece of paper with your name at the top - then staple your group’s papers together to the back of this page and turn it in by the end of the hour. ALL of the fuel options below must be covered and split* ***evenly*** *between group members. Your handed in papers should have this format:*

*“Fuel type”*

1. *the origin of this resource is…*
2. *it is obtained by…*
3. *it is converted by…*
4. *it is used for…*

**Alternative Fuel Options:**

* Alcohols – ethanol and methanol
* Compressed natural gas (CNG) – natural gas under high pressure
* Electricity – stored in batteries
* Hydrogen – a very special type of gas
* Liquefied natural gas (LNG) – natural gas that is very, very cold
* Liquefied petroleum gas (LPG) – (also called propane), hydrocarbon gases under low pressure
* Liquids made from coal – gasoline and diesel fuel that doesn’t come from petroleum
* Biodiesel – a lot like diesel fuel, but made from plant oil or animal fat
* Geothermal
* Wind Energy
* Solar Energy
* Energy Recovery and Policy (Landfill waste gas, recycling; power plants; manufacturing)
* Tides
* Lightning
* Fracking
* Pennycress

After your group has finished, discuss the research you did and decide on an alternative fuel option you want to do more in-depth research on for your project. We chose:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_