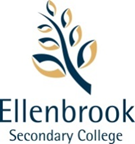
**YEAR 11 ATAR CHEMISTRY**

Task 4 Extended Response:

FOSSIL FUELS & BIOFUELS

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**MARKS ALLOCATION FOR ASSESSMENT:**

* Submission of research notes & information: can be submitted hand-written or via Connect as a Word document. (10% contribution)
* Validation test: to be conducted two weeks after the assessment is assigned. (90% contribution)

**QUESTIONS TO BE ANSWERED:**

1. What is meant by the terms ‘biofuels’ and ‘fossil fuels’?
2. Describe the composition of the following fuels (either elemental composition or molecular formula of main components):
   1. Coal
   2. Natural gas (liquefied petroleum gas LPG)
   3. Diesel fuel
   4. Petroleum
   5. Biodiesel
   6. Bioethanol
3. Explain how the process of fractional distillation is used to take crude oil that is mined and produce different fossil fuel products, such as LPG, petroleum, diesel, kerosene and lubricating oils.
4. Explain how biofuels are produced.
5. Compare the energy output between petroleum and bioethanol.
6. Compare the carbon dioxide output between petroleum and bioethanol.
7. What are the advantages and disadvantages of using:
   1. fossil fuels
   2. biofuels
8. The above energy outputs for fuels researched in Q5 are obtained under laboratory conditions where combustion goes to completion. Using petrol as an example,

* choose one application of the fuel
* explain why the energy output quoted in research is not what is actually found in real life application.