What car will I drive, when I am 35?

INTRODUCTION:
In our society, cars are an essential part of life. Most cars use petrol as a fuel; however, crude oil supplies are running out and the carbon dioxide produced from burning petrol may be contributing to global warming. In class you have seen a model car run on hydrogen fuel!

SCENARIO:
The theme for the next issue of a popular science magazine is “sustainable development through chemistry”. They are requesting that articles be submitted for publication.

YOUR TASK is to write an article in which you:
- Introduce the reader to the purpose of your article and describe (briefly) how hydrogen could be used as a fuel for cars; and
- Decide if hydrogen would be better to use than petrol as a fuel in cars. Justify your decision by analysing the advantages and disadvantages for hydrogen fuel compared to petrol, for a variety of appropriate criteria (e.g. costs, environmental impact, energy aspects, fuel storage, and others that you think are appropriate);
- Use a Decision Making Matrix as part of the process of making and justifying the decision; and
- Use the format described on the next page.

LENGTH: Approximately 700 words

NOTES:
- All scientific claims should be accurate and referenced to source material where necessary. The details of your references should be listed in a bibliography.
- No credit will be awarded for a pictorial representation of the car (you don’t have to draw or design the car).
- For your first and final drafts you must upload the Word®, PDF or Google doc file to ‘Turnitin.com’ and submit a paper copy of your article, which will include references and a bibliography for all factual claims that you make. For your final draft, the paper copy and file must be submitted by 4 pm on the due date.

The first draft is due Week 7 of the term and the final draft is due in week 8 of the term.

ASSESSMENT INFORMATION
The criteria assessed are Knowledge, Researching and managing information, Communication and Critical and creative thinking. Consult the criteria/standards grid for detailed information about the standards expected. The focus Habit of Mind “Thinking & communicating with clarity and precision” is also to be self-assessed. Use the grid to assess your own work before submitting your drafts to your teacher.
FORMAT: The structure of the article should be: Title, Introduction, Body, Conclusion, Bibliography, Appendix with Decision making matrix. Paragraphs would normally start with a topic sentence. Text should be set out with appropriate headings and sub-headings. Use tables and other graphics where appropriate.

The finished article should have these headings:

Title of the article

Introduction

Provide an outline for the reader of the purpose of your article. Explain about using a Decision Making Matrix (DMM) as part of the process of making your decision. Also provide a brief overview of how a hydrogen fuel cell works.

Criterion 1 (e.g. Availability)

Compare hydrogen and petrol for this criterion, explaining the advantages and disadvantages of each as a fuel for cars. Explain the weighting given to this criterion in your DMM and the ratings given to hydrogen and petrol.

Criterion 2 (e.g. Environmental impacts)

Criterion 3 (e.g. Energy efficiency)

Criterion 4 ….. etc

NOTE: Include references for all the ‘facts’ you researched and included in your report (use the correct “Harvard” format). Example: Since 1900 the global average surface temperature has increased by about 0.8 °C (Royal Society, 2014)

Conclusion

Argue which fuel is better for the car you will drive “when you are 35” - hydrogen or petrol. Explain and justify your decision. For example, to help you to justify your decision you could bring together your previously argued ratings and criteria weightings (from the DMM) and how you weighed up the pros and cons of each fuel across the various criteria you used.

Bibliography

NOTE: Use the correct (Harvard) format e.g.


Appendix

Put your Decision Making Matrix (DMM) in as an appendix. Note that the DMM is not just a table; it shows ratings for the various criteria for both hydrogen and petrol (and perhaps weightings for each criterion). Calculate totals for hydrogen and petrol. When explaining the DMM inform the reader what the numbers mean (e.g. higher numbers are more desirable and/or important). Use the DMM critically e.g. it should guide your decision, not make the decision for you.