



Multidisciplinary Unit




**Pesticide Use on
Prince Edward Island
By: Matthew Killeen**



As a teacher of high school science and biology, I am always looking for new ways to engage students. One of the ways to evoke interest is to create a multidisciplinary unit that connects science with other core courses.

I decided to choose a topic within my Grade 10 science curriculum that could be used as a theme for a multidisciplinary unit. This unit will allow the students to work on a number of projects within a variety of different courses.

“Students come to view school subjects as connected and interrelated, rather than isolated and divided, because subject areas such as math, science, social studies, art, and music may be studied within the context of a given theme” (Vogt, 1997).



After much thought, I decided to create a unit dealing with pesticides and their use on Prince Edward Island.

The following courses will be integrated into this unit:

Science 421, Agriscience 801, Foods 421, Law 801, Chemistry 521, English 421 and Media 431.

In order for this thematic unit to proceed properly, I will need to have the cooperation of my colleagues who currently teach the above subjects.

The following slides provide an outline of my vision for a multidisciplinary unit on pesticide use.



Grade 10 Science Curriculum

- The first step was to take a look at the Grade 10 science curriculum documents for the specific outcomes.



Grade 10 Science Curriculum

■ Specific Curriculum Outcomes

- ❑ Students should engage in a debate on the paradigm shift in thinking on pesticide usage.
- ❑ Explain how a paradigm can change scientific world views in understanding sustainability(114-1).
- ❑ Select and integrate information from various print and electronic resources(213-7).
- ❑ Communicate questions, ideas, and intentions, and receive, interpret, understand, support, and respond to the ideas of others(215-1).



Grade 10 Science Curriculum

■ Attitude Outcomes

- Students will acquire, with interest and confidence, additional science knowledge and skills, using a variety of resources and methods, including formal research(AO-440).
- Students will work collaboratively in planning and carrying out investigations, as well as in generating and evaluation ideas(445).
- Students will have a sense of personal and shared responsibility for maintaining a sustainable environment(446).



Grade 10 Science

- As a class we would initially visit the concept of pesticides and their use. We would discuss, as a class, the use of pesticides and the pesticide problem on Prince Edward Island.

Project

- The students will take part in a webquest on pesticide use. The webquest will culminate in a class debate on whether or not Prince Edward Island should ban the use of pesticides.





Grade 10 Science (continued)

- Each group of students will take on a specific task within the webquest.
- The tasks include taking on the following roles: Minister of Agriculture, traditional farmer, organic farmer, environmentalist and scientist.
- Below is the link to the webquest that I have created for this unit

[Pesticide Debate](#)





Agriscience 801

- The Agriscience class will take part in a lesson comparing traditional and organic farming.
- Students will visit a traditional PEI farm and an organic farm.
- The students will be divided into groups to discuss the differences between the two farming models.





Agriscience 801 (continued)

- While in groups, the students will list the advantages and disadvantages of organic farming versus traditional farming.

An alternative lesson idea:

- Have a traditional farmer and an organic farmer come in to talk to the class as a whole.





Agriscience 801 (continued)

The students will be required to ask the farmers specific questions regarding the two farming models such as:

- Startup costs
- Expected yields
- Environmental effects
- Profitability
- Pesticide usage
- Positive and negative aspects



Law 521



- Students will be divided into groups to research pesticide legislation for the other Canadian provinces.
- Jigsaw grouping will be used for this activity.
- Each member of the group will be given a province to research.

Law 521 (continued)



- Group members will then return to their original groups and present their findings.
- In light of their findings, the groups will then decide on possible changes to the PEI legislation.
- Groups will share their legislation changes with the class.
- Pesticide legislation (example sites that could be used):

Government Legislation

Pesticide Legislation #2

Foods 421

- Students will look into the value of organic vegetables and compare them with traditionally grown vegetables.
- Students will go to the local grocery store and do a comparative price study on organic vegetables and traditionally grown vegetables.
- Students will then find recipes that use organics and prepare them.

[Organic Food Recipes](#)

[More Organic Recipes](#)



Foods 421 (continued)

- If time permits, the students will prepare the same dishes using traditionally grown vegetables.
- The students will be asked to compare the dishes with respect to *taste, texture, presentation and price*.



Chemistry 521



- Students will study the molecular composition of certain pesticides that are used on Prince Edward Island.
- Students will work in groups to research these pesticides and present their findings. Each group will also be required to build a molecular model of the particular pesticide.

Chemistry 521 (continued)

- Links to pesticides used on PEI

[Chlorothalonil](#)

[Mancozeb](#)

[Endosulfan](#)

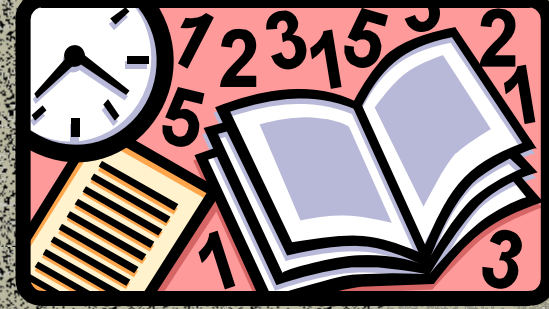
[Atrazine](#)

[Paraquat](#)

[Diquat](#)



English 421



- As part of the ongoing writing process, students are often asked to write letters to the editor. An activity of this kind would fit well into this unit.
- Students will be asked to write a *letter to the editor*, taking on the role of a concerned citizen, based on discoveries in their prior research.

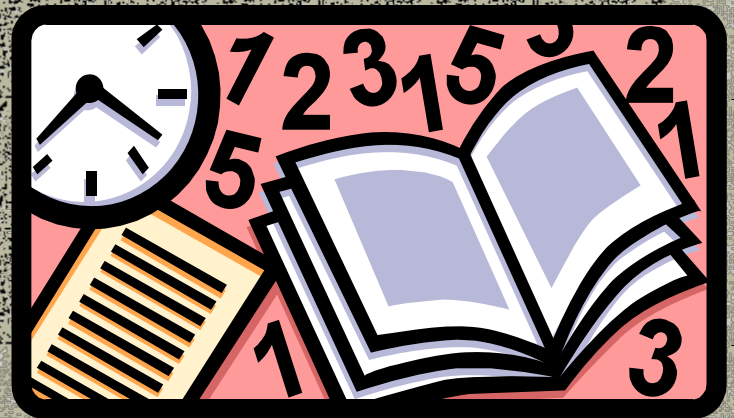
English 421 (continued)


- The letters will be submitted to the local newspaper.
- Students will be asked to voice concern over the *increased incidence(s) of fish kills*, the *proximity of pesticide use to schools* and the *carcinogenic properties of the pesticides*.



English 421 (continued)

- Students will be asked to share their letters with classmates for feedback.
- Students will also be asked to respond to classmates' letters.





English 421 (continued)

Alternative Activity

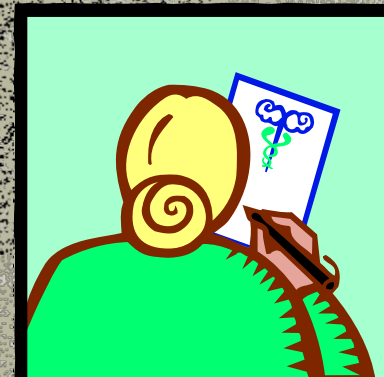
- *Article Critiques*— students will find magazine or newspaper articles on pesticides and critique them.

Steps to writing an Article Critique

[Article Critique Steps](#)

Media 431

- Students will be asked to create a magazine on the topic of pesticide use on PEI.
- The magazine will consist of, but not limited to, the following:



Media 431 (continued)

- Letters to the editor
- Advertisements
- Classifieds
- Editorials
- Interviews/Q & A (with farmers, scientists, environmentalists, etc).
- Photos





Connections with Multiage

- Students are given choices within the different projects.
- Students will take part in many different types of groupings.
- Students will be given ample time to complete the assignments that they choose.
- Students have the opportunity to work together and learn from each other.
- The learning is extremely project-based.



Conclusion

This thematic unit will engage the students on the pesticide problem on Prince Edward Island.

Students will benefit from the the cross-curricular projects within the unit.

Cooperation from my colleagues who teach the subjects featured in this unit, will be necessary for this unit to proceed. Time will need to be established to collaborate with colleagues.

For this unit to be successful, additional time will be necessary to cover current curriculums as well.



References

Department of Education Prince Edward Island. (2005). Science 421 Curriculum Guide. Atlantic Canada Science Curriculum.

Eden Foods

<http://www.edenfoods.com/recipes/>

Environmental Commons

<http://environmentalcommons.org/cetos/criticalhabitat/mancozeb.pdf>

Government of British Columbia

http://www.agf.gov.bc.ca/pesticides/i_3.htm

<http://www.agf.gov.bc.ca/pesticides/infosheets/chlorothalonil.pdf>

Government of Canada

http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/digquat/index_e.html



References (Continued)

Kimberley Coalition (2007)

<http://www.pesticidefreekimberley.ca/regulated.html>

Organic Authority

<http://www.organicauthority.com/organic-food-recipes/>

Pestnews

<http://www.pan-uk.org/pestnews/Actives/atrazine.htm>

University of Waterloo

http://www.studentservices.uwaterloo.ca/disabilities/Services/Web_materials/How%20to%20Write%20a%20Critique.pdf

Wikipedia

<http://en.wikipedia.org/wiki/Endosulfan>

<http://en.wikipedia.org/wiki/Paraquat>