

Agriculture in the Fraser Valley
For Foods 9

Stephanie Armstrong

BC Agriculture in the Classroom Foundation
Summer Institute 2013

Stephanie Armstrong

Unit: Agriculture in the Fraser Valley

Rational

I was raised in Mission, BC and subsequently teach at Mission Secondary School. Mission Secondary School is comprised of a mosaic of kids. It has a large South Asian population, many of whose families are involved in farming, other kids are bussed to school each morning from the rural areas of Silverdale and Hatzic where their houses sit on large, fertile plots of land, others live in the suburbs around Mission, most of which look out on to the farming flats of Matsqui and Abbotsford. We have an array of very affluent kids whose home pantries are always stocked, and those who shyly come into my classroom when they hope no one will notice, to see if I can spare some vegetables from the Food and Veggie Program.

What do all these kids have in common? They live in one of the most fertile and agrich regions in the world yet are completely oblivious to it. They come from all different backgrounds and income brackets and are accustomed to their own, usually limited diet. This unit would be to educate the students of Mission Secondary about the abundant region in which they live, where fresh produce, dairy and meat can be found literally down the street from where many students live. The unit would be taught over the span of 9 classes with the grade 9 classes (I teach four blocks of Foods 9), and would focus on topics such as what goes into farming and why it is so important, making wise food choices, feeding a growing population and careers in Agriculture. I would incorporate readings, video clips, a fieldtrip, debate style learning and hands on learning in this unit.

Day 1: Introduction to Agriculture

Upon entering the classroom four questions would be up on the board for the students to begin answering individually once they have sat down:

- 1) What is "agriculture"?
 - 2) Why is agriculture so important?
 - 3) Give 3 examples of agriculture you have seen in Mission.
 - 4) What is needed for a farm to run?
-
- Give 10 minutes for students to brainstorm and write down their answers
 - Allow 15 minutes for discussion on answers, many will presumably not be aware of the many examples of agriculture in Mission specifically. Record answers on one side of the board so students can visually see what others have come up with. Elaborate on and facilitate class discussion.
 - Show pictures of Sumas Lake, where the Sumas prairie is today and explain the history of the area and why it is so fertile today.
 - Define what the "ALR" is, its purpose and a land map of where the ALR boundaries are in the Fraser Valley
 - Introduce students to www.bcfarmfresh.com website, where they can access a complete directory and map of the farms in the Fraser Valley and what they grow/raise (this website will be used in an assignment later in the unit).

- *Exit Slip 3, 2, 1:*
 - 3 things I learned today, 2 things I already knew, 1 question I still have.

Resources: Projector, computer, slides of Sumas Lake, ALR map, internet.

Today's lesson introduced the students and got them thinking about what agriculture is.

This entire unit would be geared to grade 9 students, however, it would be appropriate for all secondary school grades. The lesson would provide students with a more in depth awareness about the Fraser Valley and how the region plays an important role in Canada's agriculture economy.

Day 2: 100 Mile Food Diet

Upon entering the classroom 2 questions will be on the board for students to sit down and complete.

- 1) To the best of your knowledge, what is a 100 Mile Diet? Guesses are okay!
 - 2) To the best of your knowledge, what are "Food Miles"?
- Allow for 10-15 minutes of discussion as students volunteer their answers. Teacher elaborates on and facilitates discussion, making sure to focus on points such as what kinds of foods we would have to go without for the 100 Mile Diet, what foods are in season and what foods we would not be able to have, and the implications on the environment and local economy that purchasing foods that have been imported from faraway places has.
 - Hand out map and have students identify 100 mile radius around Mission.
 - Hand out question sheet activity to get kids critically thinking about what they could/would eat within 100 miles.
 - Assignment: Using the cookbooks in the classroom, create a menu for three days (three meals a day). ALL foods, spices, seasonings MUST come from within a 100 miles of Mission. Kids may use www.bcfarmfresh.com website as a reference.
 -

Resources: Maps for each table, question sheets for map activity, cookbooks, internet. The purpose of this activity is to expand students' minds on what products we can find within a 100 mile radius of where we live, they will have been introduced to the concept of "Food Miles" and the importance of buying and eating local.

Day 3: 100 Mile Food Diet cont'd

Beginning of class questions to review yesterday's class:

- 1) Could you participate in the 100 Mile Food Diet (no cheating!)
 - 2) What kinds of foods would you have easy access to? What would you have to do without?
- Hand in 100 Mile Food Menus

- Show the class the Food Network's "100 Mile Challenge", episode 1 + 2 (30 minutes each). Season 1 was filmed **IN MISSION** documenting actual Mission residents participating in the challenge.

Resources: Projector, computer, copy of Food Network's "100 Mile Challenge", Season 1. The purpose of today's lesson was for students to see that people in their own town have participated and enjoyed the 100 Mile Challenge.

Day 4: Genetically Modified Crops

- Begin the class with the 3 minute Youtube clip "7 Billion" produced by National Geographic about the projected rise of population and demand on resources.
- Discuss with the class the implications a rapidly growing population has on the demand for resources.
- Define for the students what Genetically Modified Crops are and a little bit about both sides of the argument → solution to world hunger vs. Frankenfood.
- Hand out "Can We Feed the World and Sustain the Planet?" article by J.A. Foley to each group of 3. This article discusses what needs to be done *now* so we can sustainably feed both ourselves and everyone else on the planet when the population rises 2-3 *billion* by 2050
 - Group member 1: Read the article aloud for the rest of the group
 - Group member 2: Jots main points down of article
 - Group member 3: Brainstorms possible questions to ask from the article
- Discuss as a class the students thoughts, opinions and questions pertaining to the article.
- Hand out and go over mini-essay they will be completing. Their mini-essay will either be arguing *for* the use of GMC's or not.

Resources: projector, computer, internet, YouTube "7 Billion" by National Geographic, copies of J.A. Foley article for each group (estimated 10 copies), mini-essay assignment rubric. Today's lesson focused on the ever-pressing crisis of feeding everyone on the planet and doing so sustainably. It will have forced students to critically think about possible disasters that await should no action be taken and hopefully had them reflecting on their own practices at home about how and what they eat, if they recycle/compost/grow their own food etc.

Day 5: GMC Mini-Essay Research Day

Have students meet in a pre-booked computer lab so they may have the full class to research their mini-essay. This is the one and only class they have to research.

Resources: computer lab. Today's lesson will have students exercising their research skills to collect facts that back up their argument and present them neatly and articulately in writing.

Day 6: GMC Mini-Essay Writing Day

Meet class again in the computer lab where they will have the full class to write out their mini-essay (2-3 pages double spaced) on GMC's. It will not be due for a few classes but due to the short length of the essay this will be their last day in the computer lab to work on the essay.

Resources: computer lab

Day 7: Chicken Farm Fieldtrip

Today we will be visiting the Kunze Family Chicken Farm (good family friends) in Mission, where students will be able to see how a chicken farm operates. The Kunze family were prominent dairy farmers for decades in Mission until they sold their dairy farm and got into the chicken farming business. Furthermore, the Kunzes grow and raise most of their own food in their greenhouse, garden and barn, which would be a valuable lesson on sustainable living.

Resources: school bus.

The field trip's purpose is for students to see firsthand all the work that goes into farming and see how a chicken farm is run, as well as how a family can produce enough food to feed themselves. It will also help in tomorrow's lesson on careers in agriculture.

Day 8: Careers in Agriculture

Beginning of class question on the board:

- 1) Brainstorm as many careers as you can that are associated with agriculture.
 - Discuss what kinds of careers students were able to brainstorm
 - Put up AITC's "Careers in Agriculture and Food" list. Each must pick an agri-related career that piques their interest to research.
 - Students must research *what* the career is, what it entails, how much education is needed, *where* someone can get the necessary education and the average salary of that particular career.
 - Share findings on careers with class and discuss the wide variety and range of careers that can all be a part of agriculture. Students will be amazed!

Resources: AITC's "Careers in Agriculture and Food" , wifi access for students' phones.

This lesson's aim is to break students away from the mindset that the only career in farming is being a farmer. It will introduce them to a wide range of successful and interesting careers in the field that they did not know existed.

Day 9: Spuds in Tubs

One simple question will be on the board when kids come into the classroom, the very same question as the first day of the unit: *Why is agriculture so important?*

- Discuss the Spuds in Tubs program and explain that we will be planting and harvesting our own potatoes!
- Split class into groups of 5 and provide them with their seeds, dirt and tubs
- Get dirty!

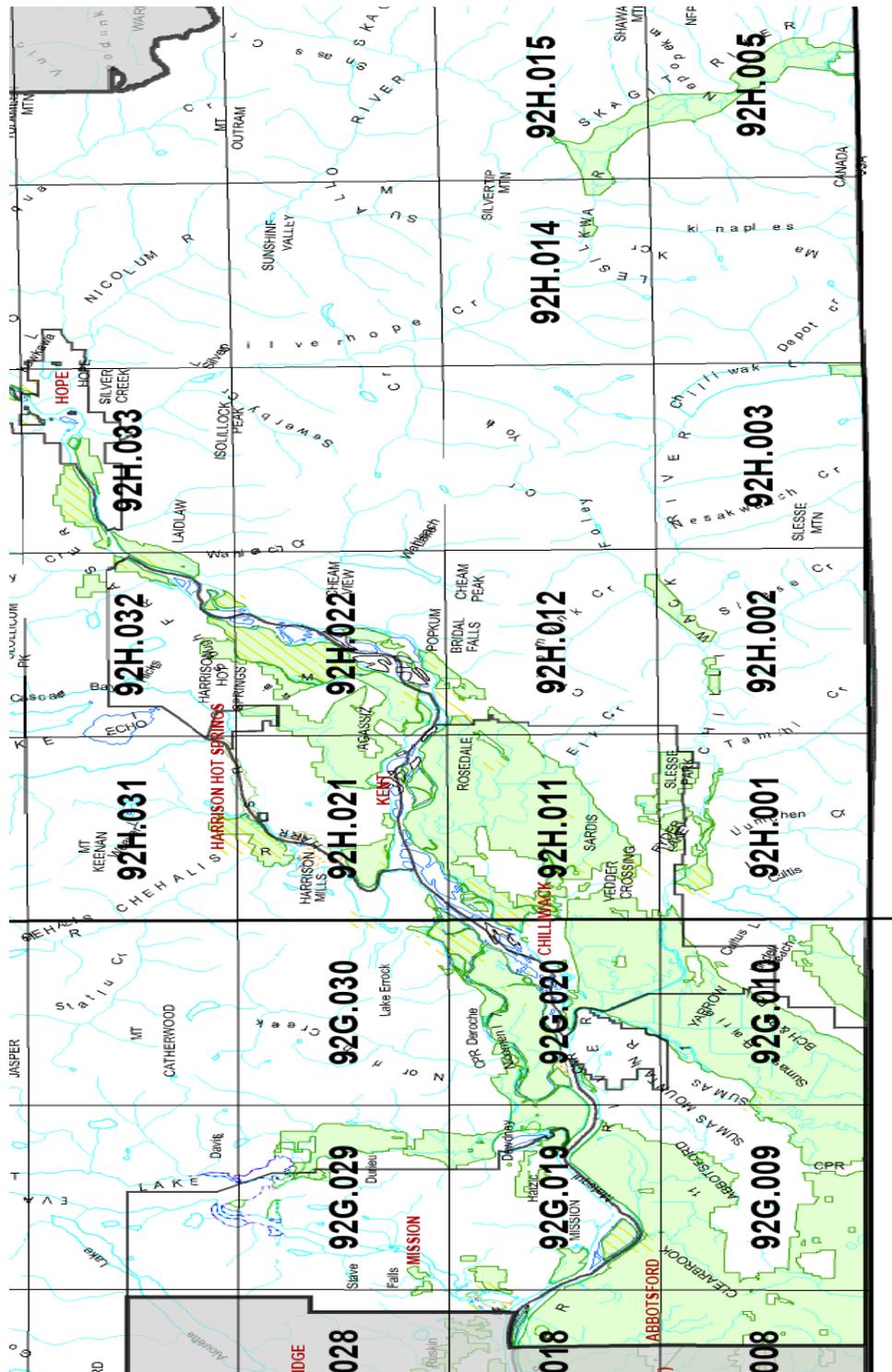
Resources: Tubs, soil, seed potatoes, potato plant food and teacher guide provided by BC Agriculture in the Classroom.

This would be the last class of the unit because it is fun and interactive. The students can take all they have learned this unit about eating locally, being sustainable and agriculture and put it to good use in planting (and later harvesting) potatoes!

Hand Outs and Resources:

Day 1:

Map of ALR in the Fraser Valley.



This map represents Agricultural Land Reserve lands within the Fraser Valley Regional District, designated by Resolution #695/2008 of the Agricultural Land Commission.

Map created February 2010

Map compiled by the Geographic Information Systems Department, Agricultural Land Commission.

Base Mapping Sources:
Mapping control: B.C. Government
Datum: NTS

The Agricultural Land Commission assumes no liability for the accuracy of the base mapping information.

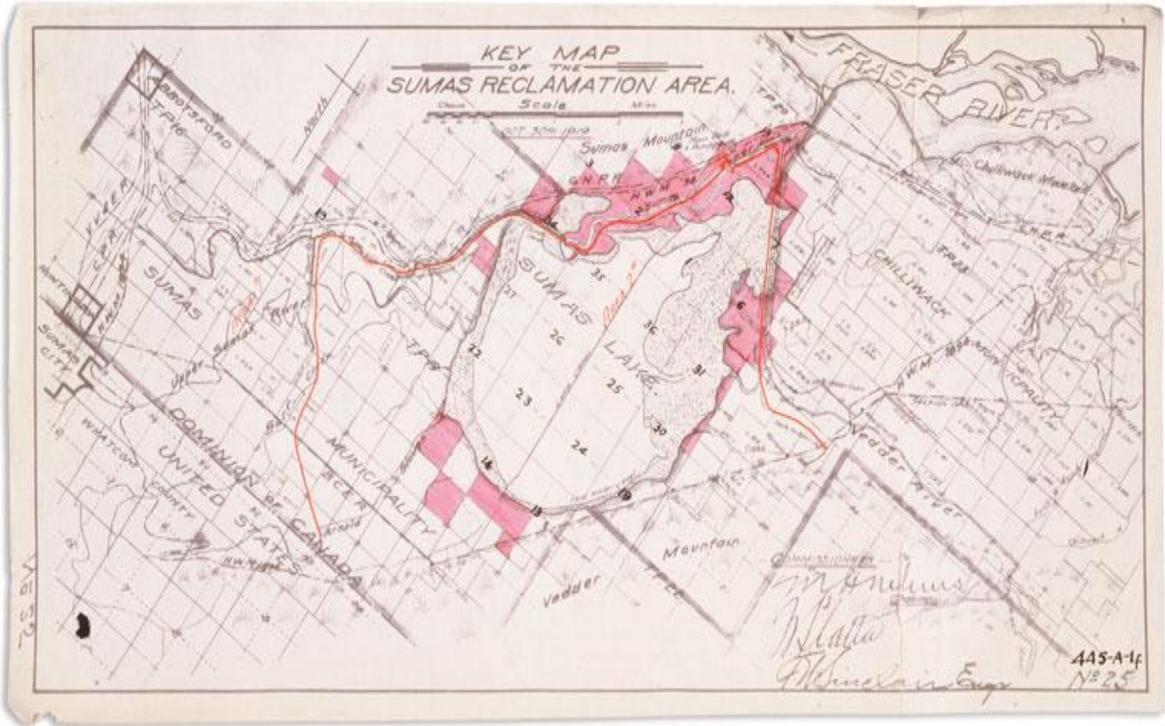
- Agricultural Land Reserve
- Regional District Boundaries
- Municipal Boundaries
- Indian Reserves



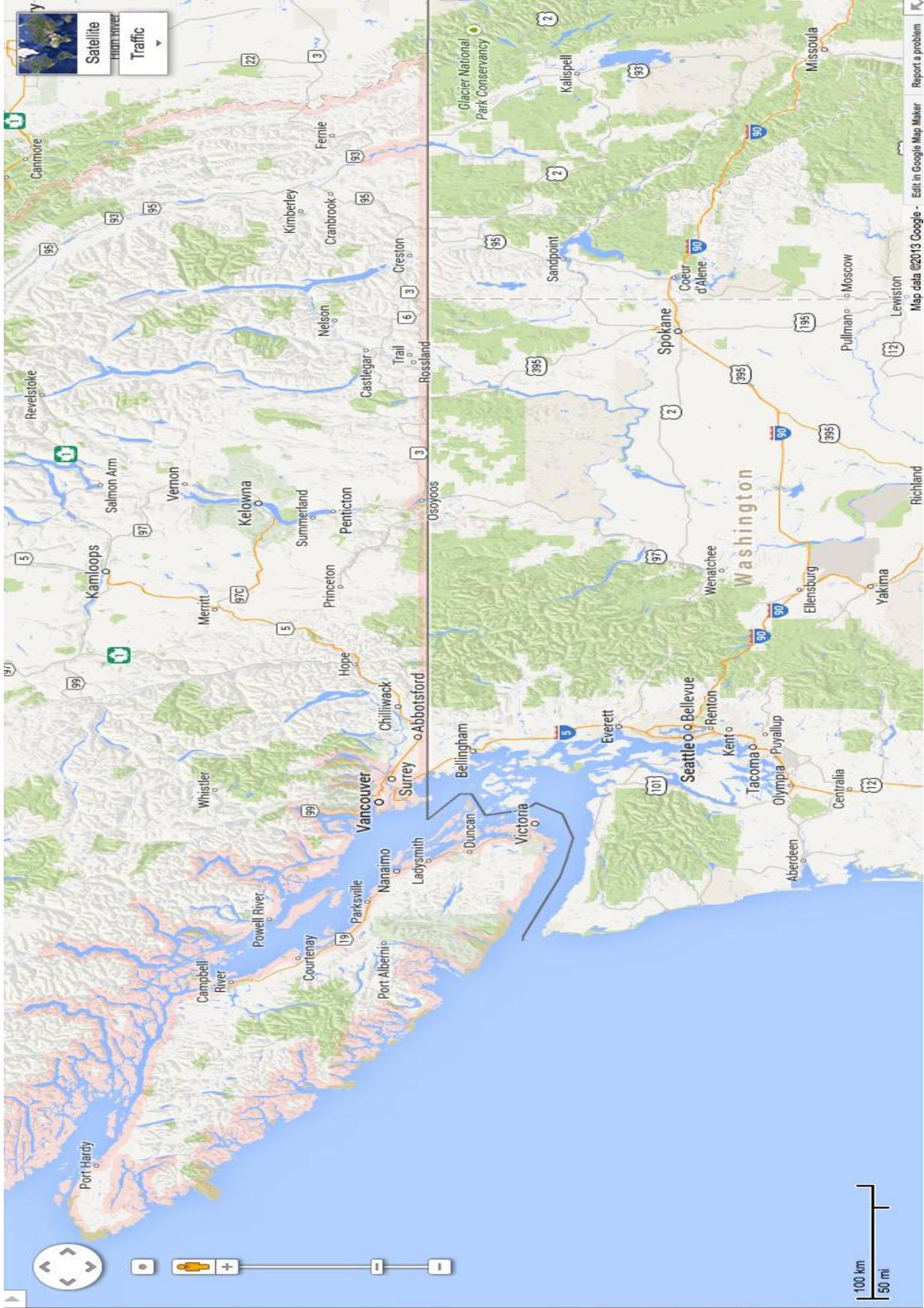
B.C. Albers Projection
NAD 83

Pictures for Sumas Lake to show class. Found on UFV's Agriculture webpage. Pictures from 1910.





Day 2 Handouts and Resources: Map of BC



Name:
Date:
Block:

Map Activity Worksheet

1. Using the map scale on the bottom left hand corner of your map, draw a 100 mile radius around Abbotsford.
2. What are some observations about what lies within the 100 mile range? Give three.
 - 1) _____
 - 2) _____
 - 3) _____
3. What kinds of foods do you think would be easily accessible within 100 miles?
4. What kinds of food would not be found?
5. What types of climates fall within the circle, think about *all* seasons. How would this affect what you could eat?
 - 1) _____

 - 2) _____

6. What foods/drinks would you have to give up if you could only eat what was found within 100 miles?
7. What are three advantages of eating things grown locally?

100 Mile Menu Assignment

Imagine you and your family have decided to participate in the 100 Mile Challenge. You must preplan your meals to ensure all ingredients can be found within the 100 mile limit. Create a menu for breakfast, lunch and dinner for three days. Be creative!

Evaluation:

Creative and colourful (min. 3 pictures)	/10
3 balanced meals a day	/15
All ingredients are found within 100 miles.....	/10

Total: 35 marks

Day 5 & 6:
Marking rubric for mini-essay

5	Powerful	Assigned when excellence has been demonstrated in the completion of mini-essay. Essay is detailed and informative and takes a clear position on the topic.
4	Powerful/Competent	Mini-essay is well done, covers most criteria but lacks some necessary detail. Minor mistakes are made in spelling/grammar.
3	Competent	Assignment is completed with errors, some missing information or incomplete criteria. Does not cover all 5 W's. Stance on position is unclear.
2	Partial	Mini-essay does not cover many criteria points including the 5 W's. Information is not detailed and shows a lack of research or understanding.
1	Not Evident	Effort to finish mini-essay has not been attempted and is largely incomplete.

Day 8: Careers in Agriculture

A Guide to BC's Agriculture Resources

Agriculture offers countless career opportunities. The agri-food industry encompasses production, processing and distribution systems; a whole network of industries that produce supplies for agricultural production, financial agencies, researchers, inspectors, regulators and advisors; and a whole range of marketers. Each of the commodity profiles in this handbook list a number of occupations under the heading, "Who's involved in producing it?". The following list is not comprehensive, but does give an indication of the great variety of jobs that are involved between the farmer's field or barn and the consumer.

Careers in Agriculture and Food

Agriculture offers countless career opportunities. The agri-food industry encompasses production, processing and distribution systems; a whole network of industries that produce supplies for agricultural production, financial agencies, researchers, inspectors, regulators and advisors; and a whole range of marketers. Each of the commodity profiles in this handbook list a number of occupations under the heading, "Who's involved in producing it?". The following list is not comprehensive, but does give an indication of the great variety of jobs that are involved between the farmer's field or barn and the consumer.

Suppliers

Agriculture pilot (aerial applicator)
Artificial inseminator
Bank manager
Boat builder
Building supplies sales representative
Carpenter (construction)
Custom applicator (fertilizer, pesticide)
Farm accountant
Farm equipment and supplies sales representative
Farm machinery mechanic
Farrier (horseshoer)
Feed laboratory technician
Feed miller
Feed transporter
Fertilizer/chemical sales representative
Fish net manufacturer
Heating and ventilation equipment sales representative
Hydroponics technician
Irrigator
Lab technician (seed tester)
Land appraiser/assessor

Loans officer/credit officer
Management consultant

Researchers, Advisors

Agricultural economist
Agricultural engineer
Agricultural land use planner
Agronomist/plant scientist
Anatomist
Animal health technologist
Animal scientist
Animal standards coordinator
Architect/draftsperson (building and landscape)
Bacteriologist
Biochemist
Biologist
Bio meteorologist
Botanist
Cell biologist
Chemist
Climatologist
Clinical or community dietician
Crop specialist
Dairy herd improvement consultant
District Agriculturist/horticulturist
Ecologist
Entomologist
Environmental biologist
Environmental lawyer
Environmental planning analyst
First nations resource expert
Food or flavour chemist
Food scientist
Geneticist
Habitat restoration expert
Health and wellness consultant
Horticulturalist

Human or animal nutritional scientist
Hydrologist
Interior designer
International agriculture officer
International trade manager
Landscape designer
Marine biologist
Medicinal plant specialist
Microbiologist
Parasitologist
Plant biotechnologist
Research and development brewmaster
Resource-based tourism manager
Resource economist
Rural sociologist
Soil scientist
Statistician
Surveyor
Teacher
Toxicologist
Veterinarian

Producers

Agribusiness manager
Athletic Turf specialist
Arborist (tree expert)
Aquaculture manager
Beekeeper (apiarist)
Breeder (hogs or horses)
Broiler producer
Christmas tree farm operator
Commercial fisher
Commercial forage producer
Cow-calf operator
Dairy farmer
Egg producer
Feedlot operator
Field worker
Fish farmer
Floriculturist
Forage seed producer
Fruit farmer
Game farmer
Ginseng grower
Grain and oilseed farmer
Greenhouse production officer
Horse trainer
Mushroom producer

Nursery operator
Nut producer
Orchardist
Pedigree seed grower
Picker (fruit, vegetable and flower)
Pork producer
Poultry producer
Rancher
Sheep and goat farmer
Shellfish operator
Sod farmer
Vegetable farmer
Vineyard manager
Viticulturalist

Inspectors, Regulatory Agents

Animal health inspector
Brand inspector
Dairy inspector
Environmental conservation officer
Fisheries licenser and inspector
Fruit and vegetable inspector
Grain inspector
Health inspector
Honey grader/inspector
Meat grader/inspector
Plant product inspector
Poultry inspector

Processors, Distributors

Accountant
Auctioneer
Baker
Brewer
Canning and freezing plant manager
Container manufacturer
Dock worker
Environmental planner
Fashion merchandizer
Feed laboratory technician
Fish processor
Flavour technician
Flour miller
Floral designer
Food product development manager
Food microbiologist
Grain elevator manager
Home economist

Landscape gardener
Livestock buyer (slaughterhouse)
Meat packing plant butcher and packager
Mechanic
Milk processing plant operator
Packinghouse employee
Quality assurance scientist
Seed cleaning technician
Seed packing plant operator
Sheep shearer
Ship crew member
Textile technician or designer
Trucker/transporter
Vintner

Marketing/Retail

Advertising sales agent
Auctioneer
Export manager
Farmers' market manager
Farm reporter (media)
Food critic
Food editor
Food stylist
Food marketing coordination
Food marketing manager
Graphic designer
Greenhouse operator
Hotel, restaurant and institution trade (chef)
Information officer
Instructor/teacher
Market researcher

Bibliography

- Agriculture in the Classroom. (2013). *Careers in Agriculture and Food*. Retrieved August 4, 2013, from <http://www.aitc.ca>
- BC Farm Fresh. (2013). *Farms and Products*. Retrieved July 30, 2013, from <http://www.bcfarmfresh.com>
- Foley, J.A. (2011). Can We Feed the World and Sustain the Planet. *Scientific American*, 305(5)pp.60-65
- Food Network Canada. (2009). Day 1: The Purge [Television series episode]. In C. Shumiatcher (Producer), *The 100 Mile Challenge*. Toronto Canada: Food Network Canada.
- Google Maps. (2013). Map of British Columbia. Retrieved August 4, 2013, from <https://maps.google.ca>
- Government of British Columbia: Provincial Agricultural Land Commission. (2013, July 31). *ALR Mapping-Fraser Valley Regional District*. Retrieved August 4, 2013 from http://www.alc.gov.bc.ca/mapping/RD/Fraser_Valley.htm
- National Geographic. (2010, December 27). *Population 7 Billion* [Video file]. Retrieved from <https://www.youtube.com/watch?v=sc4HxPxNrZ0&list=PL54B0EF156EEC2424>
- Sumas Lake [Image]. (1910). Retrieved August 4, 2013, from: <http://www.ufv.ca/agriculture/our-location--local-history/>
- Sumas Lake Reclamation Map [Image]. (1923). Retrieved August 4, 2013, from: <http://www.srrmcentre.com/StoneTwxelatse/14Semath.html>. Sto:lo Nation and Resource Management Centre.