



COLLEGE OF SOCIAL AND APPLIED HUMAN SCIENCES  
Department of Geography

# DEPARTMENT OF GEOGRAPHY

## Unit Plan: *#foodcrisis*

Developed by:



**the food institute**  
OF THE UNIVERSITY OF GUELPH



[www.feedingninebillion.com](http://www.feedingninebillion.com)

## Author Bio



Evan started thinking about agriculture and food systems while spending summers working on his grandfather's fruit farm in Niagara. There, he watched his stock-broker grandmother rake in an unconscionable amount of money on commissions from her clients' investments while the farmers around were letting their crops rot because the cost of harvesting was higher than the cost of importing from the Southern US and Mexico. He decided, however, it was easier to write and talk about farming than actually try to make a living on it so passed on inheriting the family farm, opting instead for grad school. He did degrees in forestry, anthropology and agriculture at the University of British Columbia and the University of Toronto. After graduating, he worked in a policy institute with the Hon. Dr. Lloyd Axworthy, and began his academic career in 2003 in the UK where he worked on farming and climate change at the University of Leeds. He is the author of over 70 scientific papers or book chapters on these topics, has written for the Guardian.com, CNN.com, ForeignAffairs.com, the Walrus and the Ottawa Citizen, and has two popular non-fiction books about food and food security including *Empires of Food: Feast, Famine and The Rise and Fall of Civilizations* that was short listed for the James Beard Food Literature Award in 2010. His web video series on "feeding nine billion" has been watched over 135,000 times and used in classrooms around the world. Currently, he is a professor of Geography in the Department of Geography at the University of Guelph, where he holds the Canada Research Chair in Global Food Security. He is also a Fellow of the Pierre Elliot Trudeau Foundation, a Fellow of the Royal Canadian Geography Society, and a member of the Royal Society of Canada's college of new scholars.



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Hello!

We hope this educational package will be useful to your planning and teaching.

Included in this package:

- #foodcrisis Graphic Novel
- Feeding9Billion DVD
- #foodcrisis Unit Plan
- SAMPLE 20 Day Plan
- SAMPLE Unit Test
- SAMPLE Food Security Report
- Assessment for Food Security Report

We look forward to hearing how you incorporated this package into your classroom. Please feel free to contact me if you have any questions or need support.

Sincerely,

Amanda

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**# foodcrisis: UNIT PLAN (5-6 Weeks)** - This unit plan is meant to take place at the beginning of the school year, running for 5-6 weeks, leading up to and ending on, World Food Day (October).

**Ontario Curriculum: Canadian and World Studies**

Course	Strand	Overall Expectations	Specific Expectations
A Geographic Analysis (Grades 12, University Preparation)	A. Geographic Inquiry and Skill Development	A1, A2	A1.1, A1.2, A1.4, A1.5, A1.6, A1.7, A2.2
	B. Spatial Organization: Relationships and Disparities	B1, B2	B1.1, B1.2, B1.3, B1.4, B2.3
	C. Sustainability and Stewardship	C1, C3	C1.1, C1.2, C1.4, C1.5, C3.1, C3.2, C3.3
	D. Interactions and Interdependence: Globalization	D1, D2	D1.1, D2.2, D2.3
	E. Social Change and Quality of Life	E2, E3	E2.2, E3.3, E3.4
World History since Fifteenth Century (Grade 12, University Preparation)	D. The World, 1789-1900	D1	D1.3
	E. The World Since 1900	E1, E2, E4	E1.3, E2.3, E2.4, E2.5, E4.2
Canadian and International Law (Grade 12, University Preparation)	B. Legal Foundations	B2	B2.4
Canadian and International Politics (Grade 12, University Preparation)	A. Political Inquiry and Skill Development	A1, A2	A1.6, A1.7, A2.3
	B. Political Foundations	B3	B3.1, B3.4
	C. Governments and Canadian and International Politics	C2	C2.2, C2.3
	D. Non-Governmental Action on Canadian and International Political Issues	D1, D2	D1.2, D2.1, D2.3
	E. Rights and Power in the International Community	E2	E2.1, E2.3

**Ontario Curriculum Document: Social Sciences and Humanities**

Course	Strand	Overall Expectations	Specific Expectations
Nutrition and Health	B. Nutrition and Health	B1	B1.4,
	D. Local and Global Issues	D1, D2, D3	D1.1, D1.2, D1.3, D1.4, D1.5, D2.1, D2.3, D2.4, D3.1, D3.2, D3.3,
	E. Food-Preparation Skills	E1, E2, E3	E1.2, E2.2, E2.3, E2.4, E3.1, E3.2, E3.3, E3.7, E3.8

Big Ideas	What teacher does:	What students are doing:
<b>Week 1:</b> Read Graphic Novel	<ul style="list-style-type: none"> <li>Minds On: Complete a KWL Chart with students on Global Food Security</li> <li>Watch Intro to Graphic Novel - <a href="https://feedingninebillion.com/video/foodcrisis-graphic-novel-about-food-security-really-over-top-theatrical-trailer">https://feedingninebillion.com/video/foodcrisis-graphic-novel-about-food-security-really-over-top-theatrical-trailer</a></li> <li>Assign graphic novel to be read by end of week</li> </ul>	<ul style="list-style-type: none"> <li>Students will complete KWL chart with Teacher indicating 'What I Know', 'What I Want to Learn' and 'What I Learned'</li> <li>Students will watch Intro and read Graphic Novel</li> </ul>
<b>Week 2:</b> Improve Food Distribution	<ul style="list-style-type: none"> <li>In Class review United Nations' data on food production and diet requirements. <ul style="list-style-type: none"> <li>-Approximately 805 million people are hungry while over 1.4 billion people are overweight or obese. (Gaia Atlas)</li> </ul> </li> <li>Review Small Scale producers: <ul style="list-style-type: none"> <li><a href="https://feedingninebillion.com/sites/feedingninebillion.com/files/publications/Understanding%20Small%20Scale%20Farming%20in%20the%20Developing%20World%20Poster.pdf">https://feedingninebillion.com/sites/feedingninebillion.com/files/publications/Understanding%20Small%20Scale%20Farming%20in%20the%20Developing%20World%20Poster.pdf</a></li> <li>-helping small scale farmers to establish skills and infrastructure to market and sell farm products</li> </ul> </li> <li>Review discussion on strategic grain reserves: <ul style="list-style-type: none"> <li><a href="http://www.fao.org/docrep/w4979e/w4979e00.HTM">http://www.fao.org/docrep/w4979e/w4979e00.HTM</a></li> <li>-source of emergency food, World Food Program</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Students will use information from classroom links and graphic novel to independently complete a graphic organizer on strategies to improve Food Distribution</li> <li>As a class, review the graphic organizers to create a larger graphic organizer representing strategies – (print poster size and laminate)</li> </ul>
<b>Week 3:</b> Sustainably Increase Production	<ul style="list-style-type: none"> <li>Minds On: Precision Farming video - <a href="https://www.youtube.com/watch?v=tEj__Vo1WxQ">https://www.youtube.com/watch?v=tEj__Vo1WxQ</a></li> <li>Review 'Putting Process into Practice' document: <a href="http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5134.pdf">http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5134.pdf</a> <ul style="list-style-type: none"> <li>-Phase I: Social Mobilization (community organization and support)</li> <li>-Phase II: Community-level action planning (feedback, prioritize, analyze, identify, agree)</li> <li>-Phase III: Implementation and farmer experimentation (learning through experimentation with new ideas)</li> <li>-Phase IV: Monitoring and evaluation (mid-season evaluation of experiments/new techniques, process review, self-evaluation/ planning)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Students will watch Precision Farming Intro</li> <li>Students will read 'Precision Farming' document: <ul style="list-style-type: none"> <li><a href="http://earthobservatory.nasa.gov/Features/PrecisionFarming/">http://earthobservatory.nasa.gov/Features/PrecisionFarming/</a></li> <li>and explain precision farming and describing the benefits of precision farming on agriculture.</li> </ul> </li> <li>Students will create a chart indicating what the four phases of the process are with a description and key features of each phase</li> </ul>
<b>Week 4:</b> Support Local Food	<ul style="list-style-type: none"> <li>Minds On: Watch 'Local Food Systems' - <a href="https://feedingninebillion.com/video/local-food">https://feedingninebillion.com/video/local-food</a></li> <li>Discuss the benefits of supporting local food (empowers farmers, links producers and consumers, and provides a line of defense between consumers and international commodity markets).</li> <li>Watch 'Farm Start' by Sustain Ontario - <a href="http://www.farmstart.ca/about-us/farmstart-videos/">http://www.farmstart.ca/about-us/farmstart-videos/</a></li> </ul>	<ul style="list-style-type: none"> <li>Students will use information from videos and <a href="http://www.farmstart.ca">www.farmstart.ca</a> to help them create a marketing campaign</li> </ul>

		(poster/commercial) that aims at making farming and food production a viable and exciting career for young people
<b>Week 5:</b> Protect Environment Through Policy Regulation	<ul style="list-style-type: none"> <li>Review World Bank 'Food Security' online resource - <a href="http://www.worldbank.org/en/topic/foodsecurity">http://www.worldbank.org/en/topic/foodsecurity</a> -world needs to produce at least 50% more food to feed 9 billion people by 2050 -climate change could cut crop yields by more than 25% -need to change how we grow food, manage capital -develop policies that reward food production and penalize energy intensive and polluting production systems (p107)</li> <li>Agricultural Water Productivity - <a href="http://www.worldbank.org/en/events/2014/11/24/international-workshop-going-beyond-agricultural-water-productivity">http://www.worldbank.org/en/events/2014/11/24/international-workshop-going-beyond-agricultural-water-productivity</a></li> <li>Minds On: Video 'What Policies Can Make Our Food System More Sustainable' - <a href="https://feedingninebillion.com/video/what-polices-can-make-our-food-system-more-sustainable">https://feedingninebillion.com/video/what-polices-can-make-our-food-system-more-sustainable</a></li> </ul>	<ul style="list-style-type: none"> <li>Using the online resources and graphic novel, students will choose one policy to write a short essay. The policy chosen must address one of the following issues: -Food producers -Land and water quality -Biodiversity -Food price -Carbon emissions</li> </ul>
<b>Week 6:</b> Engage the Public	<ul style="list-style-type: none"> <li>Field Trip to Local Farmers Market; before trip discuss benefits of shopping locally and eating in season</li> <li>Engage the public/school community for World Food Day</li> <li>Follow-up after World Food Day: Feedback from event, What was successful, What could have been improved</li> <li>Complete KWL Chart – 'What I Learned' section to synthesize learning</li> </ul>	<ul style="list-style-type: none"> <li>Students will plan, organize and cook for their school using sustainable diets/local food</li> <li>Student representatives will be selected for information booth/walk around reps</li> <li>Information booth with student reps: students will display marketing posters/advertisements that were created in Week 4, as well as, Classroom Graphic Organizer from Week 2</li> <li>Students will engage community groups to get involved in issue/event</li> </ul>

# KWL Chart

What I Know	What I Want to Know	What I Learned

**SAMPLE 20 DAY PLAN:**

**Sustainability and Stewardship**

<b>Day 1:</b>	<ul style="list-style-type: none"> <li>• Hunger intro talk</li> <li>• PPT icebreaker images from Hungry for Change DVD</li> <li>• #foodcrisis trailer</li> <li>• Reading time for Graphic Novel #foodcrisis</li> </ul>
<b>Day 2: A 1.2</b>	<ul style="list-style-type: none"> <li>• Calorie count</li> <li>• Geography of Hunger – Atlas of Planet Management</li> <li>• Hunger map</li> </ul>
<b>Day 3: C 1.2</b>	<ul style="list-style-type: none"> <li>• Food security ppt. note</li> <li>• Food security game</li> </ul>
<b>Day 4: C 1.1</b>	<ul style="list-style-type: none"> <li>• Brainstorm ideas for World Food Day</li> <li>• Feeding 9billion video</li> <li>• Reading time for Graphic Novel <i>#food crisis</i></li> </ul>
<b>Day 5: B 1.3, E 2.2</b>	<ul style="list-style-type: none"> <li>• Global food price crisis</li> <li>• 'If my family could not afford food I would...'</li> <li>• PPT note</li> <li>• Video: CBC news in review 2008</li> <li>• Present food security essay</li> </ul>
<b>Day 6: E3.3</b>	<ul style="list-style-type: none"> <li>• Pick project topics</li> <li>• Cash cropping game</li> <li>• Cash cropping worksheet</li> </ul>
<b>Day 7: A1.1, A1.4, A1.5</b>	<ul style="list-style-type: none"> <li>• Book club chat</li> <li>• Project research period</li> </ul>
<b>Day 8: E3.3</b>	<ul style="list-style-type: none"> <li>• A World in Jeopardy flipchart</li> <li>• Work on posters for World Food Day</li> </ul>
<b>Day 9: C1.1</b>	<ul style="list-style-type: none"> <li>• <i>Just Eat It</i> – a food waste documentary (73 minutes)</li> </ul>
<b>Day 10: B1.1, B2.3</b>	<ul style="list-style-type: none"> <li>• Spearman's Rank Correlation (GDP/Calories consumed/% of workers in agriculture)</li> </ul>
<b>Day 11: C1.1</b>	<ul style="list-style-type: none"> <li>• Feeding 9 billion – local food</li> <li>• 2 local food videos – Hellman's, Michael Pollan</li> <li>• Textbook Questions</li> </ul>
<b>Day 12:</b>	<ul style="list-style-type: none"> <li>• Take up textbook questions</li> <li>• Review APA style</li> <li>• Project work period</li> </ul>
<b>Day 13: C1.2</b>	<ul style="list-style-type: none"> <li>• Feeding 9 billion – what policies can make our food systems more sustainable?</li> <li>• Chrome Books – World Bank food security – browse and share 1 interesting thing.</li> <li>• Make announcements for World Food Day</li> </ul>
<b>Day 14: B1.4, B1.1</b>	<ul style="list-style-type: none"> <li>• Name that vegetable with clickers</li> <li>• Zero Hunger website</li> <li>• Article on small scale farming in sub-Saharan Africa</li> </ul>



<b>Day 15:</b>	<ul style="list-style-type: none"> <li>• Take up article</li> <li>• Feeding 9 billion – small scale farmers</li> <li>• Green Revolution – GAIA atlas and article</li> </ul>
<b>Day 16: C1.2</b>	<ul style="list-style-type: none"> <li>• Guest speaker Dr. Evan Fraser on food systems of 2041</li> </ul>
<b>Day 17: D1.1, D2.2</b>	<ul style="list-style-type: none"> <li>• Video: The Future of Food</li> </ul>
<b>Day 18: C3.2</b>	<ul style="list-style-type: none"> <li>• Finish video</li> <li>• GM foods article</li> <li>• Feeding 9 billion – the role of biotechnology</li> </ul>
<b>Day 19: B1.2</b>	<ul style="list-style-type: none"> <li>• Caring for the commons</li> <li>• Fishing activity</li> <li>• Tragedy of the commons PPT</li> <li>• Ted Talk: How I Fell in Love With a Fish</li> </ul>
<b>Day 20: C3.1, C3.2</b>	<ul style="list-style-type: none"> <li>• Tragedy of the commons grazing activity</li> <li>• Unit wrap up and review</li> </ul>
<b>WORLD FOOD DAY PREPARATIONS C1.1</b>	

**SAMPLE:**  
**A Geography of Hunger Unit Test - CGW4U**

Name: \_\_\_\_\_

**Part A** (20 marks) Answer the following question on the answer sheet provided:

1. The average calorific intake for well-being is (in calories per person per day) a) 1 500 b) 2 200 c) 2 350 d) 2 600
2. The average calorific intake below which **malnutrition** can be expected is (in calories per person per day).  
a) 1 500 b) 2 200 c) 2 400 d) 2 600
3. Which of the following nations does not average 100% of the calories required for its population?  
a) Mexico b) New Zealand c) Congo (DRC) d) Indonesia
4. In which region of the world is malnutrition at its **highest**  
a) Latin America b) Sub-Saharan Africa c) The Middle East d) Asia
5. Which of the following regions are **net importers** of cash crops  
a) Asia b) North America c) Europe d) Latin America
6. Crop yields of the Green Revolution have leveled off due to  
a) decrease in fertilizers b) increases in pest management techniques  
c) high demand on the soil d) longer crop cycles
7. Which of the following best describes the Green Revolution?  
a) Genetically modified high yield seeds  
b) An organic approach to feeding the world  
c) High yield fast growing varieties of wheat and rice  
d) All of the above
8. Which of the following statements is considered **true**?  
a) People are hungry because the world does not produce enough food  
b) Distribution of food is a primary contribution towards rising world hunger  
c) To solve the problem of hunger we must increase our foreign aid  
d) Developing countries should increase their exports of cash crops to improve their food situation
9. What has been the impact of the food price crisis on Canadian wheat farmers?  
a) they are switching to growing rice  
b) they are profiting from higher prices  
c) they are seeking more government subsidies  
d) they are losing their farms and moving to the city
10. Which of the following is **not** a contributing factor to food security?  
a) Food is safe and healthy  
b) Food is culturally acceptable  
c) Food is exotic, coming from far away parts of the world  
d) Food is produced in an environmentally sustainable manner

11. What percentage of US com production goes to creating biofuels  
a) 20 %      b) 30 %      c) 45 %      d) 70 %
12. Women in the third world produce half of this for the world?  
a) water      b) cattle      c) food      d) artisan products
13. What product is part of the **essential** cash crops  
a) legumes      b) coffee      c) cotton      d) tobacco
14. What product is part of the **less essential** or luxury cash crops  
a) com      b) coffee      c) cereals      d) grains
15. The WTO supports legislation to allow patenting and ownership of these:  
a) animals      b) plant varieties      c) energy sources      d) companies
16. Doing this for the first 4 -6 months after birth could save an estimated 1 million lives every year.  
a) following a vegetarian diet      b) exclusive breastfeeding  
c) exercising daily      d) eating organic food only
17. How many days worth of grain are needed for food security? a) 70      b) 50      c) 65      d) 80
18. Which of the following crops is most vulnerable to price fluctuations on the world market?  
a) wheat      b) rice      c) com      d) coffee
19. Which statistics illustrate an example of a **strong, positive** correlation?  
a) GDP vs % of agricultural workers      b) GDP vs caloric intake  
c) % agricultural workers vs caloric intake      d) all of the above
20. Which of the following regions has the greatest number of workers employed in agriculture?  
a) Africa      b) North America      c) Western Europe      d) Australia

**Part B: 5 Paragraph Essay (20 marks)**

According to Dr. Evan Fraser, what 3 trends can we expect for the future of food?

We owe it to the world's food supply to continue to grow GM foods. Agree or disagree.

What caused food prices to rise during the food price crises of the 21st century?

What needs to happen in order to prevent a food crisis such as the one described in #foodcrisis?

Problems and solutions for small scale farming in sub Saharan Africa

What are the commons? What is the tragedy of the commons? How can we manage a resource that everybody uses but nobody owns?

## SAMPLE:

CGW4U

## FOOD SECURITY REPORT

More than a billion people in our world today go to bed hungry every night. With a growing population and uncertainties regarding climate change and unsustainable growth, our world is headed towards a potential crisis in food security. "The challenge is to provide the world's growing population with a sustainable, secure supply of safe, nutritious, and affordable high-quality food using less land, with lower inputs, and in the context of global climate change, other environmental changes and declining resources." (www.foodsecurity.ac.uk/issue).

You have been hired by the United Nations Food and Agricultural Organization to produce a report describing the current situation facing agriculture in your selected country. In your report you will describe challenges to food security and propose solutions to meet these challenges.

Points to be covered in your report:

- Overview of environmental factors affecting farming in your country (land, climate, soil)
- Describe farming methods used and their successes and challenges
- Explain how environmental or political changes over the past 20 years have affected the food security of your country
- How might population growth and urbanization affect food security in the future?
- What is currently being done to improve food supply?
- Suggest innovative alternatives to the current food system that will help your country move towards sustainable growth.

You must also refer to the graphic novel #foodcrisis. Select one of the background essays at the back of the book which discusses issues or solutions which are applicable to your assigned country. Refer to the selected essay by number and title and use proper APA citations with this source and with every source throughout your report.

Format:

- Use APA format (an abstract is not necessary) and formal writing. This is an essay but you may use subheadings.
- Length: approx. 1000 words
- Visuals (maps, graphs, diagrams, photos) should be integrated into the report, not simply attached at the back as an appendix
- Use proper in-text citations whenever you use the ideas of others and be sure to cite direct quotations properly.
- Include APA style references page
- Write in the 3<sup>rd</sup> person in an objective, non-biased manner

My selected country: \_\_\_\_\_

Due date: \_\_\_\_\_

## CGW4U Marking Criteria for Food Security Report

Name: \_\_\_\_\_

Topic: \_\_\_\_\_

<b>TOTAL</b>	<b>/10%</b>
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<p><b>Content:</b></p> <ul style="list-style-type: none"> <li>● Convincing, pertinent, imaginative, specific, perceptive, accurate</li> <li>● Clear statement of ideas supported by appropriate examples, arguments and analysis</li> </ul>	<p><i>Comments:</i></p> <p style="text-align: right;">/20</p>
<p><b>Perspectives:</b></p> <ul style="list-style-type: none"> <li>● Clear, consistent, appropriate in tone, emphasis &amp; approach</li> <li>● In third person</li> <li>● Unbiased</li> </ul>	<p style="text-align: right;">/2.5</p>
<p><b>Organization:</b></p> <ul style="list-style-type: none"> <li>● Intro: statement of intent is clear. Thesis</li> <li>● Body: logical progression through sub-topics, including recommendations; building to an effective conclusion</li> <li>● Conclusion: a clear summary with recommendations</li> <li>● Essay is of correct length approx. 1000 words</li> </ul>	<p style="text-align: right;">/7.5</p>
<p><b><u>Geographical Skills:</u></b></p> <ul style="list-style-type: none"> <li>● Appropriate use of maps</li> <li>● Appropriate use of graphs, tables and illustrations</li> <li>● Proper conventions used in the creation of visuals (source, title, key, N sign and scale)</li> <li>● All referred to in report</li> </ul>	<p style="text-align: right;">/5</p>
<p><b>Sources:</b></p> <ul style="list-style-type: none"> <li>● Appropriate breadth and level of sources, current, relevant</li> <li>● Proper conventions used for sourcing information &amp; figures, both internally and in summary. IN TEXT CITATIONS</li> </ul>	<p style="text-align: right;">/5</p>
<p><b>Literacy and Proper Format:</b></p> <ul style="list-style-type: none"> <li>● Proper paragraphing</li> <li>● Skillful sentence structure</li> <li>● Correct punctuation, spelling, grammar, mature vocabulary</li> <li>● Proper APA format</li> <li>● Title page, subtitles</li> </ul>	<p style="text-align: right;">/5</p>