

FEEDING 9 BILLION

75 MINUTES
+ TAKE HOME
ASSIGNMENT
BBB4M, CPC30, CGW4U

A high school lesson plan provided by the University of Guelph

This activity will introduce players to basic concepts pertaining to food security, population growth, and climate change in a fun and engaging way. This card game was developed by the Arrell Food Institute at the University of Guelph. Feeding 9 Billion is a food security initiative which provides insight, outreach and education around issues of food, agriculture and hunger globally.

Curriculum Alignments and Expectations

- Demonstrate an understanding of how international business and economic activities increase the interdependence of nations
- Demonstrate an understanding of the factors that influence a country's ability to participate in international business
- Assess the ways in which political, economic, and geographic factors influence international business methods and operations
- Explain the impact that geography and political and economic systems have on international business and the importance of some current local, national, and/or global issues
- Analyse challenges relating to food security, and assess ways of responding to these challenges

Learning Objectives

- Develop an understanding of how food availability is affected by food prices, climate change and the size of a country's population
- Learn how international trade is an asset to high-income and low-income countries
- Introduce students to topics of industrialization and growth, and how technology such as agro ecology can benefit developing nations

- Understand the fragility and complexity of the agri-food industry, and the importance of labour and infrastructure

Assessment Strategies and Success Criteria

- Summary and debrief
- Discussion and debrief
- Reflection paper/journal

Cross Curricular Links

- Nutrition and Health – Local and Global Issues
- Economics – Analysing Current Economic Issues, Global Interdependence and Inequalities
- Politics in Action – Issues of Political Importance
- Canadian and International Politics – Global Community and Non-governmental Action on Canadian and International Political Issues
- Career Studies – Exploring and Preparing for the World of Work

Materials

- Feeding 9 Billion card game
- Scoresheets (provided by the Arrell Food Institute, link found in the resources)
- Chart paper
- Writing utensils



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TEACHER NOTES

1. Introduce the topic of “Feeding 9 Billion” and its pertinence to current day agri-food production and international trade. By 2050, it is estimated that there will be 9 billion people living on Earth. For this reason, it is important that everyone have a comprehensive understanding of food security, population growth and climate change. This will allow for creative solutions to be developed to feed the growing world population.

2. Activity 1: Feeding 9 Billion Card Game

This game is best played in groups of 4-5 people, therefore divide your students accordingly. Each group will require their own deck of cards which will include Resources, Assets, Events and Rounds cards. The objective of the game is that each round, players should produce enough food to feed their country.

Resource cards – simulate a country’s ability to produce food by making decisions on how to deploy labour, build facilities or harvest crops

Asset cards – represent things like technology, farming methods, and policies that you can invest in or adopt to increase productivity; players earn the biggest benefit by combining assets of the same type/colour

Event cards – illustrate big global problems such as climate change, trade wars or high energy prices, and occur in Rounds 2, 3, and 4

Round cards – display the amount of food each player must produce to feed their population; the amount increases every round due to population growth

3. Have the students follow the game instructions provided in the deck. It would be beneficial to have a “Teacher’s Pack” so that you may follow along and provide clarification/answer any questions that come up as the students play. Each student begins with a fictional \$2.00 and the Round 1 card shows how much food needs to be collected.

4. In Round 1, there are no events and no assets available for purchase. This simulates a developing nation, where there are little resources and the main form of agriculture is subsistence farming. This means farmers produce just enough food to feed themselves and nothing more, as there is little incentive to do so.

At the end of each round, students must tally on their score sheets how much food their country produced by calculating the amount of food they collected on their playing cards. Students with enough food survive the round and move onto the next activity and let their ideas come to life!

5. The concept of international trade is introduced at the end of the first round. Any students that do not survive can work with other group members to enter into an international trade agreement. Through trade and international cooperation, the group may choose to work together to save the student. Even if the student does



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not get enough food to continue, they may continue playing into the next rounds.

As per the instructions, there are ways for the students to make or lose money, for example, the student with the most farms earns an extra \$1 and the student with the least luxury good loses \$1. Students may use the incentive of money when trading. For example, perhaps the student that didn't survive had the most farms. They can trade their now \$3.00 with another student in exchange for food so that they may survive.

Some group members may produce more food than they need. If the student chooses, they can save the group member that didn't produce enough with "international food aid", meaning there is no money exchanged and the "nation" with more resources donates food to the nation with less

6. After the trading has taken place, Asset cards are introduced. Five asset cards are displayed in front of the students by a dealer. The student with the most money at the end of Round 1 has the first opportunity to purchase an asset. The order of opportunity goes from richest to poorest student, representing how rich, developed nations often have the most opportunity for advancement and development.

Some assets can be purchased with food, money or a combination of both.

Assets have different levels of effectiveness, for example, the Corporate Asset of large-scale greenhouse production (a blue asset card) has no effect until two Corporate Asset cards have been purchased. This represents

the need for a developed infrastructure, as some developments need to be used together to be beneficial.

7. The game can be tailored to reflect the lesson you are wishing to teach. The different methods of playing simulate different stages of development and how it occurs. The following are examples of potential game variants, and more can be found in the Feeding 9 Billion instruction guide.

Food Storage – you can instruct the students that food surpluses cannot be carried over into the next round, only money. This reflects a lack of storage accessibility for food products in developing nations, and the need for international trade to make a profit on exports. At any point during the game you can announce that food can now be carried over between rounds, demonstrating the development of smaller nations storage abilities.

Sudden Events – events cards can be played at the beginning of the round which would allow students to adjust their food production accordingly. Or event cards can be played at the end of the round, and students are unable to prepare for the implications of the event. For example, a drought card which is revealed at the end of the round demonstrates how volatile the agricultural production system is, as farmers can work all year to produce a crop and lose it all at once with a devastating change in weather



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9. Have the students play all four rounds of the game (or as many as they can get through in the class time). At the end of each round, explain why the Rounds, Events and Assets cards are significant to understanding real issues in agri-food production, international trade, and the development of nations, similar to how it has been explained in this lesson plan.

10. Activity 2: Gallery Walk

Required Materials: Chart paper and writing utensils

Upon completion of the game, have students travel to chart papers displayed in different areas of the rooms. Have the students answer the following questions on the chart paper and rotate to each station

- *What did you find most challenging when it came to feeding your country?*
- *Do you think the asset cards helped or hindered food production in your country?*
- *What was one thing your group learned about food production?*
- *Do you think you understand why the issue of Feeding 9 Billion is important? Explain.*

11. Activity 3: Reflection

As a take home assignment, have students reflect on what they learned while playing the card game. Have them brainstorm some unique solutions to the issue of feeding the growing world population, focusing on agricultural production and international trade.

Additional Resources

- [Arrell Food Institute](#) at the University of Guelph
- [Feeding 9 Billion](#)

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