TITLE:
Linking Social Studies History and Geography with Mathematics

DIVISION:
Junior

STRAND:
People and Environments: Canada's Interactions with the Global Community

GRADE 6: COFFEE TIME

These activities link People and Environments: Canada's Interactions with the Global Community with data management expectations in math.

BIG IDEA

A detailed comparison of coffee consumption in Canada and the environmental impact coffee production has on coffee producing nations will illustrate the cause and effect relationship between material desire and environmental consequences.

Guiding Question(s)

How is Canada's economy related to the global economy? Why is it important for Canada to be involved with countries around the world?

Framing Question(s)

- By interpreting graphs for Canadian coffee consumption and reviewing data collected from coffee producing nations, what correlations can be determined between Canada's consumption of coffee and the impact coffee production has on the people and environment of the producer countries?
- What can and should be done to reduce the environmental impact of coffee production in producer nations?

Learning Goals

- investigate a global issue of political, social, economic, and / or environmental importance and explain the global impact
- use the factors that led to a development event, or issue to create a response to a global issues of political, social, economic, and / or environmental importance
- use an understanding of a global issue to recognize consequences and determine possible solutions

CONCEPTS OF DISCIPLINARY THINKING

Cause and Consequence:

This concept requires students to determine the factors that affect or lead to something (e.g., an event, situation, action, interaction) as well as its impact or effects. Students study the causes and consequences of various types of events, situations, and interactions in both the natural environment and human society.

Social Studies Inquiry Process (Revised [2013] SSHG Curriculum page 23)

Inquiry Process:

Students will collect coffee consumption and environmental impact data through various links and websites provided in the resources section. They will then compare and contrast the graphs they review and the trends they discover. They will use the information they graph to help guide them in the development of an action plan they would promote to reduce the environmental impact of coffee production in coffee producing nations.

The Social Studies Inquiry Process Model can be viewed on page 23 of the 2013 Social Studies Curriculum that can be viewed through the link below.

http://www.edu.gov.on.ca/eng/curriculum/elementary/sshg18curr2013.pdf

The Spatial Skills: Using Maps, Globes, and Graphs (Ontario Curriculum pages 24-25)

Spatial Skill:

Students will analyze graphs and tables of data to determine trends and develop an action plan to address the issue at hand.

PRIMARY ACTIVITY

Students will review graphs and data on coffee consumption in Canada and the environmental impact coffee production has on producer nations. Students will determine trends in the data and use the data and other inquires to determine the cause and effect relationships that exist between coffee consumption and environmental degradation in producer nations. The students will use their new knowledge of these relationships to develop an action plan that they would implement to reduce the environmental impact of coffee production.

The students will complete the following in this activity:

www.oessta-teachers.com

- Review the graphed data from Stats Link Canada related to coffee and tea consumption as well as Canadian imports of fair trade coffee to provide the students the opportunity to interpret the graphs, determine trends and make inferences as to future actions Canadians could take in relation to the purchase of fair trade coffee
- Examine the data presented in figures 5 and 6 from the Canadian Coffee Industry to determine current trends in Canada coffee consumption

http://www.agr.gc.ca/eng/industry-markets-and-trade/statistics-and-market-information/by-product-sector/processed-food-and-beverages/the-canadian-coffee-industry/?id=1172237152079

- Read pages 19-22 of the International Coffee Council March 2014 *Report on Global Coffee Consumption* that reviews the environmental impact of coffee production in producer nations.

http://www.ico.org/news/icc-111-5-r1e-world-coffee-outlook.pdf

- Provide opportunity to examine the data related to the environmental impact of coffee production in producer nations from the websites outlined below and draw conclusions about the trends they see in the data and the causes of these trends

Natural Resources Defense Council – Impact of Coffee Production
http://www.nrdc.org/health/farming/ccc/chap4.asp

International Coffee Council: Global Review 2014
http://www.ico.org/news/icc-111-5-r1e-world-coffee-outlook.pdf

Deforestation Rates in Brazil
http://newswatch.nationalgeographic.com/2009/11/13/amazon_deforestation_slows/

Deforestation in Non–Brazilian Amazon Countries:
http://www.desdemonadespair.net/2013/08/graph-of-day-deforestation-in-non.html

http://news.mongabay.com/2013/0626-amazon-deforestation.html

- Create an action plan to reduce the environmental impact of coffee production in coffee producing nations that they could theoretically present to the United Nations
- Include a summary of the data from the charts, tables and graphs that were examined, a review of the trends and conclusions from the data, and the action plan for the reduction of the environmental impact of coffee production in producer nations
- Submit electronically or by hand and present orally to the class

DIFFERENTIATION SUGGESTIONS

Word prediction software could be provided to those students who need support with their writing when they answer the main questions of the activity. Students who have difficulty writing out their ideas could use word prediction software to type out their work or they could use an iPad application like Dragon Dictation, Dictamus, or the camera to record their oral explanations of their thinking. This activity could also be conducted with older "grade level buddies" similar to reading buddies. The older students could help keep the younger students on task and monitor them as they move from one room to the other.

Edugains outlines many effective ways to differentiate lessons, links to these resources are provided below.

http://www.edugains.ca/newsite/index.html

Edugains – Differentiated Instruction - DI educators package – DI scrapbook:
http://www.edugains.ca/newsite/di2/edupackages/2010educatorspackage.html

TECHNOLOGY INTEGRATION OPPORTUNITIES

Students will also be using the Internet to collect the required information to from the websites outlined in this activity and they will also use it to conduct further inquires based upon the data they analyze to help them answer the guiding questions of the activity.

ASSESSMENT

A FOR L

To start the lesson, bring up the graphs from Stats Link Canada on coffee and tea consumption in Canada from 2006 to 2010 (double bar graph) and Canada's import of fair trade coffee during the same time period.

> A brief explanation of fair trade coffee may be necessary before you start this activity. Fair trade coffee: coffee purchased at a fair price that covers the costs of production and allows the producers to make adequate profit to provide for themselves.

1. Do Canadians drink more coffee or tea?
2. Are their any trends you can see in the consumption of tea and coffee on Canada?
3. Why might fair trade coffee purchases be on the rise?
4. Should Canadians continue to buy more fair trade coffee? Why? Why not?

This exploration will assist with determining students' background knowledge on coffee consumption, their knowledge of what fair trade coffee is, their ability to read and interpret graphs and their thought processes as to the future of coffee imports into Canada.

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Anecdotal notes can be used to track students' progress throughout the activity. Teachers could also develop anchor charts with their students that outline how to construct the graphs, analyze trends in the graphs and their abilities to use the data they graphed and other inquires to answer the three main questions of the activity.

Descriptive feedback is another assessment strategy teachers could use to provide students with the constructive criticism they need to improve their work.

Students will review the information posted on the anchor charts to track their own progress in relation to the assignment and determine their own next steps. They will also be expected to act upon any descriptive feedback that they have been given by their teacher to improve their work, work habits, or to help facilitate their completion of the assignment.

A OF L

Determining trends in the data, and developing a plausible and reasonable action plan to reduce the environmental impact of coffee production in producer nations could be assessed using a rubric that could be teacher generated or teacher and student generated. A checklist would also be effective.

OVERALL EXPECTATIONS

Grade 6 Social Studies:

B2. Inquiry: use the social studies inquiry process to investigate some global issues of political, social, economic, and/or environmental importance, their impact on the global community, and responses to the issues (FOCUS ON: *Cause and Consequence*)

Grade 6 Math- Data Management:

Overall Expectations #1: collect and organize discrete or continuous primary data and secondary data and display the data using charts and graphs, including continuous line graphs;

Overall Expectations #2: read, describe, and interpret data, and explain relationships between sets of data;

SPECIFIC EXPECTATIONS

Grade 6 Social Studies:

B2.1 formulate questions to guide investigations into global issues of political, social, economic, and/or environmental importance *(e.g., child labour, dwindling oil supplies, ownership of and access to fresh water, climate change, food shortages, refugees, or natural disasters)*, their impact on the global community, and responses to the issues

B2.2 gather and organize information on global issues of political, social, economic, and/or environmental importance, including their impact and responses to them, using a variety of resources and various technologies

B2.4 interpret and analyse information and data relevant to their investigations, using a variety of tools

B2.5 evaluate evidence and draw conclusions about global issues of political, social, economic, and/or environmental importance, their impact on the global community, and responses to the issues

Grade 6 Math – Data Management:
Collecting and Organizing Data:

#2 - collect and organize discrete or continuous primary data and secondary data (e.g., electronic data from websites such as E-Stat or Census At Schools) and display the data in charts, tables, and graphs (including continuous line graphs) that have appropriate titles, labels (e.g., appropriate units marked on the axes), and scales (e.g., with appropriate increments) that suit the range and distribution of the data, using a variety of tools (e.g., graph paper, spreadsheets, dynamic statistical software)

#3 - select an appropriate type of graph to represent a set of data, graph the data using technology, and justify the choice of graph

Data Relationships:

#1 - read, interpret, and draw conclusions from primary data (e.g., survey results, measurements, observations) and from secondary data

CITIZENSHIP EDUCATION FRAMEWORK
Structures:
- Develop an understanding of the dynamic and complex relationships within and between systems

- Develop an understanding of how political, economic, and social institutions affect their lives

RESOURCES

- Coffee and Tea Consumption in Canada and Fair Trade Coffee in Canada

http://www.gdsourcing.com/StatsPacks/StatsPack-CoffeeShops.asp

- The Canadian Coffee Industry
http://www.agr.gc.ca/eng/industry-markets-and-trade/statistics-and-market-information/by-product-sector/processed-food-and-beverages/the-canadian-coffee-industry/?id=1172237152079

- Natural Resources Defense Council – Impact of Coffee Production
http://www.nrdc.org/health/farming/ccc/chap4.asp

- International Coffee Council: Global Review 2014
http://www.ico.org/news/icc-111-5-r1e-world-coffee-outlook.pdf

- Deforestation Rates in Brazil
http://newswatch.nationalgeographic.com/2009/11/13/amazon_deforestation_slows/

- Deforestation in Non – Brazilian Amazon Countries:
http://www.desdemonadespair.net/2013/08/graph-of-day-deforestation-in-non.html

http://news.mongabay.com/2013/0626-amazon-deforestation.html