Socially-based Curriculum Unit: A Living Wage?

Unit Title: A Living Wage?
Time Frame: 5 lessons
Unit Developer(s): Hayssam Hulays and Brooke Townsend
Developed for Course Name and Course Code: Foundations for College Mathematics, College Preparation (MAP4C)
Strand(s) and Curriculum Learning Expectations Addressed: **Personal Finance Strand** **PEV.03 -** design, justify, and adjust budgets for individuals and families described in case studies, and describe applications of the mathematics of personal finance. **Data Management Strand** **DMV.01** - collect, analyse, and summarize two-variable data using a variety of tools and strategies, and interpret and draw conclusions from the data **DMV.02 -** demonstrate an understanding of the applications of data management used by the media and the advertising industry and in various occupations.

Desired Results

Unit Description: Students will investigate income distribution in Canada and Ontario. Students will explore the changes in minimum wage. Students will also look at household budgets in order to examine the financial realities of minimum wage earners in Ontario.
Enduring Understandings / Learning: • Interpret, analyse and summarize two variable data graphically and numerically using a variety of tools and strategies • Design effective personal and household budgets for individuals and families in case studies

Assessment Tasks

Performance Tasks and Other Evidence That Will Demonstrate the Knowledge and Skills Acquired:

- Throughout the unit, students will be completing worksheets that require them to interpret and create various types of graphs.
- Students are asked to synthesis their learning in a writing task about Ontario's minimum wage.

Assessment Criteria:

- Teachers have a variety of choices for assessing student work in this unit:
  - The daily handouts/worksheets can be collected and evaluated.
  - The question posed to students at the end of the lesson 4 is designed to be treated as a unit evaluation. Teachers may wish to adapt the question to match the strengths of the class.

Unit Planning Notes

Prior Learning Necessary:

- Students should be able to do basic mathematical operations, including working with percentages.
- Students should be familiar with the concepts of "average" and "median".
- Students should be able to interpret various types of graphs using spreadsheet software
- Students should be able to create various types of graphs, by hand and by using spreadsheet software.

Preparation Notes:

- The teacher may want to access the Stats Canada website (http://www.statcan.gc.ca/) to update the data provided.
- Lesson 1: Depending on the students' proficiency with spreadsheet software, you may want to demonstrate the first set of calculations and how to create an appropriate graph of the data.
- Lesson 2: The teacher will need to download and print the article referred to in lesson 2 for the students.
- Lesson 3: Students will be interpreting and creating split-bar graphs. There is time at the beginning of the lesson for the teacher to review and/or introduce this type of graph, if need be.
- Lesson 4: This is a good opportunity to include any information the class has previously discussed relating to housing costs and/or budgeting
- Students will require the use of a computer lab with internet access.

Learning Plan

Lesson 1: The Income Gap (2 classes)

Lesson Focus: Income distribution, historical analysis of wages, looking at real changes in minimum wage (for both Canada and Ontario).

Resources Needed:

- Student Handouts "The Income Gap in Canada" and "The Income Gap in Ontario" (**Appendix A** and **Appendix B**)
- Excel files containing data tables (Student file - **Appendix H** and teacher file - **Appendix I**)

Minds On Activity: Have a class discussion based on the following questions:

⇨What do we mean when we talk about the gap between rich and poor?
⇨What kind of data do we need in order to determine if there really is such a gap?
⇨What type of analysis do you think we should do with the data?

Lesson Structure:

- A handout will guide students as they explore relative changes in income for the top and bottom 10% of earners, as well as changes in minimum wage for the same time period.
  ⇨Data tables are given on the handout. Students can manually enter the data, copy and paste from the word document, or you may want to have the data already entered into the spreadsheet software.
- Depending on the students' proficiency with spreadsheet software, you may want to demonstrate the first set of calculations and how to create an appropriate graph of the data.

Lesson 2: Income in Ontario

Lesson Focus: Looking at income distribution for Ontario and for a few selected cities.

Resources Needed:

- Article "Study: The Minimum Wage Worker, 2003" and Question Sheet (**Appendix C**)
- Student Handout "Income in Ontario" (**Appendix D**)
- Rulers, coloured pencils

Minds On Activity: Reading "Study: The Minimum Wage Worker, 2003", answering questions (**Appendix C**), discussion.

Lesson Structure: The student handout "Income in Ontario" (**Appendix D**) is designed to support students as you guide them through today's activities.

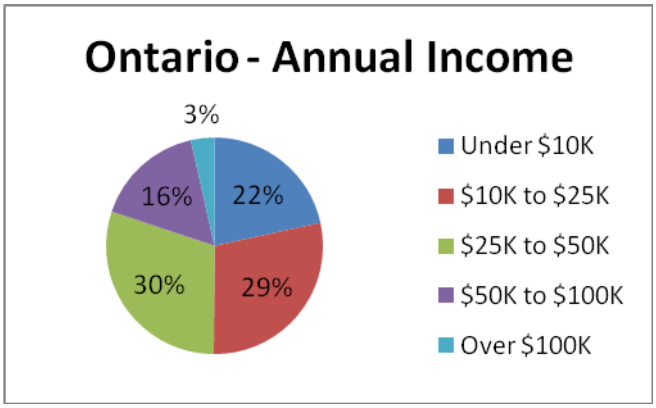
1. Class Discussion - If a person was earning minimum wage and worked 40 hours per week, for 52 weeks a year, how much would they earn in a year? In a month?

   Follow-up discussion:
   ⇨Is it reasonable to assume a person is going to work 52 weeks a year? Why or why not?

   ⇨Is 40 hours a week a reasonable figure? What factors might influence the number of hours a person works in a week?
   ⇨Some minimum wage earners are truly dependent on their income. Describe these workers.

2. Income in Ontario – all earners. Discuss the "Ontario – Annual Income" graph (Appendix D #2).
   Students are to estimate the percentage represented by each sector. You can then tell them the actual percentages (in image at right).

   Students are to use the graph to estimate the median income. You can tell them that the actual median income is **$24 900**



   Follow-up Discussion:
   ⇨What does it tell us about income distribution in Ontario?
   ⇨In what section of the graph would the annual income of a minimum wage earner fall?

3. Income in selected cities.
   Students are now going to calculate percentages for other Ontario cities. Then they will compare these cities with Ontario by making a bar chart. The bar chart has been started for them. There are some follow up questions related to their graph. This would work well as homework.

Lesson 3: Income and Gender

Lesson Focus: Looking at the gender gap in income, as well as the income differences for families led by two adults vs. those led by a lone-parent.

Resources Needed:

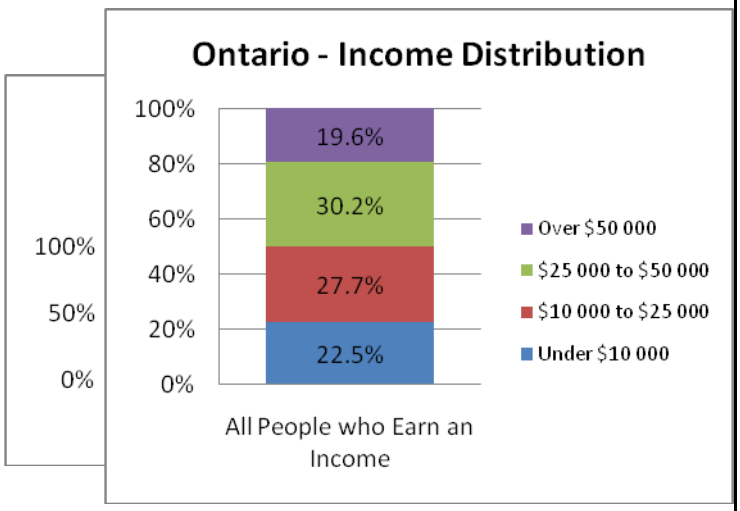
- Student Handout "Demographics and income" (**Appendix E**)
- Rulers, protractor

Minds On Activity: Look at the graphs that students made for homework, discuss their answers to the follow-up questions. You may also want to show the same information as a separate circle graph for each city.

Lesson Structure: The student handout is designed to support students as you guide them through today's activities.

1. On the overhead, or as a handout, show students the split-bar graph of income distribution for all wage-earners in Ontario.
⇨Discuss/review how to interpret the information on the graph. (You may want to emphasize the fact that the under $10 000 category does not include unemployed/non-workers. The data is only for wage-earners.) Have students estimate the percentage for each income level. (The graph is shown here with percentages indicated.)

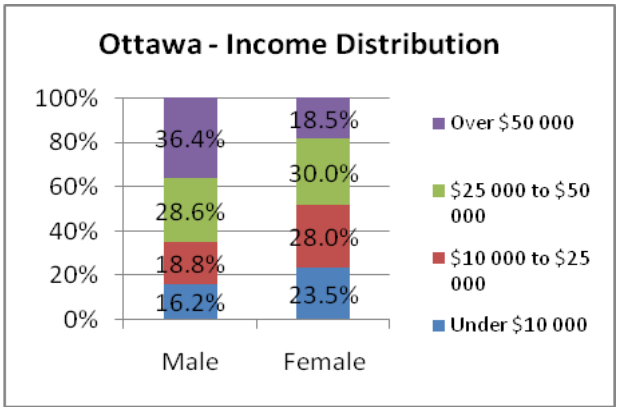
2. The student handout has them looking at the same data, but separated by gender. Here is the graph they have on their handout, but with the percentages given:



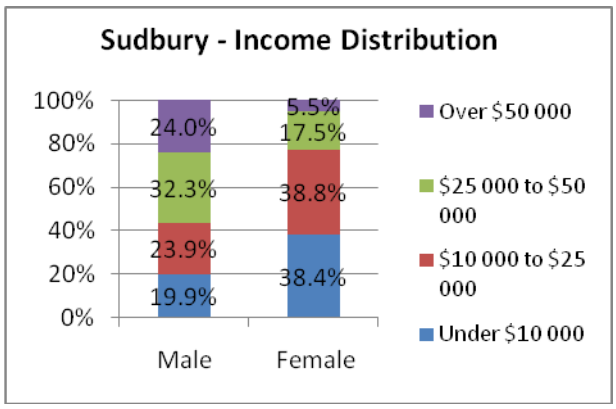
⇨ As students work through the handout, they will create a similar graph for a particular city in Ontario. (The handout included with this file includes all three cities: You can have students do all three graphs, or create three versions of the handout so that each student works on one city's graph, and then examines all the graphs in a group.)

⇨Here are the completed graphs with percentages shown.

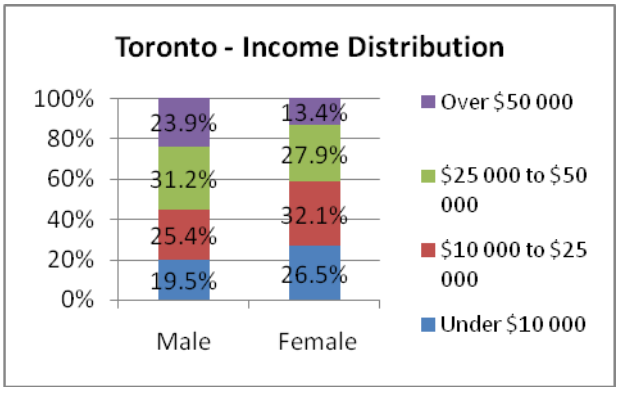
Completed graph for Ottawa:



Completed graph for Sudbury:



Completed Graph for Toronto:



3. Either in groups or as a class discussion, allow students some time to look at graphs of all cities and discuss areas where cities differ, and possible reasons for those differences.
   ⇨If possible, get data for your own city!

4. Students will continue to work through the handout. They will look at graphs and data related to family income, in particular lone-parent families vs. couple-led families, and then at female-led lone-parent families. They are asked a rather open question about what the data tells them.
   ⇨ The material on family incomes (Questions 7 onwards) would work well as homework.

Lesson 4: Budgeting

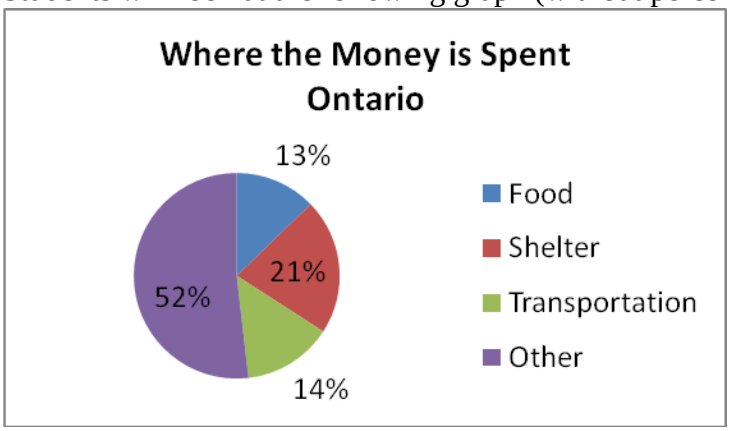
Lesson Focus: Looking at how Ontarians spend their income for a variety of income levels, then comparing monthly budgets to cost of shelter in a variety of cities.

Resources Needed:

- Student Handout "Budgeting" (**Appendix F**)

Minds On Activity: Discuss any conclusions that students made at the end of last class (or for homework) about family incomes.

1. Students will look at the following graph (without percentages) and answer related questions.



⇨Students may be surprised by the 52% "other" category. Remind them that all income figures are pre-tax figures, so a significant portion of the "other" spending is on taxes.
⇨Lead a class discussion about what type of spending is included in "other".

2. The handout then asks students to calculate spending percentages for Ontarians in the bottom quintile of income and in the top quintile of income.

3. Finally students are guided to create budgets based on the Ontario's "average" income, median income and the income of a minimum wage earner.

   ⇨Information about cost of rent/home ownership is given for Ontario and for various cities. Students

should be shocked to look at what 50% of Canadians spend on shelter each month compared to these values.

⇨The final question asks students to summarize what they have learned about income distribution and minimum wage in Ontario, with respect to the cost of putting a roof over one's head. This question can be done as a class discussion or as a hand-in assessment for the unit.

References

- Yalnizyan A. The Rich and the Rest of Us, Canadian Centre of Policy Alternatives, 2007
- Yalnizyan A. Ontario Growing Gap, Canadian Centre of Policy Alternatives, 2007
- Human Resources and Social Development Canada
- Statistics Canada (www.statscan.ca)

Appendices

Appendix A: The Income Gap in Canada
Appendix B: The Income Gap in Ontario
Appendix C: Question Sheet for Article "Study: Minimum-wage workers, 2003"
Appendix D: Income in Ontario
Appendix E: Demographics and Income
Appendix F: Budgeting
Appendix G: Graph for Discussion (for use in lesson 3)
Appendix H: Data student copy (for use in Lesson 1)
Appendix I: Data teacher copy (for use in Lesson 1)

Other Possible Course Applications

This can be used a teaching tool or can be changed to an evaluation tool. A great deal of information about budgeting and income can be found and added, such as:

- Deductions for minimum wage earners vs. non minimum wage earners
- Income and education level
- Comparing Ontario with other places, including compatible areas outside Canada

Material in the course can be adapted for use in MDM 4U.