

# Overview of MDM4U Lessons

## Statistics Canada Materials to use in the Math classroom

<http://teacherweb.com/ON/Statistics/Math/>

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### **Lesson 1 – An Introduction to Searching the Statistics Canada site**

The Statistics Canada website has a wealth of information to support student research. With over 100,000 pages of content and 30,000 reports as well as thousands of statistical data tables, finding the right information can take proper planning. By providing detailed instructions, this activity is designed to introduce students to how to search the Statistics Canada website to find articles and data to help them with a project.

### **Lesson 2 – How to use Time Series Data from E-STAT**

#### ***Lesson 2a: Beer Consumption Demographics using Fathom***

This activity demonstrates how to combine different data tables from the CANSIM database on E-STAT to investigate a possible relationship using *Fathom*. Once the student learns this, they should be able to combine and explore possible relationships among 36 million different CANSIM time series from more than 250 surveys available on E-STAT. English and French versions are available on the Fathom site and on the CD.

#### ***Lesson 2b: Beer Consumption Demographics Using Excel***

This activity demonstrates how to combine different data tables from the CANSIM database on E-STAT to investigate a possible relationship using Excel. Once the student learns this, they should be able to combine and explore possible relationships among 36 million different CANSIM time series from more than 250 surveys available on E-STAT.

### **Lesson 3 – How to use Census data on E-STAT for a data analysis project**

***Lesson 3a: Is it Worth Completing University?*** An E-STAT and *Fathom* activity that explores what the Canadian **census tract** data tells us about the correlation between education and income. This activity demonstrates how to combine different characteristics from the Census database on E-STAT to explore a possible relationship using *Fathom*. Once the student learns this, they should be able to explore possible relationships among 1700 characteristics available on E-STAT for each census tract and municipality across Canada.

***Lesson 3b: Is it Worth Completing University?*** An E-STAT and *Fathom* activity that explores what the Canadian **municipality** level data tells us about the correlation between education and income. This activity demonstrates how to combine different characteristics from the Census database on E-STAT to explore a possible relationship using *Fathom*. Once the student learns this, they should be able to explore possible relationships among 1700 characteristics available on E-STAT for each census tract and municipality across Canada.

***Lesson 3c: Using census data with Excel*** An E-STAT and *Excel* activity that explores what the

Canadian census tract data tells us about the correlation between education and income. This activity demonstrates how to combine different characteristics from the Census database on E-STAT to explore a possible relationship using *Excel*. Once the student learns this, they should be able to explore possible relationships among 1700 characteristics available on E-STAT for each census tract and municipality across Canada.

#### **Lesson 4 – *Combining multiple health and demographic variables from E-STAT***

Health issues are of great interest to students. This lesson shows how to combine multiple attributes from different E-STAT tables for all health regions in Ontario. Using *Fathom* (or *Excel*), students learn how to find the correlation between multiple health and demographic variables.

#### **Lesson 5 – Using the “Ontario Youths” Survey Data with *Fathom***

*Canadian National Longitudinal Survey of Children and Youths (NLSCY)* – an introductory activity to provide instruction in the use of *Fathom* with this rich microdata (18 attributes for 1046 Ontario 10-13 year old students concerning their attitudes towards school).

[http://www.ocdsb.edu.on.ca/teacher\\_res/secondary/tecint/mdm4u.htm#StatsCanActivities](http://www.ocdsb.edu.on.ca/teacher_res/secondary/tecint/mdm4u.htm#StatsCanActivities)

#### **Lessons 6 & 7 – Using the Tech Use Microdata provided on the Ontario *Fathom* CD**

[82 attributes related to technology use of Canadians for 1000 cases]

[http://www.keypress.com/fathom/pages/community\\_exchange/activities\\_and\\_documents/activities.php](http://www.keypress.com/fathom/pages/community_exchange/activities_and_documents/activities.php)

##### ***Lesson 6 – Technology Use - Who chats online most frequently?***

– a lesson for introducing this dataset to a class on online chats by Canadians

##### ***Lesson 7 – Technology Use - Who communicates by e-mail most frequently?***

– another lesson for introducing this dataset to a class

#### **Lesson 8 – *Exploring Relationships between Education and Income across Age Cohorts***

- an activity that demonstrates use of Census microdata files with *Fathom* using data groupings, switch variables and box plots

[http://www.keypress.com/fathom/pages/community\\_exchange/activities\\_and\\_documents/activities.php](http://www.keypress.com/fathom/pages/community_exchange/activities_and_documents/activities.php)

#### **Lesson 9 – *Exploring Relationships between Highest Level of Education and Income (Excel & Quattro Pro versions)***

- an activity for use with the 1991 Census microdata. Available on the MDM4U Treasure Trove CD or from [mdm4u@statcan.ca](mailto:mdm4u@statcan.ca)

#### **Lesson 10 – *Student activity to begin looking at the NLSCY synthetic microdata on 16-17 year olds***

In this activity, students begin to look at data critically using this rich dataset (359 cases, over 200 attributes related to the lives and feelings of youth). Students are asked to:

- ask questions and make predictions based on the questionnaire
- analyze the data using one and two variable statistical analysis
- represent the data visually
- make conclusions based on their analysis