Solutions

1. The national census is taken
   - A every year
   - B every 5 years
   - C every 7 years
   - D every 10 years

B - 5 years in Canada, other countries are different (UK is 10 years).

2. CANSIM stands for
   - A Canadian Simulated Industrial Methodology
   - B Canadian Association of National Statistical and Informational Marketers
   - C Canadian Socio-Economic Information Management System
   - D Canadian Annual National Study of Inferential Media

C - CANSIM is Canada's key socio-economic database.

3. When reading a CANSIM data table,
   a) what does the **Add/Remove Data** tab allow you to do?
   b) what does the **Manipulate** tab allow you to do?

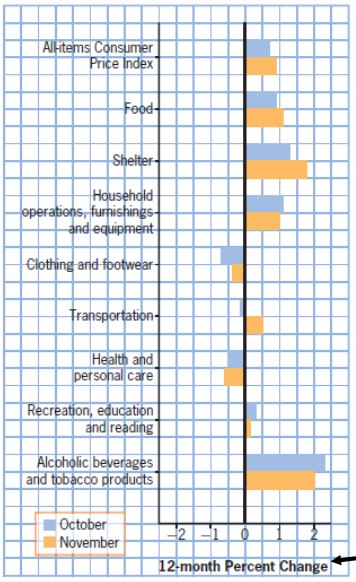
a) The Add/Remove Tab in a CANSIM data table allows you to customise how data is represented over time: geography, field of study, reference period.

b) The Manipulate Tab seems to have disappeared...?

4. What kind of information is provided in a census profile of a particular city?

- Population and dwellings
- Age characteristics
- Household dwelling and characteristics
- Marital status
- Family characteristics
- Household type
- Languages spoken (and at home)
- Incomes
- Immigration status
- Occupation
- Commuting Information

6. Consider this Statistics Canada graph with the title **Prices increase in six of eight major components**.



a) Which components of the Consumer Price Index increased in November? Which ones decreased?
b) Which components of the Consumer Price Index increased in October? Which ones decreased?
c) Describe the time frame for the percent change.

a) Increased: Food; Shelter; Household Operations, Furnishings and Equipment; Transportation; Recreation, Education and Reading; Alcoholic Beverages and Tobacco Products

Decreased: Clothing and Footwear; Health and Personal Care

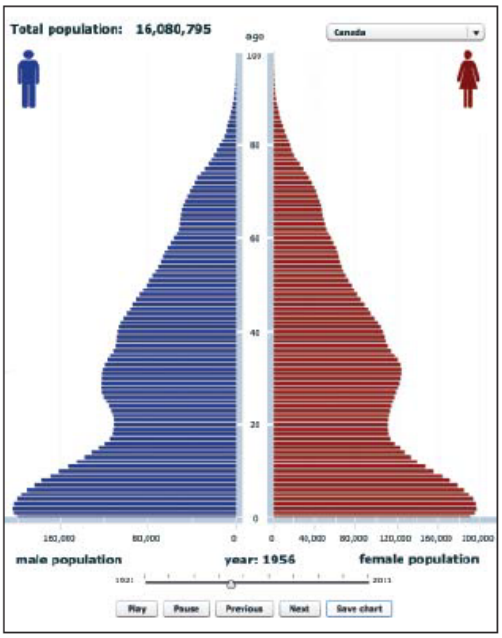
c) The timeframe is 12 months

b) Increased: Food; Shelter; Household Operations, Furnishings and Equipment; Recreation, Education and Reading; Alcoholic Beverages and Tobacco Products

Decreased: Clothing and Footwear; Transportation; Health and Personal Care

7. Communication Go to the Statistics Canada website. Select the **2011 Census**. Select **Data Products**, then **Historical Age Pyramid**.

Historical Age Pyramid for the Population of Canada, 1921 to 2011



a) Describe the age pyramid in 1921.

b) Describe the age pyramid in 2011.

c) Describe the age pyramid in your year of birth.

d) The post-World War II baby boom occurred between 1946 and 1965. Use the animation feature to follow the baby boom. What does it look like on the age pyramid after 1965?

e) Estimate the male and female populations aged 10 and 50 in 2011.

Find it via:

Census

Scroll down to **Data Products**

Scroll down to **Data Visualization**

Click on **Historical Age Pyramid**

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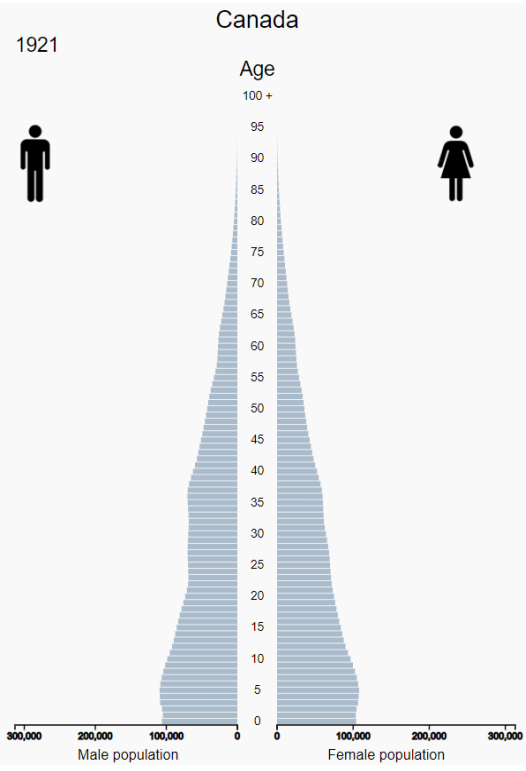

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e) Estimate the male and female populations aged 10 and 50 in 2011.

a) The pyramid is wider at the base. It seems to peak for both genders at around age 5 and then taper off as people get older. By about age 35 there are more males than females.

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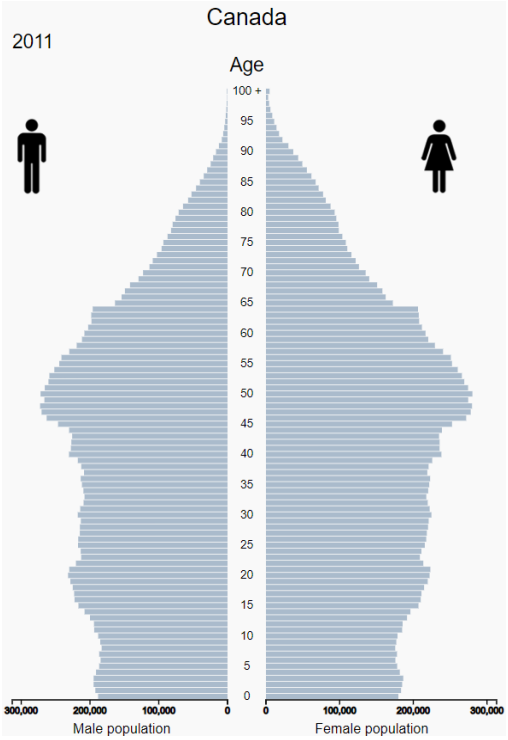

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e) Estimate the male and female populations aged 10 and 50 in 2011.

b) The pyramid becomes wider as the ages increase. It seems to peak for both genders at around age 50 and then taper off as people get older. After around age 25 there are more females than males.

e) Aged 10:

Male = 180,000 Female = 170,000

Aged 50:

Male = 250,000 Female = 280,000

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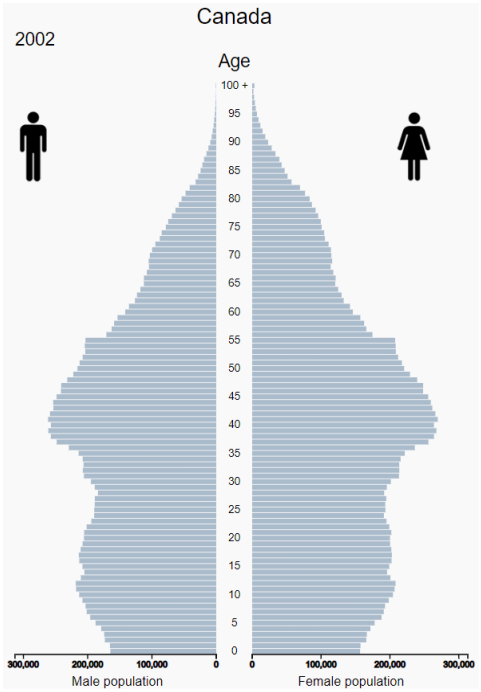

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e) Estimate the male and female populations aged 10 and 50 in 2011.

c) The pyramid becomes wider as the ages increase. It seems to peak for both genders at around age 40 and then taper off as people get older. After around age 25 there are more females than males.

d) There is a "boom" in the birth rate between 1946 and 1965. After this the birth rate slows. We can see this as the widest section starts to age and there are fewer births making it less wide underneath this 20 year range.

8. Application Go to CANSIM on the Statistics Canada website. Select **Education, Training and Learning**, then **Students**. Select the table that provides data described as, **Weighted average tuition fee for full-time Canadian undergraduate students, by field of study**. Download data that allow you to compare tuition fees in Ontario to any two other provinces, by field of study, for the current and previous school years. Use the data to make appropriate graphs. Calculate measures of central tendency. Make appropriate comparisons between the selected provinces.

In the search bar type: **education training and learning**

This should take you to the **Education, Training and Learning Statistics Page**

Scroll down and click on **Postsecondary Education**

In the Filter results by (Keywords) search bar type: **weighted average tuition**

The first result should be **Canadian undergraduate tuition fees by field of study** - click on that link (Table # 37-10-0003-01)

You can use the drop down filter to filter by Province.

If you are struggling to find it, there are links for the Ontario, Nova Scotia, and British Columbia data on my website.

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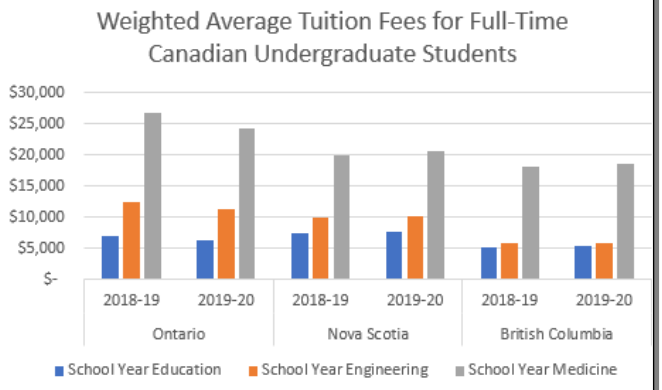
Province	School Year	Field of Study Tuition ($)		
		Education	Engineering	Medicine
Ontario	2018-19	7,006	12,539	26,836
	2019-20	6,303	11,313	24,151
Nova Scotia	2018-19	7,461	9,921	20,057
	2019-20	7,716	10,245	20,681
British Columbia	2018-19	5,283	5,842	18,110
	2019-20	5,388	5,914	18,473



Ontario's tuition fees are the highest for Engineering and Medicine (of the three selected Provinces).

Ontario's fees were all reduced from 2018-19 to 2019-20, whilst Nova Scotia and BC raised their tuition fees slightly.

11. **Thinking** Do a critical analysis on the Statistics Canada article on the Consumer Price Index. Your teacher can provide you with the document entitled **Consumer Price Index**. Alternatively, go to the Statistics Canada website and search for Consumer Price Index. Refer to Investigation 3 for the steps involved in a critical analysis.

Literacy Link

The *Consumer Price Index (CPI)* is a weighted average of a "basket" of goods and services purchased by consumers. The weighting is relative to the level of use in the Canadian economy. The CPI is used as an indicator of changes in consumer prices over time.

The link for this document is on my website.

1. What are the major findings of this study?
2. What types of graphs are used? How are the data displayed in graphs? Is there any bias in the graphs?
3. How are the data organized in charts? Is there any bias in how they are presented?
4. What are the sources of the data?
5. How big is the sample? Is it large enough to make inferences to the population?
6. How recent are the data? Are they recent enough for current use?
7. What methods were used to generate or obtain the data? Do the methods show any bias?
8. Does the article make reference to other sources?
9. Who conducted the study? Is there potential for bias due to influences by special interest groups?
10. **Reflect** Consider your answers to all of these questions. Describe your level of confidence that the findings of this study can be applied to the entire population.

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1. The major finding of this article is that CPI rose 1.9% in 2019. The article then looks at the 12-month change in the major components; food prices; services, goods and energy; the provinces; and gasoline. The data is NOT seasonally adjusted.

2. 3. The article contains multiple bar graphs. The values are difficult to read, due to the lack of grid lines.

4. Data are collected directly from survey respondents, extracted from administrative files, and derived from other Statistics Canada surveys and/or sources. The data comes from Table 18-10-0005-01. Definitions, data sources and methods: survey number 2301.

5. The All-items CPI, at the Canada level, is based on an annual sample of over 1,000,000 price quotes. The population targeted by the CPI consists of families and individuals living in urban and rural private households.

6. The CPI is published monthly, although this is an annual review, published annually.

7. 8. 9. This is a sample survey carried out by Statistics Canada. Over 90% of the price quotes collected by CPI interviewers are obtained by personal visits to selected retail outlets. Some types of information are collected via the internet. Some data are provided directly by CPI respondents filling out a questionnaire.

10. Based upon the information collected above, I am very confident that the findings of this article are representative of the entire population,