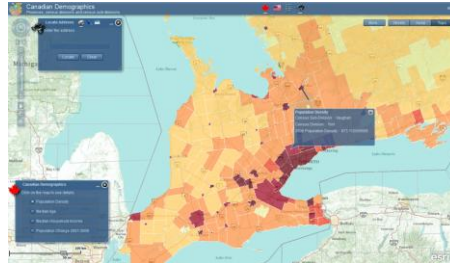


## Canadian Demographics



### Objective:

Students will leverage some of the tools and features available using the ArcGIS Viewer for Flex, a ready-to-deploy mapping application that utilizes the ArcGIS API for Flex. In this application, the viewer will be used to visualize and assess Canadian demographic information at a number of census levels. Students will have an opportunity to explore spatial trends in the data and note similarities between Canada and the United States. Students will also learn how customized mapping applications can be used to perform specific tasks effectively.

### Connections to Curriculum Topics:

- Canadian-American Relations
- Human/Natural Patterns
- Urbanization
- Education
- Migration
- Social and Economic Systems

### Requirements:

- Internet browser (e.g., Internet Explorer, Firefox, Chrome)
- Adobe Flash Player 10 – <http://get.adobe.com/flashplayer/>

**\*\*Note:** In order to function properly, the ArcGIS Viewer for Flex requires Adobe Flash Player 10. When accessing the viewer for the first time, you may be prompted to install the latest version of Flash Player.

### Background Information:

Once every five years in Canada, the federal government sets out to gather demographic information about the population through the means of a mandatory national census. Once the responses have been compiled, a wealth of knowledge is formed regarding themes such as age, gender, income, race, population and education. Information gained from the census can be used to spot trends at national, regional and local levels. Those with access to the census data can use it to make better informed decisions and to guide future development plans. The Canadian data that will be explored in this lesson comes from the May, 2006 census.

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## References:

- 2011 Census- <http://www.census.gov/>
- Esri Updated Demographics – [http://www.esri.com/data/esri\\_data/demographic.html](http://www.esri.com/data/esri_data/demographic.html)
- Statistics Canada – <http://www.statcan.gc.ca/>
- U.S. Census Bureau – <http://www.census.gov/>

## Data Sources:

- **Esri** – Updated Demographics – [http://www.esri.com/data/esri\\_data/demographic.html](http://www.esri.com/data/esri_data/demographic.html)
- **Statistics Canada** – Census Highlight Tables – <http://www12.statcan.ca/english/census06/data/highlights/index.cfm>
- **Statistics Canada** – Census Maps and Geography – <http://www.statcan.gc.ca/mgeo/geography-geographie-eng.htm>

**Note:** Web sites accessed in September, 2011.

The Education team at Esri Canada makes every effort to present accurate and reliable information. The Web sites and URLs used in this lesson are from sources that were current at the time of production, but are subject to change without notice to Esri Canada. It is recommended that teachers test all links within the Web GIS lesson prior to students working through the individual lessons.

## Getting Started:

### Exploring Canada's Population Density

1. Click this link: <http://www.arcgis.com/home/item.html?id=db46bd07e2a142569611e843acbf473> to access the Canadian Demographics mapping application to begin the lesson.
2. Immediately, you should be greeted by a pop-up. After reading through the pop-up, select **Click to continue** and proceed into the application.
3. Begin by exploring the map:
  - a. Try learning about the various provinces by clicking on them to display pop-ups with relevant information.
  - b. Zoom in and out on the map to view the data at the three different census levels. Do this by using the slider-bar on the left-hand side of the map, or by using your mouse-wheel.

The three census levels that you can see in Canada are Provinces and Territories, Census Divisions and Census Sub-Divisions.


- Q. Population density is a measure of population size within a given area. With that in mind, which province do you suspect will have the highest population density? Why?

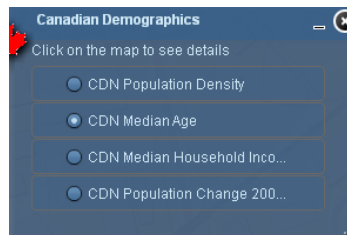
- In order to give some context to this information, you will now focus the map on your school. Using the *Locate Address* box, enter your school's address. For instance, 12 Concorde Place, Toronto, ON.

**Note:** You may receive multiple results with varying accuracy scores. Check to ensure that you have selected the correct address before proceeding. It will most likely be the first result in the list.

### Examining the Various Demographic Information

**\*\*Note:** You will notice that a transparency has been applied to the demographic layers that allows you to view the basemap features underneath

- Activate the **Legend**  tool, located near the top of the map.
- Select **CDN Median Age** from the *Canadian Demographics* window located on the left side of the map. Explore the map at various scales.



Q. Describe the relationship between Population Density and Median Age. **Hint:** Focus your search on major cities and toggle back and forth between the two layers.

- Try exploring the map using the **CDN Median Household Income** layer from the *Canadian Demographics* window.

Q. When viewing this layer, what sort of trend do you notice with regards to the highest income levels in and around major cities (e.g., Toronto, Vancouver and Edmonton)?


- Activate the **CDN Population Change 2001-2006** layer. Zoom in/out until **Census Divisions** becomes the active layer.

Q. Which regions experienced the largest decline in population size in 2006?

Q. Using the map, where do you think these people relocated to? Why do you think this relocation occurred?

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## Comparing Trends with the United States

9. Activate the **American Demographics**  tool, located at the top of the map. Take some time now to explore the US data.

Unlike the Canadian data, this American data is broken down into four different levels, those being: States, Counties, Tracts and Block Groups. It is important to notice as well that much of the data used in the US covers a different time period than the data used in Canada. Moreover, it is important to note that the legends between Canada and the United States cover different scale ranges. Due to the differences in population sizes between some states and provinces, the scale ranges are too large for a proper comparison.

10. Try comparing Population Change between 2000-2010 in the US with Population Change between 2001-2006 in Canada. Examine the data at all scale levels.

Q. What are the similar trends occurring within both countries?

11. Compare the rest of the Canadian and US data layers.

It should be evident that trends within some demographic themes, such as Median Age and Population Change are not restricted by political boundaries. This can be evidenced most dramatically by the large cluster of population loss that stretches from the Saskatchewan prairies, all the way south through the United States.

## Extension Exercise:

Click on this link to access the extension exercise within **ArcGIS Explorer Online** - <http://explorer.arcgis.com/?open=549ad36e38b446769cb161804a6a9181>.

The data that are displayed are queries of the US counties and Canadian census divisions that have populations equal to or greater than 100,000 in the years 2010 and 2006 respectively.

- Q. Visually examine the sizes of the US counties and compare them with the sizes of the Canadian census divisions. What does this tell you about average population density values between the two countries?
  
- Q. Examine the map for clusters of high population. Use your findings to form an opinion on which provinces/states are the most influential at a national level.