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# Population Density Plan – Lesson Description

## Lesson Overview

In this lesson, students will describe and explain population density patterns in Canada.  First, students will complete a "Pop Quiz" to determine their current knowledge of population in Canada.

Second, students will use the Atlas of Canada's new Population Density poster-map to find the correct answers to the questions asked in the "Pop Quiz' and then use the poster-map to make generalizations about population density patterns in Canada.

Third, students will use the interactive population density map from the Atlas of Canada Web site to collect data and compare the density patterns of various Canadian cities. In addition, students will examine the advantages and disadvantages of living in an area with a high population density to areas of low population density.

Fourth, extension and evaluation ideas are provided.

## Grade Level

This lesson fits very well with the geography and social studies curriculum for Grades 9 to 12 in many provinces and territories.  It could also be modified to suit students from Grades 7 to 8.

## Time Required

- Two class periods of approximately 45 minutes each are recommended to complete the exercise.
- Part 1 and 2 could be completed in the first session, Part 3 in the second session.  Part 3 requires student access to the Internet.
- Part 4, the extension and evaluation ideas are not accounted for in this timeline.

## Materials Required

**Part 1**
- Promotional poster-map – Canada's Population Density
- "Pop Quiz" – Canada's Population Density

**Part 2**
- Promotional poster-map – Canada's Population Density
- Fact-finder Activity Sheet

**Part 3**
- Analysis Activity Sheet
- Access to the Internet

## Main Objective

Students will successfully extract geographic information from print and non-print sources to describe and explain population density patterns in Canada.

## Lesson Sequence

**Part 1: Introduction**
Students will be introduced to the concept of population density, prior to completing a "Pop Quiz" to assess their current knowledge of population patterns in Canada.

**Part 2:  Canada's Population Density Poster-map**
Using the poster-map, students will search for the correct answers to the "Pop Quiz" from Part 1. Second describe population density patterns based on information from the poster-map.

**Part 3:  Population Density Interactive Map**
Students will use the Population Density, 2001 interactive map from the Atlas of Canada Web site, to collect data and compare the population densities of various Canadian cities and examine the advantages and disadvantages of living in a community with high and low population densities.

**Part 4:  Extension and Evaluation Ideas**
This section includes a research assignment that builds on the themes of this lesson.

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# Part 1:  Introduction

## Introduction

For this lesson, we recommend introducing the topic of population and population density to students before they begin working with the maps.  Once students are familiar with the concept of population and population density they can attempt the "Pop Quiz" to assess their current knowledge of population patterns in Canada.

## Introductory Instructional Strategies

To familiarize students with three primary means of describing population (total population, population density and population distribution):

- Brainstorm with students their understanding of the terms total population, population density and population distribution.
- Have the students record definitions for these terms in an organizer or in their notes.

## Materials

- Promotional poster-map – Canada's Population Density
- "Pop Quiz" – Canada's Population Density

## "Pop Quiz" Teacher Instructions

- Ask students to clear their desks or close their books.  Tell them that they are about to take a "Pop Quiz" to see how much they already know about various characteristics of Canada's population.  Decide if you want them to work individually or in pairs.  This could work well as a Think, Pair, Share activity.
- Distribute the quiz and allow approximately 5 minutes for completion.  Ask students to try their best and guess if they are unsure of an answer.  There are no marks allocated to the quiz.
- Discuss with students their responses to the various questions of the quiz.  Avoid correcting or providing answers to the questions as students will find the answers to the quiz in Part 2 of the lesson.

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# "Pop Quiz" – Canada's Population Density

**Name:** _____

Complete the quiz below to see how much you know about the population of Canada.

1. What is the population of Canada? _____

2. Which province is the most populated? _____

3. Which province has the highest population density? _____

4. Which province is the least populated? _____

5. Which territory is the least populated? _____

6. What is the population of Aboriginal people in Canada? _____

7. What is the percentage of Canadians who speak English as their first language? _____

8. What is the percentage of Canadians who speak French as their first language? _____

9. What is the percentage of Canadians born in other countries? _____

10. What percentage of the Canadian population is female? _____

11. What percentage of the Canadian population is male? _____

# Part 2: Canada's Population Density Poster-map

## Introduction
First, students will use Canada's Population Density poster-map to determine the correct facts about population in Canada. Second, they will observe and analyze the data mapped on the poster to describe population density patterns.

## Materials
- Population Density Poster-map
- Fact-finder Activity Sheet
- Print atlases to use as a reference tool

## Steps
- Decide if you want students to work individually, in pairs or in small groups.
- Distribute Canada's Population Density poster-map and the Fact-finder Activity Sheet to students.
- Ask students to use the poster-map to find the correct facts about Canada's population based on the 2001 Census. They should record the information in Part A of their Fact-finder Activity Sheet.
- Part B of the Fact-finder Activity Sheet asks students to describe population density patterns relative to several locations. They may need help with this section of the activity. Monitor students carefully as they work through the exercise and provide guidance where necessary.

# Fact-finder Activity Sheet – Canada's Population Density

**Part A. Complete the organizer below to find out the facts about population in Canada based on the 2001 Census.**

| Question | Fact |
|---|---|
| Total Population in Canada | |
| Most Populated Province | |
| Most Densely Populated Province | |
| Least Populated Province | |
| Least Populated Territory | |
| Total Aboriginal Population | |
| Percentage of Canadians with English as their first language | |
| Percentage of Canadians with French as their first language | |
| Percentage of Foreign-born Canadians | |
| Percentage of the Population that is Female | |
| Percentage of the Population that is Male | |

**Part B. Write a general statement about population density in Canada relative to the following locations:**

1. The United States border:

   _____

2. The Arctic Circle:

   _____

3. The Prairies:

   _____

4. Major Mountain Ranges (for example, Rocky Mountains, the Appalachians and the Coast Mountains (Hint: find the mountainous areas shown on the poster-map)

   _____

5. The Oceans (Atlantic, Arctic, Pacific) and The Great Lakes:

   _____

6. Major Urban Centres (for example, Toronto, Vancouver, Calgary and Montreal):

   _____

# Part 3: Population Density Interactive Map

## Introduction
Students use the interactive **Population Density, 2001 Map** from the Atlas of Canada Web site to understand the relationship between population and area.  They will find and compare the population densities of several Canadian cities and begin to explain why some areas are more densely populated than others.  Students will also examine the advantages and disadvantages of living in an area with a high population density and a low population density.

## Materials
- Internet access to the Atlas of Canada Web site
- Analysis Activity Sheet

## Teacher Instructions
- Distribute the Analysis Activity Sheet to students before they access the Internet for this section of the lesson.
- Review the instructions with students so that expectations are clear.

# Analysis Activity Sheet - Canada's Population Density

In this section of the lesson you will use an interactive map from the Atlas of Canada Web site. You will find various Canadian cities and collect data about their population, area and density. By the end of this section you should be able to explain why cities that have similar populations can have drastically different densities. You will also examine the advantages and disadvantages of living in an area with a high population density and a low population density.

**Follow the steps below to complete this activity.**

## Part A:  Introduction
- Go to the Atlas of Canada Web site at: **atlas.gc.ca**
- Select **People and Society** from the left hand column under the title Explore Our Maps.
- Choose **Population** from the pop-out menu that appears.
- Choose **Population Density, 2001** Map under the title 2001 Population.
- Choose **Read about this map**.  Read the text and answer the question below:

What is Canada's population density?  _____

## Part B:  Finding the data
In this section, you will compare cities of similar populations and find their population density.
- Select the **Population Density, 2001 Map** of Canada.
- Complete the organizer below for each city that is listed.  Follow the steps below to find the information for Toronto:
    - Using the **Zoom to Region** tool, choose **Ontario**.
    - Choose the **Zoom In** tool and then click on **Toronto**.  Keep zooming in until it shows the census subdivisions in the legend.
    - The purple areas represent the highest population densities.  Use the **Get Info from Map** tool and then click on the City of Toronto.  Record the 2001 population and population density.
    - Choose **Toronto Statistics** beside the title Statistics Canada's Community Profile and record the land area from their Web site.
    - Repeat these steps for the other cities in your organizer below.

| City | Population (2001) | Area (square kilometres) | Population Density (2001) |
|---|---|---|---|
| Toronto | | | |
| Charlottetown | | | |
| Vancouver | | | |
| Montreal | | | |
| Ottawa | | | |
| Victoria | | | |
| Edmonton | | | |
| St. John's | | | |

## Part C:  Comparing Cities

Now that you have collected data for various Canadian cities you can compare them to analyse the relationship between population and area.

1.  Toronto's population is double the size of Montreal's, yet Toronto's population density is smaller.  Why?

    _____

    _____

    _____

    _____

2.  Explain why Victoria has a higher population density than Ottawa.

    _____

    _____

    _____

    _____

3.  Compare the city of Vancouver to Edmonton based on population, density and area.

    _____

    _____

    _____

    _____

4.  Compare Charlottetown to St. John's based on population, density and area.

    _____

    _____

    _____

    _____

5.   Go back to Part A of this activity.  What is Canada's population density?  How is this misleading, based on the information you have gathered about cities in Canada?

    _____

    _____

    _____

    _____

6. List some of the advantages and disadvantages to living in an area with a:
   a)  high population density

   _____

   _____

   _____

   _____

   b)  low population density

   _____

   _____

   _____

   _____

# Part 4: Extension and Evaluation Ideas

- Collect and evaluate the Fact-finder and Analysis activity sheets for completeness and accuracy.

- Use the other 2001 population maps from the Atlas of Canada Web site to research population distribution and change for a specific region of Canada. Research questions: Is the population growing or declining in your region? Why? (Students can investigate various factors which affect regional changes in population growth and decline, such as the economy, urbanization and natural resource depletion.)