



# Activity 4: Age and Sex

**Suggested Level: Intermediate and Secondary**  
**Subjects: Mathematics, Geography, Sociology, Family Studies**

## Overview

In this activity students create and analyze a population pyramid based on age and sex data from the 2001 Census. (1-2 class periods)

**Note:** See Teacher's Guide for general background to the census and census vocabulary.

## Learning Objectives

- to construct a graphic representation of the 2001 Census age and sex data
- to understand and interpret the population pyramid students have produced

## Materials

- Handout 1: The Population Pyramid—what it is and how it works
- Handout 2: 2001 Population Pyramid
- Handout 3: The Population Pyramid Speaks
- Handout 4: Discussion—Population Aging

## Getting Started

Begin with a general discussion of the census—what it is and how it is carried out.  
 (See the Teacher's Guide.)

## Census Activity

Discuss the information in Handout 1 with your students. If necessary, review the concept of graphing.

Distribute Handout 2 and have the students graph the 2001 Census data on age and sex to form a population pyramid.

Handout 3 asks students to answer some basic questions concerning the 2001 Population Pyramid.

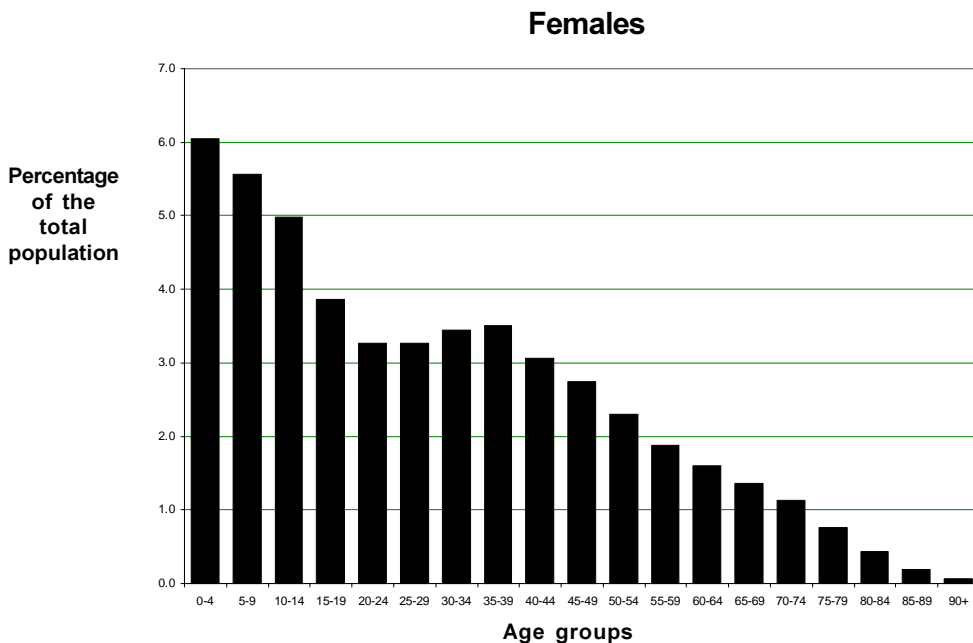
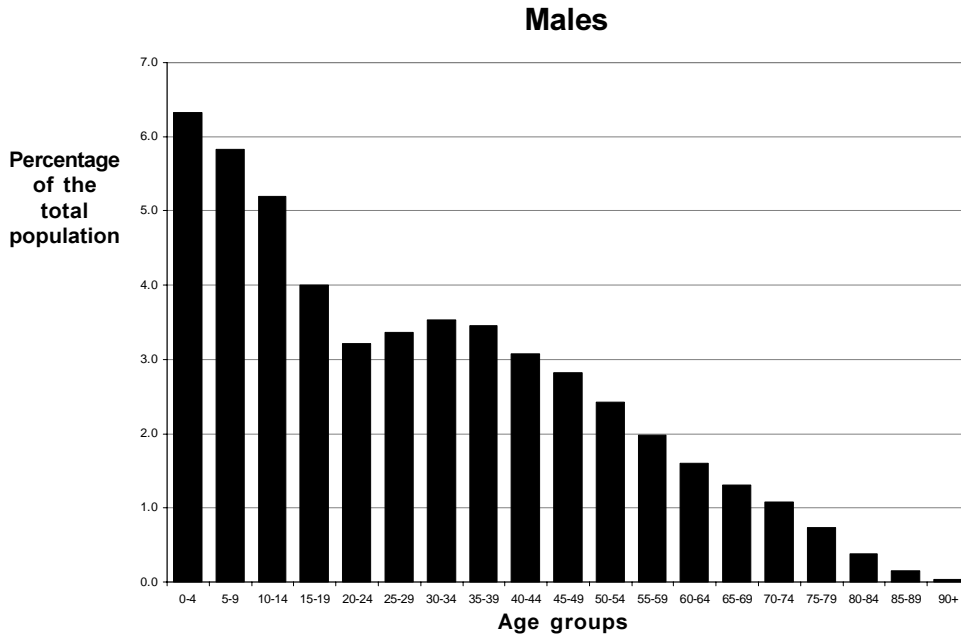
Handout 4 can be used as enrichment for younger students or as a regular part of the activity for older students. Read the answers to the questions yourself first to get a feel for some of the issues and then engage the students in a discussion. As a follow-up, students could research the topic of population aging in Canada and how it will affect them by consulting books or articles in their school or local library.

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## Handout 1: The Population Pyramid—what it is and how it works

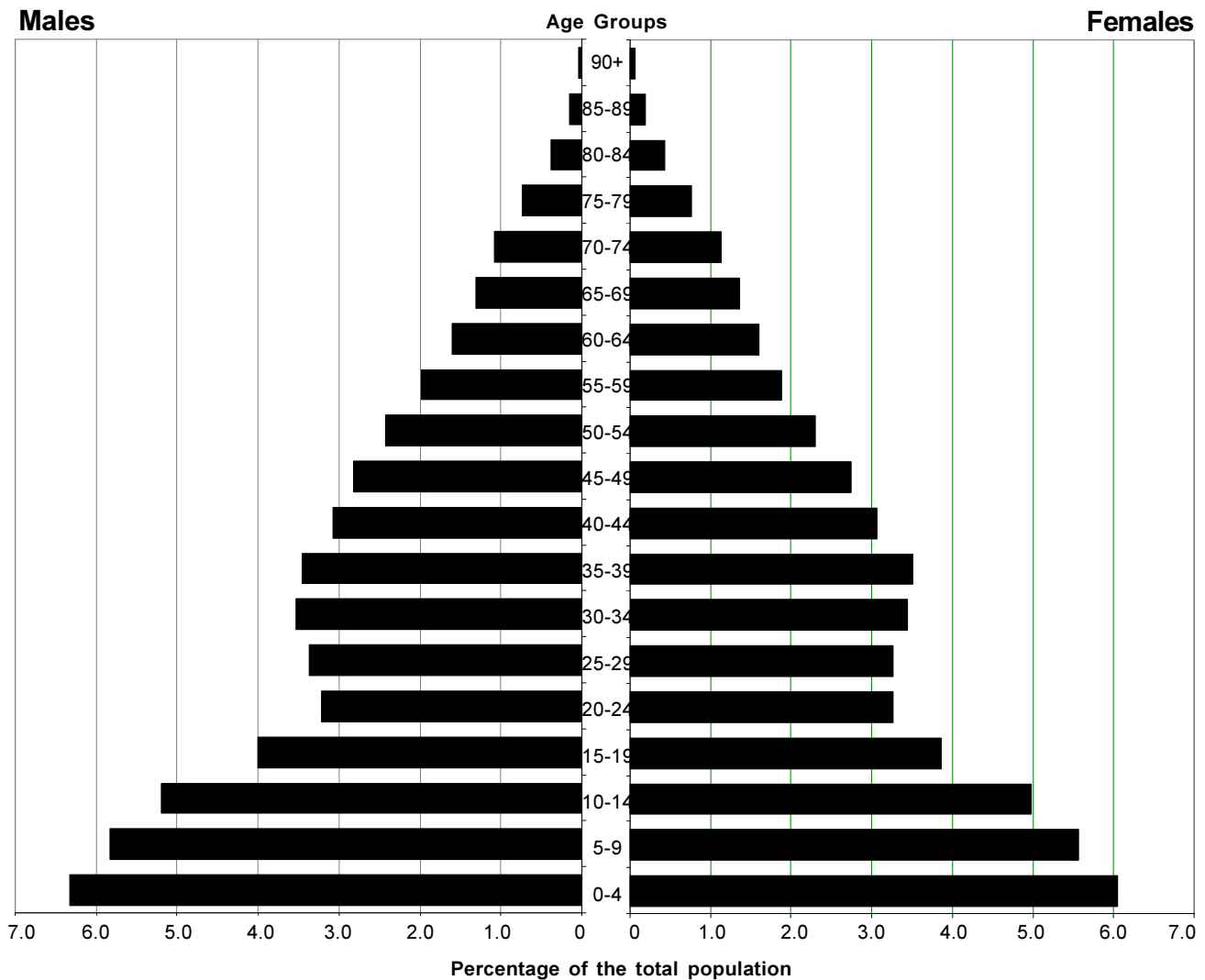
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Bar graphs are a handy way to illustrate numbers. For example, if we were to graph the number of males and females in Canada for various age groups according to the 1961 Census, the result would be the illustrations below.



If we were to display these graphs horizontally, make a mirror image of the one for women, and then join them together, we would have a **population pyramid**—exactly as you see on the next page.

## Population Pyramid, 1961



This population pyramid shows at a glance the distribution of the Canadian population in 1961.

You can see that the pyramid narrows toward the top. This is because the death rate is higher among older people than among younger people.

There are also a few bulges and narrower parts in the middle part of the pyramid. For example, there are not as many people in their 20s as in their 30s in Canada in 1961. The people in their 20s in 1961 were born during the Great Depression, a time of economic hardship in Canada when people were having fewer children.

In 1961 the pyramid had a wide base. In fact, when we add the percentages for the three lowest age groups, we find that 35% of the population was under 15. These are “baby boomers,” the large group of people born between 1947 and 1966 when the economy was growing and prospering.

By analyzing population pyramids and identifying trends, we can learn a lot about our society. These statistics give governments and others one of the tools they need to make informed decisions that will affect our lives today and in the future.

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## Handout 2: 2001 Population Pyramid

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Now let's turn to the 2001 Census. Below are the data from the 2001 Census of Population giving the population by five-year age group and sex. Using these data, complete the 2001 population pyramid on the following page.

<b>Canada's population by age group and sex, 2001 Census of Population *</b>		
<b>Age group</b>	<b>% men</b>	<b>% women</b>
0-4	2.9	2.8
5-9	3.4	3.2
10-14	3.5	3.3
15-19	3.5	3.3
20-24	3.3	3.2
25-29	3.1	3.2
30-34	3.4	3.6
35-39	4.1	4.3
40-44	4.2	4.4
45-49	3.8	3.9
50-54	3.4	3.5
55-59	2.6	2.7
60-64	2.1	2.2
65-69	1.8	2.0
70-74	1.5	1.8
75-79	1.1	1.6
80-84	0.6	1.1
85-89	0.3	0.6
90+	0.1	0.3

\* Percentages have been rounded to the nearest tenth of a decimal point and do not necessarily add up to 100.

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## Handout 2: 2001 Population Pyramid (continued)

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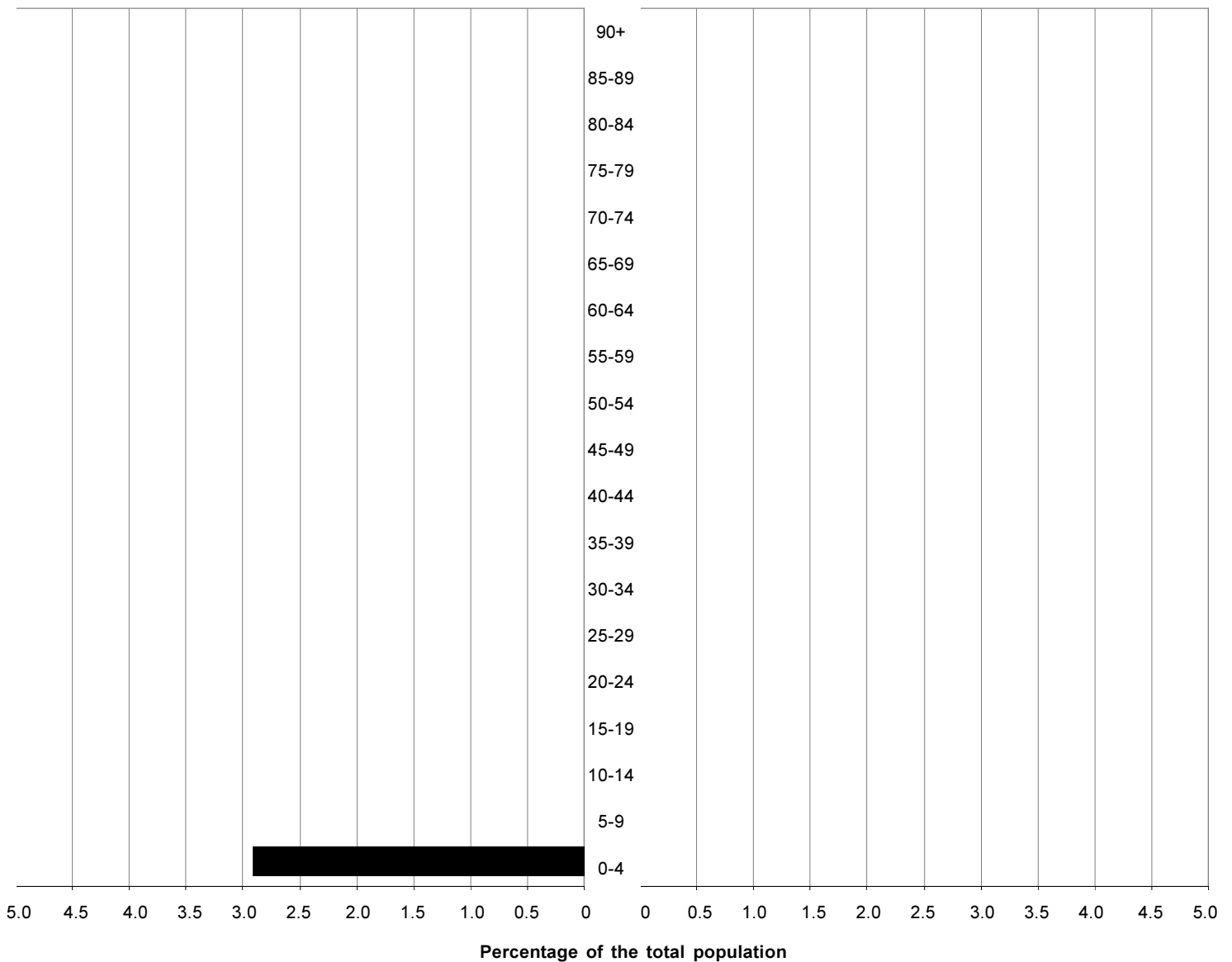
Use the structure below to create your pyramid. To get you started, the 0-4 category for males has already been drawn in. Highlight the bar that represents your age group and sex by shading it in a particular colour. Use different colours to shade in other bars that represent some of your relatives or friends.

### 2001 Population Pyramid

**Males**

**Age groups**

**Females**



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### Handout 3: The 2001 Population Pyramid Speaks

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1. Write the details of your age group and sex within the Canadian population.

Age group \_\_\_\_\_ Sex \_\_\_\_\_ Percentage \_\_\_\_\_

2. What single age group and sex represents the largest percentage of Canada's population?

Age group \_\_\_\_\_ Sex \_\_\_\_\_ Percentage \_\_\_\_\_

3. Circle the 10-year age group that contains the largest percentage of the population.

0-9      10-19      20-29      30-39      40-49

4. What percentage of Canada's population is male and what percentage is female? (Add the percentages for each sex.)

Males \_\_\_\_\_ Females \_\_\_\_\_

5. Write in the percentage for males and females age 65 and over.

Males \_\_\_\_\_ Females \_\_\_\_\_

Comments \_\_\_\_\_  
\_\_\_\_\_

6. Explain why the 2001 population pyramid has a narrower base than that of the 1961 pyramid.

\_\_\_\_\_  
\_\_\_\_\_

7. a) Populations are frequently divided into two categories: people who are of working-age (15-64) and people who are not of working age (under 15; 65 and over). Using the data on page 4, give the percentage for each category in 2001:

Working age \_\_\_\_\_

Not of working age \_\_\_\_\_

- b) List ways the working-age population contributes to Canada's economic growth.

\_\_\_\_\_  
\_\_\_\_\_

- c) Do you think the proportion of the population who are not of working age will change in the future? If so, which part (under 15, or 65 and over)? Explain.

\_\_\_\_\_  
\_\_\_\_\_

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## Handout 4: Discussion — Population Aging

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Canada's population is growing older. What does this really mean and what significance does it have for Canada in the future? Use the points below to help guide a discussion with your class and your teacher about population aging.

### **The boom times**

Canadians born in Canada between the years 1947 and 1966 are referred to as the baby boom generation. Suggest reasons why so many people were born during this time.

### **Fewer children**

Since the baby boom years, the fertility rate (the number of babies a woman has in her lifetime) in Canada has dropped from 3.9 in 1959 to 1.52 in 1999. The result is fewer people in the younger age categories. Suggest some reasons for the drop in the fertility rate.

### **The population grows older**

In 1966, when the last of the baby boomers were born, Canada had a young population. In fact, the median age of Canadians (the age at which half of the population is older and half is younger) was 25.4. The median age of Canadians has risen since then and in 2001 was 37.6. This indicates that our population is aging.

Do you think this trend will continue into the future? Refer to the population pyramids of 1961 and 2001 to support your prediction.

### **What does it all mean?**

These days, demographics has become one of the hot topics. Demographers study population statistics and trends as you are doing in this activity. Among other things, organizations depend on the work of demographers to help plan the location of businesses; the number of schools, hospitals and retirement homes; the building of houses, condominiums, and apartments; and the designing and marketing of products. As a novice demographer, prepare a set of predictions on the effect of population aging using each of these six headings:

- consumer patterns
- health care
- shelter needs
- size of the work force compared to those over 65
- job opportunities for younger Canadians
- pension plans

How old will you be in 10 years when the baby boom generation begins to retire? How do you think population aging will affect you? To get more information, look in a library for books and articles on population aging.

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### Answers to Handout 3

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1. Answers vary. Use the population pyramid and the data on page 4.
2. females, aged 40-44, representing 4.4% of the total population
3. 40-49
4. males: 49.01%; females: 50.99%
5. males: 5.4%; females: 7.4%.  
Comments: The percentage of females over the age of 65 is substantially higher than the percentage for males. This indicates that the life expectancy for females is higher than for males.
6. The fertility rate has fallen since the period when the baby boom generation was born. These days couples tend to have fewer children than previously, with some couples having no children at all.
7.
  - a) working age: 67.8%; not of working age: 31.9%
  - b) The working-age population contributes to the economy by producing and consuming a large share of the country's goods and services, and by paying taxes on money earned through employment.
  - c) As the large number of people in the baby boom generation turn 65, the proportion of the population who are not of working age will grow.



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## Answers to Handout 4

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### The boom times

After the Second World War, Canada enjoyed a sustained period of prosperity which lasted throughout the 50s and into the 60s. People felt they could afford large families, often on one salary. The thriving economy also attracted a large number of immigrants who often tend to be people in their child-bearing years.

### Fewer children

Since the baby-boom years, more women have been putting off having children to pursue higher education and careers. With more women working, families have less time for rearing large families. Also, the economic situation has not been as favourable as it was in the 50s and early 60s, and many people do not feel they have enough income to support a large family. A combination of these factors, along with greater access to birth control, has meant that more and more couples have opted for fewer children or no children at all.

### The population grows older

The population will continue to age as the baby boom generation (those aged 35 to 54 in 2001) grows older. Because people are having fewer children, the number of people in the younger age groups are not enough to offset the aging trend. Longevity also plays a role: Canadians are healthier and living longer. Depending on the number and age of immigrants in the future, this trend could be partly modified.

### What does it all mean?

**consumer patterns:** Goods and services will more and more be geared to what older people want. For example, in the field of leisure, increased numbers of people are already taking up pursuits such as golf and bird-watching. The travel industry is gearing more packages towards older people who are retiring and want to travel. The cosmetics industry are producing more products for older women—and men. There are many more examples.

**health care:** There will be increasing demands in the field of health care as the population grows older. We may need to consider more institutional facilities as well as new approaches to care for the elderly.

**shelter needs:** The needs of the large group of baby boomers may have an effect on the housing market. As baby boomers' children leave home over the next little while, there will be more need for smaller accommodation such as condominiums, townhouses, or apartments. The larger family homes they are vacating may be difficult to sell with not enough buyers in the younger age groups. As the baby boomers enter their 70s and 80s, there will be more need for seniors' housing.

**size of the work force compared to the population 65 and over:** The proportion of those 65 and over in relation to the work force will increase as the baby boom generation gets older and retires. The government may find it progressively harder to support those 65 and over through pensions and social programs since the government will receive less money in taxes on employment income from a smaller work force.

**job opportunities for younger Canadians:** At the moment baby boomers occupy a large proportion of the work force. This makes it difficult for younger people looking for jobs. As the baby boomers retire and leave the work force, jobs will be freed up. However, many of these jobs are at the managerial level and will require experience and specialized skills.

**pension plans:** The Canada Pension Plan is running out of money. In order to keep the plan viable, Canadian workers and employers will have to pay higher premiums in the future. More and more people are saving for their own retirement by buying RRSPs.