Activity 3: Important decisions don't just happen! Using data to plan your services

Suggested level: **elementary, intermediate**
Subjects: **social studies, mathematics, geography**

Overview

This activity gives students hands-on experience with census data, introduces them to data for small geographic areas, refines decision-making skills and demonstrates some of the actual uses of information collected by the census.

Students will examine sets of imaginary data associated with several community services, decide which neighbourhoods would benefit most from each service, and illustrate their findings on a grid map.

Duration: 1-2 class periods

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

Learning objectives

- Interpret a statistical table and a grid map.
- Sort and rank numeric values.
- Graphically display information on a grid map.
- Name at least one type of information collected in a census.

Vocabulary

census, census data, grid map

Materials

- **Handout 1**: Important decisions don't just happen!
- **Handout 2**: Census data — **Table 2**: Population by neighbourhood. (Optional to make an overhead rather than pass out individual copies.)
- **Handout 3**: Census grid map of Maple and "Student exercise" instructions. (You may wish to make an overhead of this handout so that you can use it when explaining the exercise and when reviewing the answers with the class.)
- Coloured pencils or markers (not included).

Getting started

Ask your students to imagine that they work for a company called Data-R-Us, which provides statistical data to the public. Data-R-Us will be looking at statistical data for a town called Maple, a community where 75% of the families have children younger than six years of age. What special concerns do they think the residents of this community have?

Ask your students to brainstorm ideas for the kinds of special services a town like Maple should offer. The answers will vary but will probably include schools, daycare centres, playgrounds, libraries, sports complexes and health centres.

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Have students explain their recommendations. Ask what factors influenced their decisions. Did they consider the number of families with young children?

Share with the students, that in today's world, millions of dollars can be lost on a guess. That's why people need facts to make decisions. For example, retail businesses use data to help choose new locations or to add new products and they often turn to data that have been gathered by the census.

1. Explain to the students that real-life decisions require the support of this type of statistical information. The Canadian census is an important source of current statistical data and it is conducted by Statistics Canada every five years. The next census will take place in May 2011.

   Allot time to discuss the upcoming census with the class and how census data are used everyday in our communities. Census data are used at the local, provincial and federal government levels as well as by community organizations, businesses and individuals. (See "Who uses census data?" in the **Teacher's Guide**.)

2. Tell the students that, as employees of Data-R-Us, they are going to complete four requests that have come in from the town of Maple. They will use the statistical data provided to give their recommendations to the clients.

Teacher instructions

1. Distribute **Handout 1**. Explain to the students that they are going to be researchers at Data-R-Us. Their task will be to select the most appropriate neighbourhoods, in the fictional town of Maple, for new community services. Read **Handout 1** aloud (or have student volunteers read it for you) and discuss **Table 1**.

2. This exercise lends itself to group work. Divide the class into groups of three to five students and tell them that they will be asked to work together to determine where to locate the services on a map.

3. Distribute **Handout 2** and discuss **Table 2**. Column 1 lists each neighbourhood by number; column 2 the population aged 15 years and under; column 3 lists the population aged 65 years and over; and column 4 lists the total population including people who are older than 15 and younger than 65.

   To demonstrate how to interpret the data presented in **Handout 2 Table 2**, discuss the following with the class:

   The largest number of people 15 years of age and younger is in neighbourhood 1. Also in this neighbourhood you will see that there are more children than seniors (people – 65 years and over). Based on this information, neighbourhood 1 will be a neighbourhood to consider for a playground.

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4. Students will use **Handout 1 Table 1** and **Handout 2 Table 2** to decide on the best neighbourhoods for each service. This will be determined by finding neighbourhoods with the largest number of people who need the service. For example, for the playground, they will choose the neighbourhoods with the greatest number of children.
5. Distribute **Handout 3** to each group or to each student. This handout is a grid map of Maple where each neighbourhood is identified by a number. It also contains the specific instructions the students should follow to complete the exercise — under the title "Student exercise."

Student exercise

1. Find the four best neighbourhoods for the playground.
2. Find the four best neighbourhoods for the seniors' centre.
3. Find the two best neighbourhoods for the medical centre by using the results from request numbers one and two.
4. Find the five best neighbourhoods for the bus route.

- Once your group decides which neighbourhoods the first service should be located in, mark them on the census grid map. Do this by filling in the squares for each neighbourhood with the colour for the service. (The colour for each service is shown in the legend.) Neighbourhood 1, one of the choices for locating the playground, has already been marked for you. You may go ahead and colour it in with yellow. Continue to find the next best neighbourhoods for a playground and the senior's centre. (It is possible to have more than one service located in the same neighbourhood.)
- After you have correctly identified the best neighbourhoods for the playground and the senior's centre, the best place for the medical centre should be automatically evident. (Hint* the neighbourhoods selected for the playground and the seniors' centre will overlap.) Indicate the best neighbourhoods for the medical centre by circling the two neighbourhoods with the appropriate colour.
- The final task is to identify the five best neighbourhoods for the bus route using **Handout 1 Table 1** and **Handout 2**. The bus route should accommodate the neighbourhoods with the largest populations.

Activity 3: Enrichment

1. Have your students discuss other census data that would be important in researching the best location for these services. Of course not all other important data are necessarily census-related. Availability of land, land prices in the community, existing street patterns, bus routes, and the present locations of similar services will be considered in the selection of a site.

2. Ask your students to visit the Statistics Canada website www.statcan.gc.ca and research census data on the age distribution of their own community and province.

   Go to the Statistics Canada website www.statcan.gc.ca and find the "browse by" section. Click on "key resource" and select "Community Profiles" from the list.

   Students can type the name of their community in the space provided for "place name." Information about smaller communities can be found by clicking the link for "Census Tract (CT) Profiles" (above the "place name") and typing a postal code in Option 1.

   Alternatively, access this information yourself and provide the selected data to your students.

3. Have the students report on any new services in their community. Discuss why these new services are located where they are. Municipal offices, chambers of commerce and provincial development agencies are good sources of current information about communities.

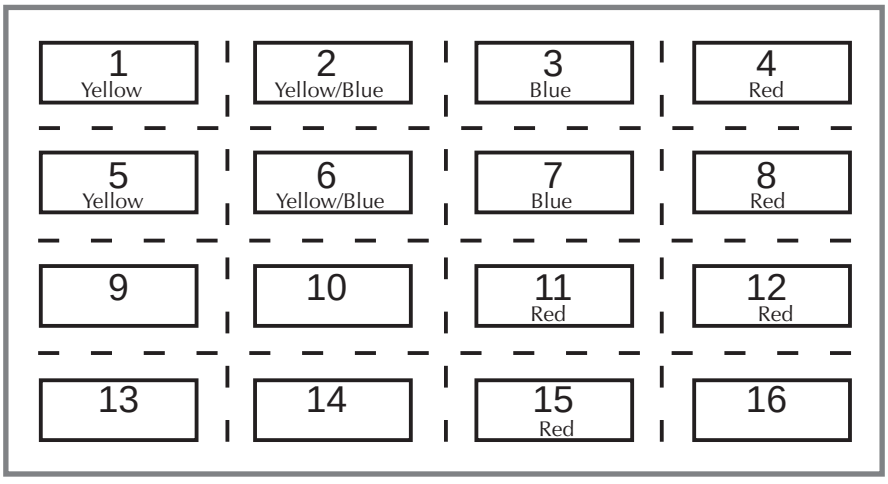
Activity 3: Answers to handouts 2 and 3

Table 2: Population by neighbourhood

Neighbourhood	People - 15 years and under	People - 65 years and over	Total Population
1	**175***	79	334
2	**170***	**190***	450
3	5	**250***	312
4	95	145	**520***
5	**171***	94	470
6	**150***	**201***	440
7	5	**220***	335
8	84	98	**522***
9	20	100	207
10	27	5	171
11	90	78	**568***
12	75	43	**608***
13	17	76	192
14	15	22	169
15	120	11	**632***
16	20	1	163

* largest number of people in each category

Census map of Maple



Name: Date:

Handout 1: Important decisions don't just happen!

The following exercise asks you to make some decisions:

Data-R-Us has assigned you four client requests. Each request is looking for data which will help to locate the most appropriate neighbourhoods in Maple for specific services.

1. The first request is from the town of Maple community volunteer league, which has raised funds to build a new playground.
2. The second request is from the Maple Town Council, which has designated money from the city budget, to build a seniors' centre.
3. The third request comes from the Get Well Medical Clinic. The primary users of the medical clinic are children and seniors. Get Well would like to expand into Maple and is looking for a location close to large numbers of children and seniors.
4. The fourth request comes from the town of Maple's Department of Public Transportation. They are looking to start a new bus route in an area where there will be a demand for public transportation.

Consider this:

Imagine that you have looked at the census report on the town of Maple and have picked the data that best describe the people who will use the services. **Table 1** is the result of this effort. Take a moment to study the table.

Table 1

Request number	Service	Who needs the service	Census Data
1	playground	children	people - 15 years and under
2	seniors' centre	seniors	people - 65 years and over
3	medical centre	children and seniors	people – 15 years and under people – 65 years and over
4	new bus route	everyone	total population

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Handout 2: Census data

Imagine that you have looked at the census report on Maple and have picked the data that shows the population in each neighbourhood based on their age. **Table 2** is the result of this effort.

Table 2: Population by neighbourhood

Neighborhood	People – 15 years and under	People – 65 years and over	Total population
1	175	79	365
2	170	190	450
3	5	250	312
4	95	145	520
5	171	94	470
6	150	201	440
7	65	220	335
8	84	98	522
9	20	100	207
10	27	5	171
11	90	78	568
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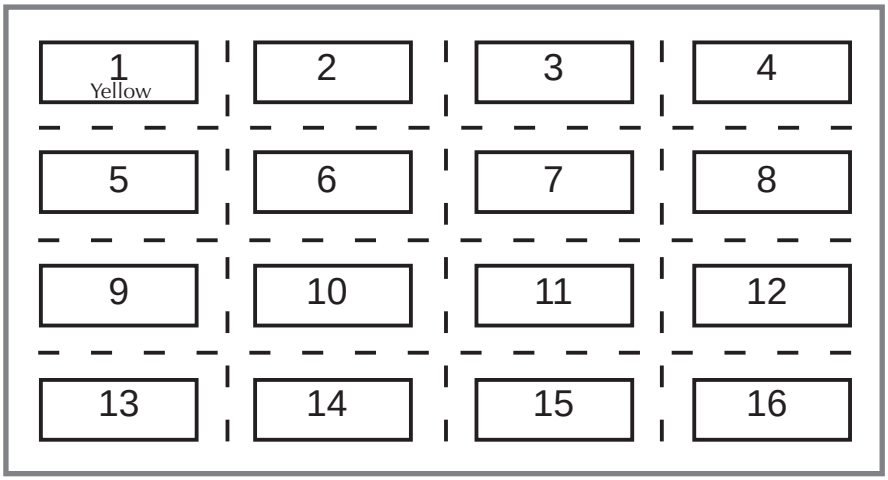
Handout 3: Census grid map of Maple

The town is divided into 16 neighbourhoods which appear on the grid map below.

Census map of Maple



Legend - best locations

playgound	Yellow
seniors' centre	blue
medical centre	green
bus route	red

1. Find the four best neighbourhoods for the playground.

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