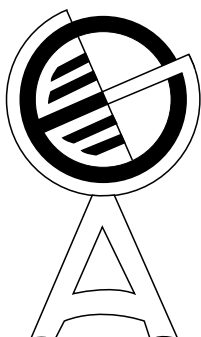


# THE MONOGRAPH

Volume 48, Issue No. 3

Fall, 1997

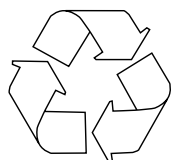
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## Markham and Norfolk Conferences - Get Involved!

Hope to see you at the **Fall Conference** in Markham, October 24 and 25. The program looks great, with a variety of field trips and workshops to suit all interests.

For next year, 1998, plan to attend the **Spring Conference** in Norfolk County. See the notice on p 3 of this issue of *The Monograph* for early details on the exciting field trips that will let you experience, first hand, the rapidly changing geographical patterns of a part of Ontario we once called "The Tobacco Belt".



The Monograph is printed on recycled paper as an indicator of our organization's interest in protecting the environment.

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## President's Message

Lew French, London Board of Education



Hopefully, your return to school this fall has been a smooth one with many exciting activities planned with your students. As of September 08, very little has been heard regarding Secondary School Reform. Last June, the Expert panel for Social Science I completed their report for the Ministry and over the summer, a team examined and analyzed all the reports towards a proposal regarding secondary curriculum. Their report recommended a core of Geography and History with elective options which made sense within the renewal package format. We are all waiting to see how the recommendations will be received within the political hierarchy.

O.A.G.E.E. would also like to recognize the efforts of several geography educators who have given considerable time and effort with work on the Geography Vision and Curriculum Framework as well as advising those involved with the Ministry's Expert Panel process. Our hats are off to Tricia Healy, Angelo Bolotta, George Thompson, Bob Morrow, Dick Mansfield, Bob Goddard, Brian Steffanson, Don Harben, Jack Hepworth, and Patti Smith. It has also been heartening to work closely with the O.G.C.A., O.H.C.A. and O.H.A.S.S.T.A. We should all salute the efforts of George Thompson (O.G.C.A.) and Ludi Habs (O.H.A.S.S.T.A.) who represented secondary teachers extremely well on the Social Science I Panel.

The only announcement has been the Provincial Report Card for Grades 1 to 6 and 7 and 8. We think it is significant that the Ministry chose to have specific reporting for Grades 7 and 8 in both Geography and History and not go with Social Studies as in 1 to 6. It is hoped that if these subjects are distinct in Grades 7 and 8, they will be kept that way in secondary school.

It is worth celebrating that the Canadian team composed of 50 Ontario students won the Gold medal at the International Geography Olympiad this summer. The

Great Canadian Geography Challenge will once again be underway soon. Dick Mansfield, the tireless leader of all this, has told me that this year also includes a family challenge, so keep an eye out for it!

On October 24 and 25, we will be back to Markham for our annual Fall Conference. The program/registration information has been out for some time. It is our hope that as many teachers as possible can attend and renew their geo-ed batteries and interact with peers. It is also a great opportunity to see what is new from media and publishers and to get an update on new directions. So, make plans to attend as soon as possible. We are so fortunate that the York Region Geography teachers agreed to host this event again despite the working conditions in York during the last two years. Next year's Conference moves to Hamilton.

From October 8 to 11, the N.C.G.E. Conference is being held in Orlando, Florida. Ontario is represented through a workshop given by Anne Smith, Doug Koegler, and Dick Mansfield on the well received Summer Institute in Kingston.

For eastern Ontarioans, O.A.G.E.E. is co-sponsoring a conference with the University of Ottawa and L'Association des Enseignants(es) de Sciences Humaines de l'Ontario (A.E.S.H.O.) on October 31-November 1 in the Department of Geography in Ottawa. Registration is \$60. Contact 613-562-5800 or Fax 613-562-5145 for program/registration information. The theme of the conference is "Geographic and Environmental Information Sharing: Breaking Barriers in the Classroom". I would like to thank the people involved with this initiative, particularly Claude Brun del Re, O.A.G.E.E. Regional Councillor for Region #10, Eastern Ontario, for their organizational efforts.

This spring, Norfolk County teachers host a spring conference in late April. It will be field oriented and provide many unique experiences.



# Norfolk '98



## **OAGEE Spring Conference May 8-9, 1998**

**W**e invite you to join us in Norfolk County next May. Committee members have been hard at work for over a year planning a field trip based conference you won't forget.

### **Norfolk '98 goals**

- to show the unique features of Norfolk County.
- create Norfolk-based field trips to use with your classes.

To encourage your participation, the cost will be very reasonable.

### **Registration**

- \$50.00 per day for O.A.G.E.E. members
- \$65.00 per day or \$125.00 for both days for non-O.A.G.E.E. members

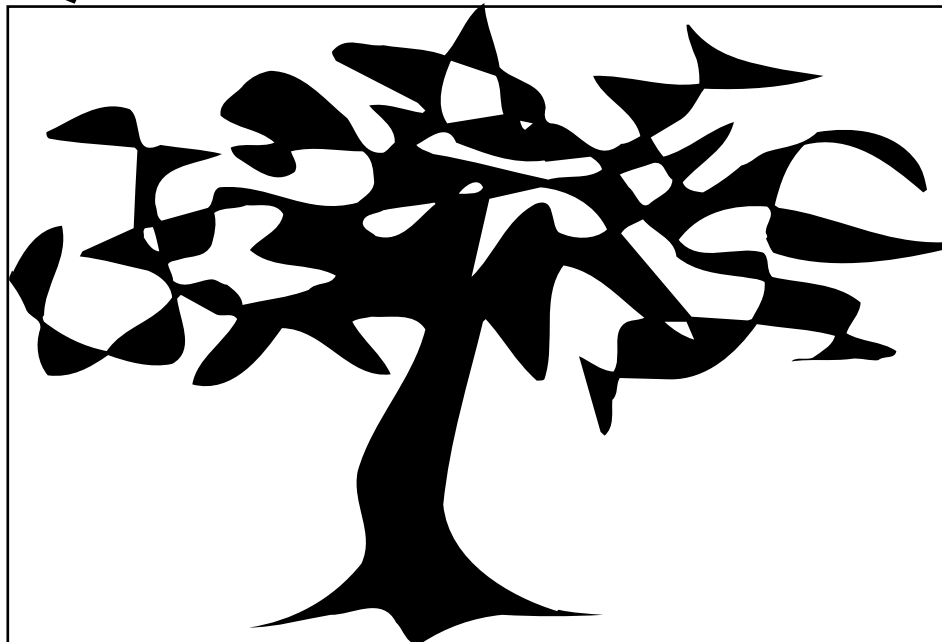
### **Accommodation**

- Little River Inn, Simcoe, ON
- \$58.00 single
- \$78.00 double

### **Breakfast and Lunch**

- included with registration

Look for our display at the O.A.G.E.E. Fall Conference in Markham. Highlight May 8 & 9 on your calendar now!



*Norfolk County has so much to offer teachers...physical diversity, unique agriculture, industry, urban issues and much more.*

## ***Five exciting field trips***

**F**riday, May 8, 1998

### **1. Southwest Norfolk**

- Sand Hills
- Long Point
- Forestry Station
- Backus Mill (Carolinian Forest)

### **2. Agriculture**

- Ginseng
- Apples
- Peanuts
- Winery

### **3. Urban/industrial**

- Townsend
- Regional government
- Nanticoke Hydro
- Stelco (Lake Erie Steel Co.)

### **4. Adventures on the Grand**

- Canoe or raft on the Grand River

**Saturday May 9, 1998**

Boat Charter to the tip of Long Point

- includes fishing and on-board BBQ

**May 8-9, 1998**

**"Bring Norfolk to your classroom!"**

# Native Animals of Canada: A Research Assignment for Grade 9 or 10 ESL-Geography

Ian A. Wright, Head of Geography, Etobicoke Board of Education

Native Animals of Canada is a classroom activity for grade 9/10 general level ESL-Geography students to create a report comparing two native Canadian animals. This activity fits well into the Intermediate Division curriculum - answering objectives of both Geography, Intermediate and Senior Divisions, 1988 and outcomes of The Common Curriculum, Grades 1-9.

Many of the outcomes that apply to this activity are not found only in the "Self and Society" section of The Common Curriculum, Grades 1-9 but come from the sections on "Mathematics, Science and Technology, Languages and the Arts". Native Animals of Canada can easily be part of an integrated Transition Years program involving a number of teachers, subjects and disciplines. For example:

Students will:

- understand the relationship between human activity and environmental changes
- know how to find, organize and evaluate information from a variety of sources
- understand information technology and use it appropriately
- show concern for living things and ecosystems and be motivated to protect the environment
- know how to conduct an investigation honestly and objectively
- be able to explain the connection between the form and meaning of their works
- be able to produce practical and imaginative works in a variety of media on their own and in collaboration with their peers
- be able to read, with the help of a dictionary or other aids, and have a general understanding of more complex written material, including ... textbooks that are written for native speakers of the same age
- be able to write compositions, letters or reports of four to eight paragraphs on familiar topics

### Preparation:

This activity is not suited to a level-1 ESL-Geography class early in the semester or in the first term of a full year program and is best with an intermediate level ESL-Geography class. The class should have had previous experience working together in small groups - both self-selected and teacher directed - where they have had group and peer evaluation experiences. For Native Animals of Canada I partner the students so that there is a mix of high and low achievers and most importantly students from different ethnic groups in order to build co-operative and collaborative skills. One of the "Ten Essential Learning Outcomes" is that

"students will: have the skills needed to get along well with other people, show respect for human rights and practice responsible citizenship".

### A Four-day Activity:

Run off, hand out and have a class discussion about the assignment pages. Each pair of students select their animals in two rounds. Once an animal is selected, it's gone so there is no duplication. Students can draw their choice from an old hard-hat or from choices listed on the blackboard, overhead or chart paper. Each group must choose animals from two different columns so they compare information about mammals, birds or aquatic creatures. Emphasize that the report is to be a comparison and that marks will be deducted for simple description. We go over the expectations and talk about the eight steps to the inquiry model of research - emphasizing note-taking and re-writing information in your own words. The remainder of this period is spent researching in sets of a variety of textbooks and classroom CD-ROMs. (see recommended resource list)

The second and third days are spent in the school library researching the circulating books, reference books, periodical indexes, CD-ROMs, and the Internet among other media. Students with little or no prior experience in using the school library facilities will need small group tutorials by the resource-centre teacher. Some groups may also need help using the school's Internet access. Plan ahead for this using the Ministry's Partner's in Action document as a guide for collaboration with the library staff.

By the fourth day all research information should be complete. Use the class period for the partners to review, revise and share their information. This is a good time to reiterate the basic requirements and to emphasize that the final report is to be a comparison and a result of shared effort.

The report evaluation page should be used by the students as a checklist to make sure they have completed the assignment. Their finished product will include an evaluation of how well the partners worked together by dividing one pie graph and having both students sign it. In addition, each student completes and hands in a written evaluation of what they did, what their partner did, what they learned, and what they would do differently next time. These evaluations, together with the teacher's evaluation of their process are used to assign the ten marks for individual effort.

An optional activity is to model letter-writing and assign one thank-you letter to each student. These can be addressed to school administrators, library staff, computer teachers, etc. thanking them for the use of their skills and resources.

## Native Animals of Canada Research Assignment

Work in a group of two as directed. You are to write a report to:

- select two animals - each one from a different column below
- find information about what the animals eat (types of food)
- find information about where the animals live (the animal's habitat or environment)
- find information about the breeding or reproduction of the animals
- find out if the Canadian population of these animals is increasing or decreasing
- find out where your animals live in Canada and locate any migration routes



The finished report must include:

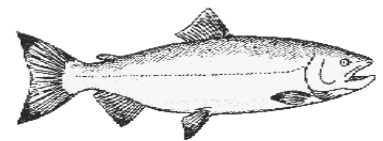
- a cover page with a title, date and names of both of the group members
- a complete table of contents page
- information in sentences and paragraphs comparing your two animals (see above)
- a map coloured to show where your animals live in Canada and where they migrate complete with a title and legend on the map outline
- a drawing or photocopied picture of your animal which is referred to in your written work
- a completed group evaluation form
- a bibliography page with a list of all the books and other resource materials, e.g:

Kreuger, R. and Corder, R. *Canada: A New Geography*, 3rd. ed., Toronto: Holt Rinehart and Winston (Canada), 1982.

Antelope  
Arctic fox  
Bison (Buffalo)  
Black bear  
Caribou  
Fur seal  
Gopher  
Groundhog (Woodchuck)  
Lynx  
Moose  
Mountain goat  
Mule deer  
Musk-ox  
Rocky Mountain sheep  
Skunk  
White-tailed deer

Bald eagle  
Blue heron  
Blue jay  
Canada goose  
Ptarmigan  
Snow goose  
Snowy owl  
Whooping crane

Cod  
Halibut  
Herring  
Lamprey  
Lobster  
Pacific salmon  
Scallops  
Walleye (Pickerel)



# Canadian Animal Report Marking Scheme

---

## Presentation

6 marks

- the report has a title page with the date and names of the group members
- the report has a table of contents page
- the report has a bibliography page
- the report is collated, bound and the pages are numbered
- maps are complete with title, legend and use colour appropriately
- photos or drawings of both animals are included

---

## Style and Form

3 marks

- there are a variety of sentence structures used
- the vocabulary is appropriate
- the text is free of obvious errors in spelling and grammar

---

## Introduction/Conclusion

2 marks

- there is an introduction which presents the two animals
- there is a conclusion which summarizes the content

---

## Content

14 marks

- there is information on what both animals eat in Canada
- there is information on where both animals live in Canada
- there is information on how both animals breed in Canada
- there is information on the numbers of both animals in Canada
- the two animals are compared to each other
- the report includes references to the maps
- the report includes references to the photos

---

## References

3 marks

- the bibliography is in the correct format
- there is information from CD-ROMs
- there is information from the Internet

---

## Evaluation

2 marks

- a group evaluation form was submitted
- an individual evaluation was submitted

---

Group Report mark

/30

Individual effort mark

/10

---

Comments:

## Some Resources:

*Animal Photographs*, <ftp://photo1.si.edu/images/gif89a/science-nature/>  
*Canada Year Book, 1995*, Ottawa: Statistics Canada. (CD-ROM)  
*Canadian Almanac and Directory* on CD-ROM  
*The Canadian Encyclopedia Plus*, McClelland and Stewart, 1996  
*Encarta '97 Deluxe Encyclopedia*, Seattle: Microsoft Co. (CD-ROM)  
Hannell, C. and Harshman, R., *Across Canada: Resources and Regions, 2nd ed.*, John Wiley & Sons Canada, 1980  
*Hinterland Who's Who*, [http://www.ec.gc.ca:80/envcan/eng\\_ind.html](http://www.ec.gc.ca:80/envcan/eng_ind.html)  
Kreuger, R. and Corder, R. *Canada: A New Geography, 3rd ed.*, Toronto: Holt Rinehart and Winston (Canada), 1982  
*The Mammals Index*, <http://www.geocities.com/CapeCanaveral/3073/index.html>  
*StatsCan Environment*, <http://www.statcan.ca/Documents/English/Pgdb/Land/enviro.htm>  
Swatridge, L., et. Al., *Canada: Exploring New Directions*, Toronto: Fitzhenry & Whiteside, 1990.

---

## Learning Activity: People of the Amazon

Jessica Kukko, Preservice Student, Lakehead University, Thunder Bay

The primary intention of this learning activity is to accommodate grade eleven students, however, it is not grade specific in its design. This activity was created to compliment the information already presented to students concerning the climate and vegetation of Brazil while at the same time adopting a cultural focus pertaining to the Indigenous population of the Amazon Basin.

This activity is essentially student-centred in that the teacher serves only to facilitate the thought process of the students while they explore the many different facets of the culture of the Indigenous population. Students are required to use deductive reasoning in order to complete five tasks concentrating on different cultural aspects. Only minimal resources should be made available for student use during this activity since students are expected to draw on their previous knowledge about the climate and vegetation of the Amazon region in order to formulate their answers to the questions.

The idea for the structure of this activity originated in the preservice courses at the Faculty of Education where professors at Lakehead University are experimenting with portfolio assessment. This practicum session provided the prime opportunity to implement an evaluation tool of this nature in order to observe firsthand what type of results could be generated.

In order to further their understanding about the culture of the Amazon people, this activity allows students to explore six different aspects of this unique culture, arranged into five sections, including diet, shelter, agriculture, transportation and clothing and customs. The activity

requires the teacher to divide the class into groups of four students and it is in these groups that students are to complete all of the tasks from the five different sections (envelopes). Students are to prepare a title page for their folder and the artifacts produced from these tasks will be assembled into their group portfolio. At the outset of the activity, students are also given a checklist in order to ensure that their folder contains all of the elements requested as well as the criteria for success.

In terms of evaluation, a further dimension is added in that the opportunity exists for students to evaluate their own work by completing the group evaluation form. This type of evaluation ensures that the process as well as the product is being evaluated in this cooperative learning activity. Although this form of assessment and evaluation is not a "true portfolio" in terms of monitoring student learning over time, students are able to monitor the results of what they have learned over two seventy-two minute work periods regarding the culture of the Indigenous people of the Amazon. Furthermore, since this is only an initial collection of artifacts, its continued use throughout a unit on Brazil would transform the activity into a true portfolio.

Upon completion of the group portfolio, a class discussion should follow in which students are given the opportunity to pool their findings and in which the teacher can clear up any misconceptions that the students may have had. At this point, a culminating activity is assigned in the form of a letter (from a tourist's perspective) which addresses all that the students have learned about the culture of the "People of the Amazon".

## The Indigenous People Of The Amazon Rainforest

### Group Portfolio Checklist

- 
1. Folder - with names of group members
  2. Title page
  3. All of the activities from the following sections:
    - Diet I
    - Diet II
    - Shelter
    - Agriculture
    - Transportation
    - Clothing and Customs
  4. Group Evaluation form
- 

### Group Portfolio Evaluation

Originality and Creativity: /5

---

Content:

* completeness	/5	
* evidence of depth of thought	/30	
* neatness and organization	/5	
		/40

---

Attendance, Participation and On-task behaviour:

Day 1	/5	
Day 2	/5	
Total	/10	/5

---

Total /50

---

- \* Each group member is accountable for all sections and must be able to fully explain and defend the contents of their portfolio.



# Group Evaluation Form

In groups, complete the following questions

	No			Yes	
1 Did group members always bring new ideas to the discussion?	1	2	3	4	5
2 Did each of us listen attentively to the ideas of other group members?	1	2	3	4	5
3 We always checked to make certain that each of us understood the work.	1	2	3	4	5
4 We shared the work equally among group members.	1	2	3	4	5

5 Here is how we helped each other learn new information:

---

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---

---

6 One difficulty that our group encountered was the following (explain in detail):

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---

7 What would we do differently the next time to increase our collaboration. Explain in detail.

---

---

---

---

---

---

---

## The Indigenous People of the Amazon



Instead of relaxing on Copacabana Beach for your spring break vacation, you decided to go on the adventure of your life. In order to learn more about the culture of the Indigenous people of the Amazon, your trip brought you to the rainforest of Brazil. Write a letter back home that describes your experiences and explains how these experiences are different from those at home. Include with your letter a snapshot (drawing) of the most memorable moment of your vacation.

Use the following topics as a guide:

- 1) Diet - What did you eat?
- 2) Shelter - Where did you stay?
- 3) Transportation - How did you get around?
- 4) Agriculture - From what you observed, what plants did the Indigenous people cultivate?
- 5) Clothing and Customs - How did the Indigenous people dress?

Your letter should be a minimum of two pages, double-spaced, both sides. The key idea is to describe your experiences and to compare our culture to that of the Indigenous people.

---

### Letter evaluation

3 marks per section x 5 sections

/15

Drawing

/5

Total

/20

Comments:

## Envelope #1 - Diet: Sections I and II

### People of the Amazon: Diet

1. The Indigenous population does their shopping in the largest supermarket of the world: "the tropical rainforest". How does the rainforest compare or differ from a supermarket?
2. What types of groceries are available? Brainstorm a list of products that one might find in the forest. Include both plants and animals.
3. What methods do the natives use to obtain their food?
4. Meal preparation is a completely different process for the Native population of the Amazon forest. How is it different from that of Western culture?

### People of the Amazon Diet II

1. Describe a typical meal keeping in mind the diet of the Native people of the Amazon.
2. Each group is to create an original recipe using the ingredients found in the rainforest. Your group must include in the recipe a detailed list of ingredients and quantities needed. Directions for food preparation are also required.
3. If you were the owner of a restaurant and wanted to include this recipe on your menu as that native to the Indigenous populations of the Amazon, how would you sell it to your customers? As a group, write a short paragraph outlining your reasons.

### Natural Products of the Tropical Rainforest and the Amazon Basin

#### Nuts

- coconuts
- Brazil nuts
- cashews

#### Plants

- cacao (tree that yields cocoa beans)
- ferns
- coffee tree
- vanilla
- manioc (a tuber whose bitter poisons have to be squeezed out before it is edible)
- maize
- rice
- common bean
- water hyacinths (when burned the plant yields an ash that is refined and used as salt)
- peperomias (kin to the plant that yields black pepper)

#### Fish (Meat Staple)

- pirarucu (a red, gold and brown freshwater fish that can weigh more than 200 pounds)

#### Insects

- non-poisonous edible grubs

#### Fruits

- bananas
- plantains
- pineapples
- pomegranates
- passion fruit
- mangoes
- papayas
- Sapotaceae (a large and tasty fruit)
- avocado
- cherimoya (a heart-shaped fruit of the custard-apple family)
- piquia
- mangaba (its shape is that of a small apricot but it tastes like a pear)

#### Game

- capybaras (a large rodent)
- tree frogs
- giant armadillo (a delicacy)
- snakes (anaconda)
- monkeys
- deer
- wild pigs
- anteaters
- golden hare

## Envelope #2 - Shelter

### People of the Amazon: Shelter

1. The homes of many Canadians are built according to the climate (e.g. houses are insulated to minimize heat loss in the cold winters while air conditioning systems are installed to keep the interior of the houses cool in the summer). By recalling the tropical climate of the Amazon region, your group should be able to describe the types of shelter that are built by the Indigenous people to protect themselves from the heat and the wet climate. Indicate the types of materials that are used as well as the design of the shelter.
2. Each group will be given a piece of chart paper which is to be divided into two sections. On the first half, your group will illustrate what a typical home may look like for the Indigenous people of the Amazon. On the second half, your group will illustrate its perception of how a native settlement is organized.
3. Literally isolated from modern civilization, the people of the Amazon lack many of the modern amenities. How do these people go about creating their shelters?

## Envelope #3 - Agriculture

### People of the Amazon: Agriculture

1. It is observed that every 10 years or so, the Indigenous group abandons its settlement and moves to another part of the rainforest. Why does this movement occur?
2. What type of agriculture do the natives use?
3. Describe this type of agriculture.
4. How does this type of agriculture benefit the crops that are grown?
5. Is it possible for these groups of natives to return to their original settlements? Why or why not?

## Envelope #4 - Transportation

### People of the Amazon - Methods of Transportation

1. The transportation networks in this region differ significantly from those of Canada or the United States. What methods of transportation do they use?
2. What is their primary transportation route?

## Envelope #5 - Clothing and Customs

### People of the Amazon: Clothing and Customs

1. Considering climate, religious practices and available materials what would be the distinct mode of dress (or adornment) in the region?
2. Christianity, or more specifically Roman Catholicism, was introduced to Brazil with the arrival of Europeans. What type of religion(s) dominated prior to the arrival of the Europeans? How might their beliefs have affected their clothing and body fashions?
3. In your own words, write a brief paragraph outlining how the Indigenous peoples of Brazil are similar to North American Indigenous peoples. In this paragraph you might address clothing, religion, hunting and gathering lifestyles or any other ideas you feel are important.
4.
  - a) Write a brief paragraph outlining the lifestyle of the area natives, and why they live this lifestyle. (custom, ritual, religion, prior knowledge, survival)
  - b) How might Western Civilization benefit from the lifestyle and knowledge of the Indigenous people of Brazil?
5.
  - a) What might be some traditional roles of the Indigenous people before European influence?
  - b) What are some changes incurred following contact with the Europeans?
  - c) For many, how has this affected their religious beliefs, their clothing choices and their self-adornment practices?
6.
  - a) What type of family arrangement or society do you think is predominant amongst the Brazilian native people prior to contact?
  - b) How is this different from the European nuclear family?
7. Create a possible traditional mode of dress that could be used for different celebrations. Using colour, and a chart or diagram, represent this in a picture. You may use words or explanations in your drawing. Remember to use only materials that would be available to these peoples from their natural surroundings.

## Update: Epilogue on “Using the Internet Graphical Weather Browser” Article

The Editor

In the article in *The Monograph*, Spring 1997 (Volume 48, Issue No.1) entitled “*Using the Internet Graphical Weather Browser*” by Paul Caraccio, the Internet address (URL) was given for the source of the weather data needed to carry out the activity. Shortly after publication of the article, I received a query from John Lynch, Head of Geography, St. Peter’s Secondary School, Peterborough indicating he was having difficulty locating the site on the Internet.

After some investigating, I was able to confirm that the site was no longer in existence as a source of the type of information used in the activity. And the date of termination was April 28, 1997, just around the time Issue No. 1 of *The Monograph* was reaching our readers. The creator of the site, Charles Henrich, indicated that “as I became disinterested in the web, and the time I have available to work on these pages is almost nonexistent...[and

this] encourages me to hand on the torch.” So I guess we learn one important lesson about the Internet: Nothing stays the same for very long, and sites come and go quickly!

Mr. Henrich did, however, indicate the sites from which he obtained the data used to create the graphics and obtain the statistics used on his Weather Browser site. They are:

<http://www.ssec.wisc.edu/> (Space Science and Engineering Center at the University of Wisconsin, Madison)

<http://www.atmos.uiuc.edu/> (Department of Atmospheric Sciences at the University of Illinois, Urbana/Campaign)

<ftp://explorer.arc.nasa.gov/Weather> (GOES data set from NASA)

<http://www.nottingham.ac.uk/pub/sat-images/meteosat.html> (University of Nottingham, UK)

## GCA: Land Use Exercise: Kingston

Fraser Cartwright, York Region Board of Education, O.A.G.E.E. Past President

This exercise follows the section “**Land-use patterns**” in *Contact Canada* 2nd Ed, 1996, pp 332-342

An outline map has been provided which is used by the Planning Department, City of Kingston, Ontario. It shows how blocks of land are used throughout the municipality. Each land use is indicated by a letter. For example, low density residential land use is shown by the letter “A”. However, most land use maps used throughout Canada use a colour code to show more easily how land is used. Your task is to use the following chart of land uses and colour codes to convert this map of letter codes into a standard land use map showing colour codes. For example, all areas of low density residential land use should be shown by a light yellow shading.

Land use	Colour code
Residential - low density	light yellow
Residential - medium density	dark yellow
Residential - high density	orange
Institutional (education, medical, government)	grey
Commercial	red
Industrial	blue
Open space	light green
Parks	dark green

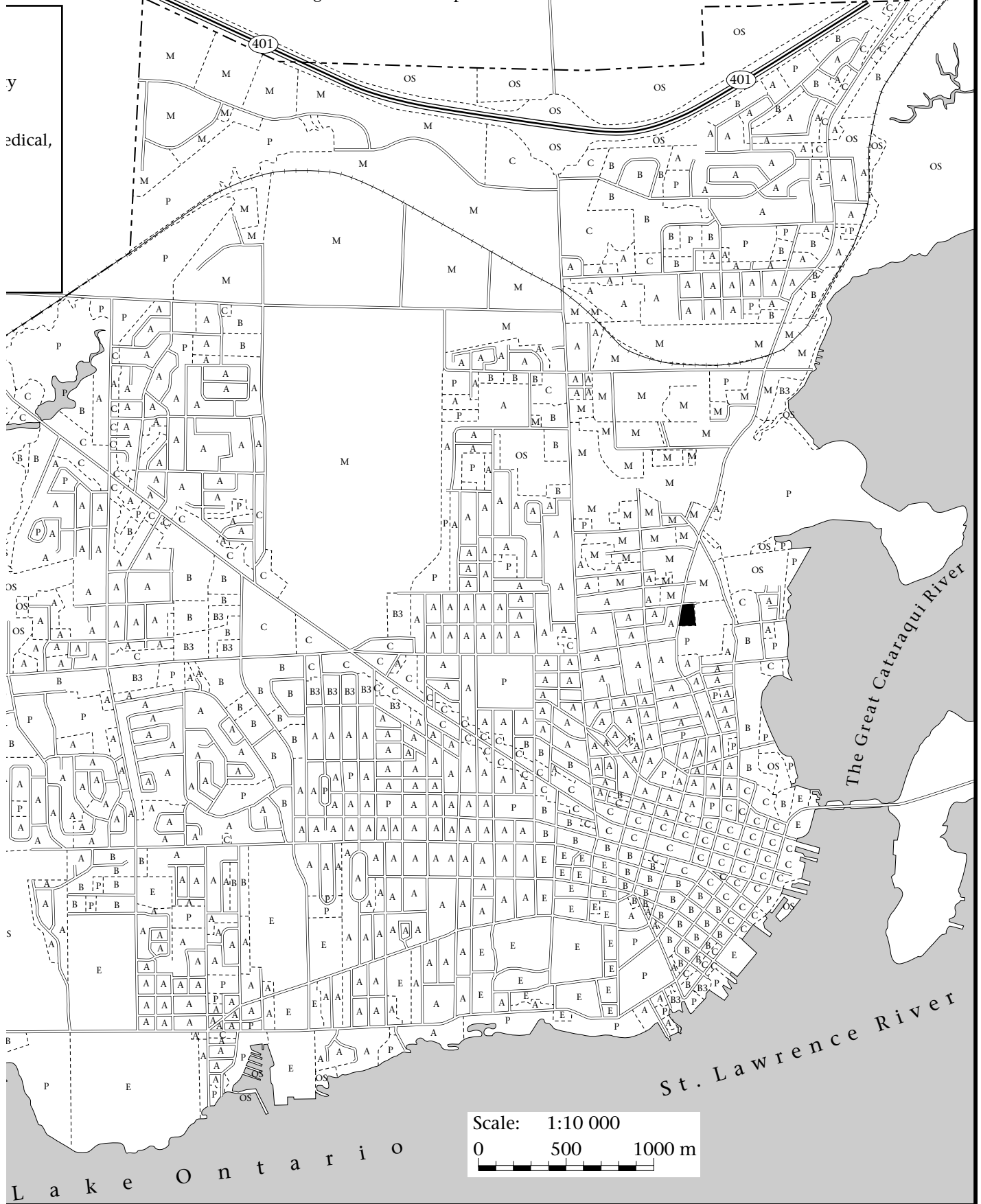
### Task:

- Shade the letter boxes in the legend with the appropriate colour code - for example, the box containing the letter “C” should have a red background.
- Shade each block throughout the Kingston map with its appropriate colour code. As some of the blocks are small, shade as neatly as possible.  
  
Note: It may be difficult to read a few of the letters. You may either leave these blank or look at the land use in the surrounding blocks to give you a clue, as to its use.
- Which land use occupies the largest area? Guess the percentage land use that this category occupies.
- Using a sheet of tracing paper, make a grid in which you draw 1 cm squares. Using this as an overlay, count the number of full and partial squares for each land use. Count the number of partial squares and divide by 2. Add this number to the full square count to obtain a total for each land use.
- Where would you describe the location of high density residential land use (mostly multi-level buildings—condominiums or apartments—that contain six or more families)?
- How would you describe the location of the parks in relation to the residential areas?
- Using the terms “commercial strip” and “Central Business District” describe the pattern of commercial land use in Kingston.
- What is the major educational institution located in Kingston? Where do you think it is located on this map?
- Assume an application has been received by Kingston Planning Department to construct a small pharmaceutical manufacturing plant within the zone marked with an arrow. Local residents know that the company making the application produces toxic chemicals and there may be storage problems. How would you respond to this application if you were the chief planning officer?



# THE MONOGRAPH

## Map





## GOS3A: Spansmap Spreadsheet Exercises

Gerry Bell, Central Algoma Secondary School and O.A.G.E.E. Regional Councillor, Region #11, Northeastern Ontario

Note: The methods used to construct the cartograms shown as Situations 1 to 5 is explained in the article "Cartographic Modelling for GIS" by Gerry Bell on p 29 of this issue of The Monograph.

Construct cartograms and maps for the following situations using the functionality of the Spansmap Spreadsheet.

### Situation 1

A company wants to market bus tours to senior citizens. Since bus tours are relatively inexpensive, income levels are not really important. However, there is an age restriction for discount purposes that anyone under the age of 60 is not allowed to participate in the tours.

### Situation 2

A retail sales organization concerned about the housing market in Canada wants to advertise about mortgages. They want a map which shows the distribution of renters as a percentage of the total housing market.

### Situation 3

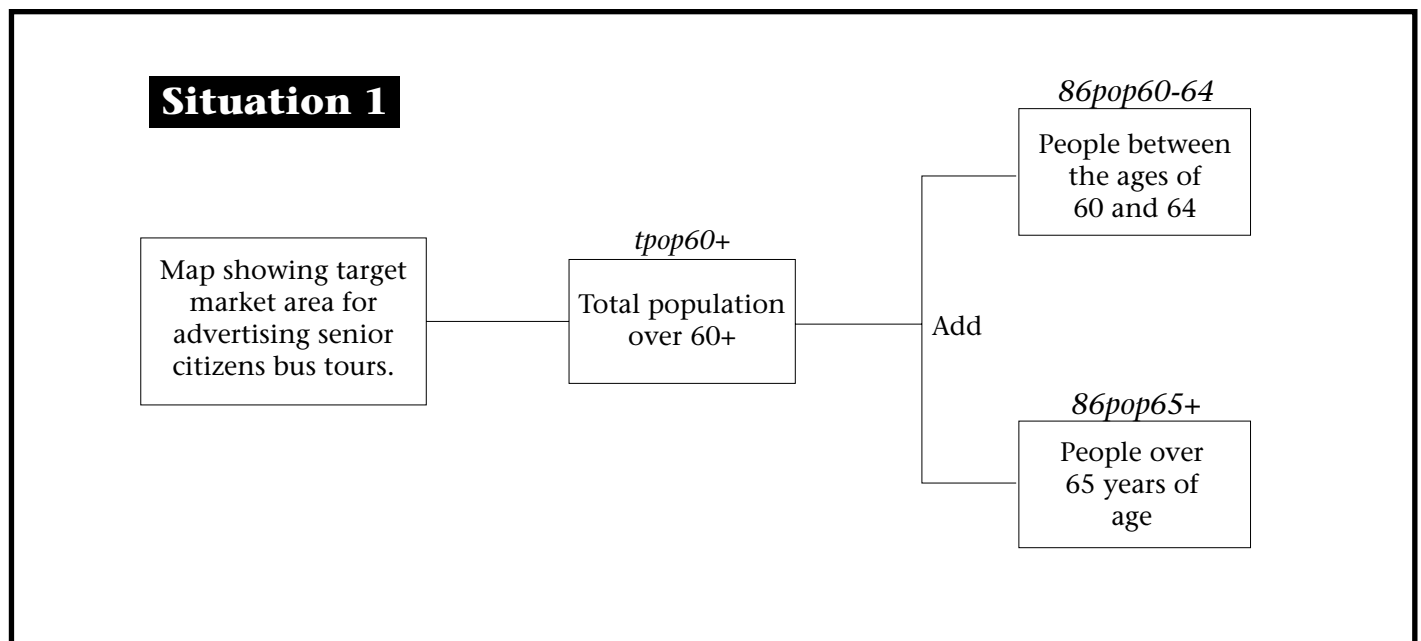
A major retailing firm from the United States wants a map showing the income levels of Canadians. They are a high growth company and are looking to locate stores in areas where there has been significant growth in income levels.

### Situation 4

The government of Ontario is trying to gauge public response to the issue of education funding. They want a map which shows the changes in the number of high school-aged students so that new schools can be built in high growth areas. They would also like to identify areas of declining growth so that buildings not in use could be sold to the private sector.

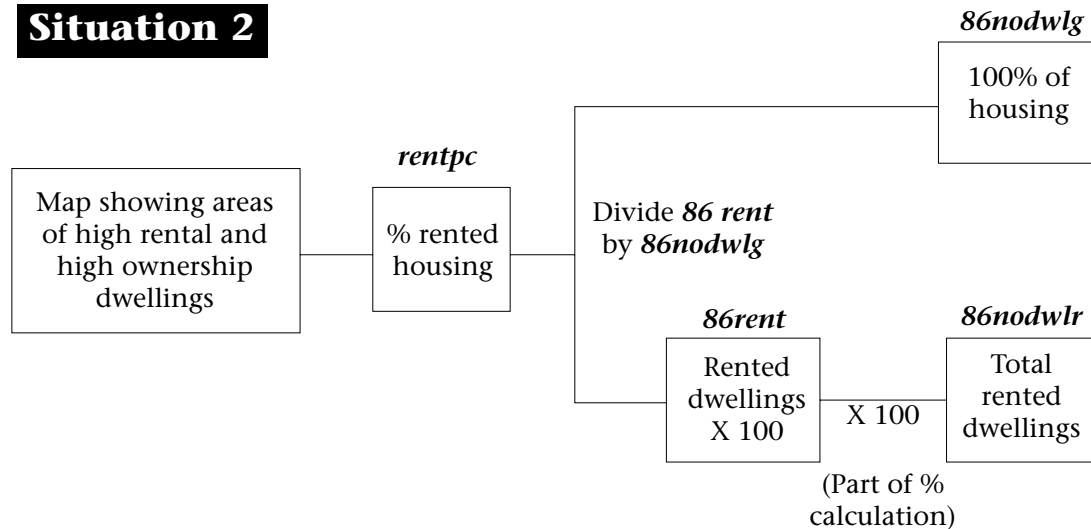
### Situation 5

A major marketing firm has been commissioned to study the buying habits of Canadians. You are in charge of one part of the project. You need to produce a map that shows the relative purchasing power of baby boomers in 1986.

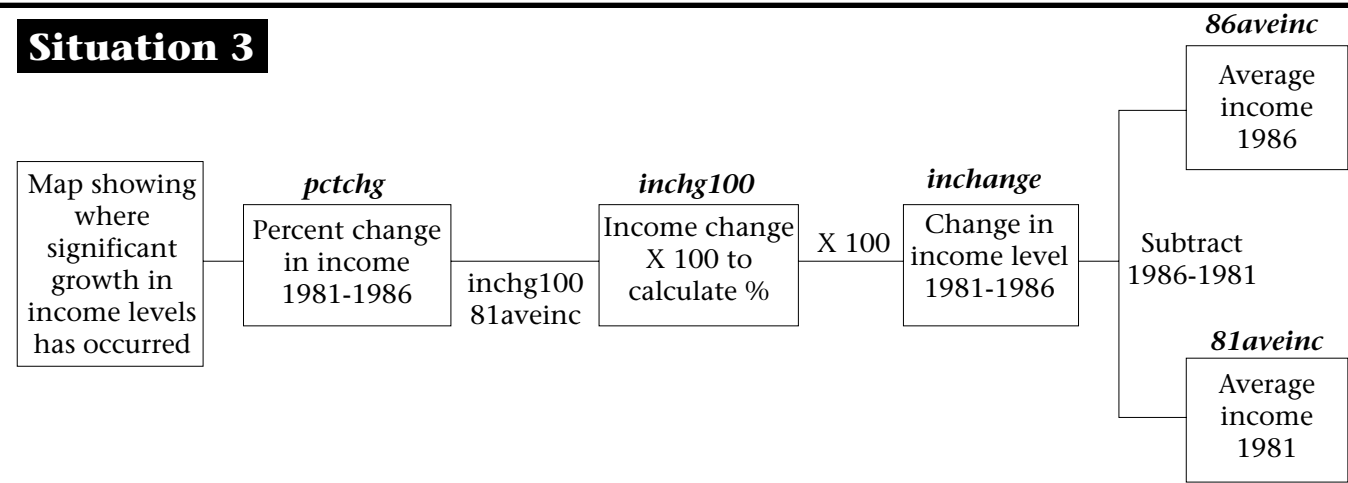


# THE MONOGRAPH

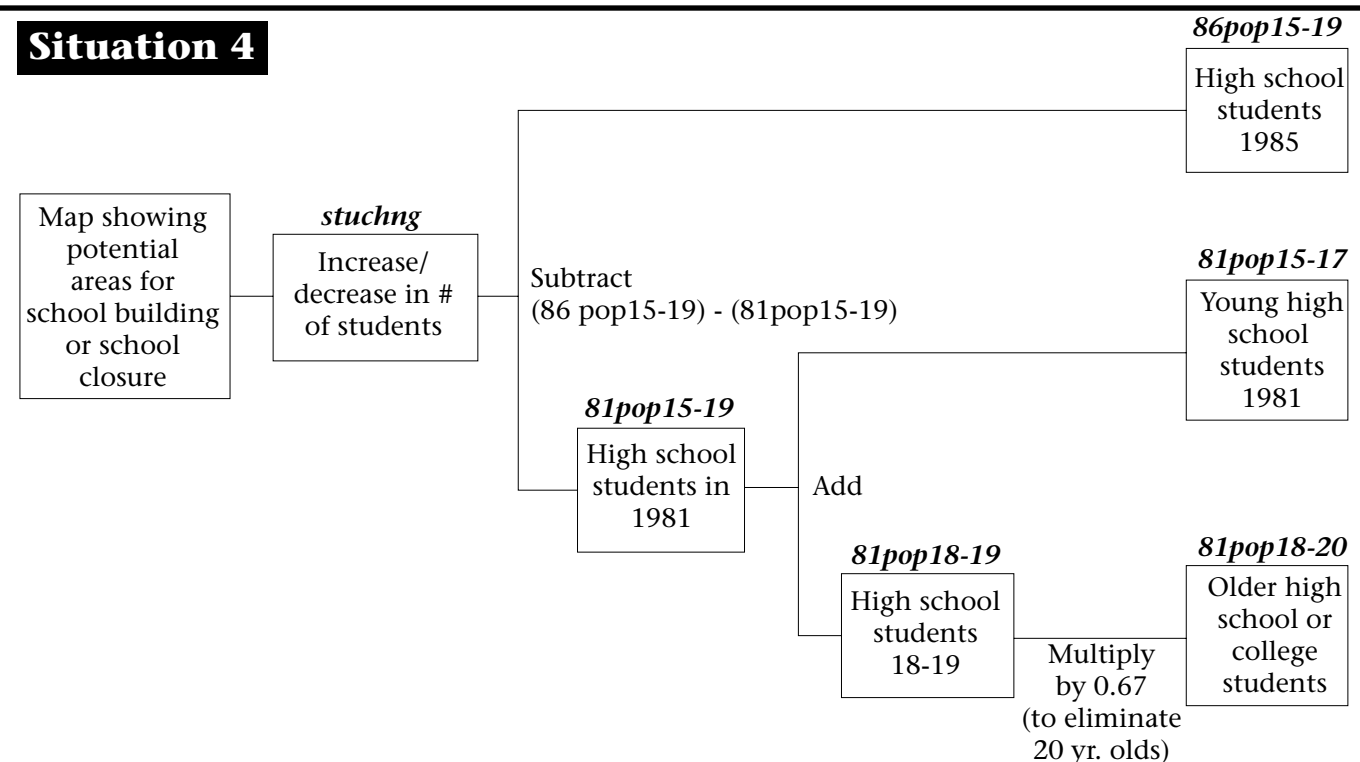
## Situation 2



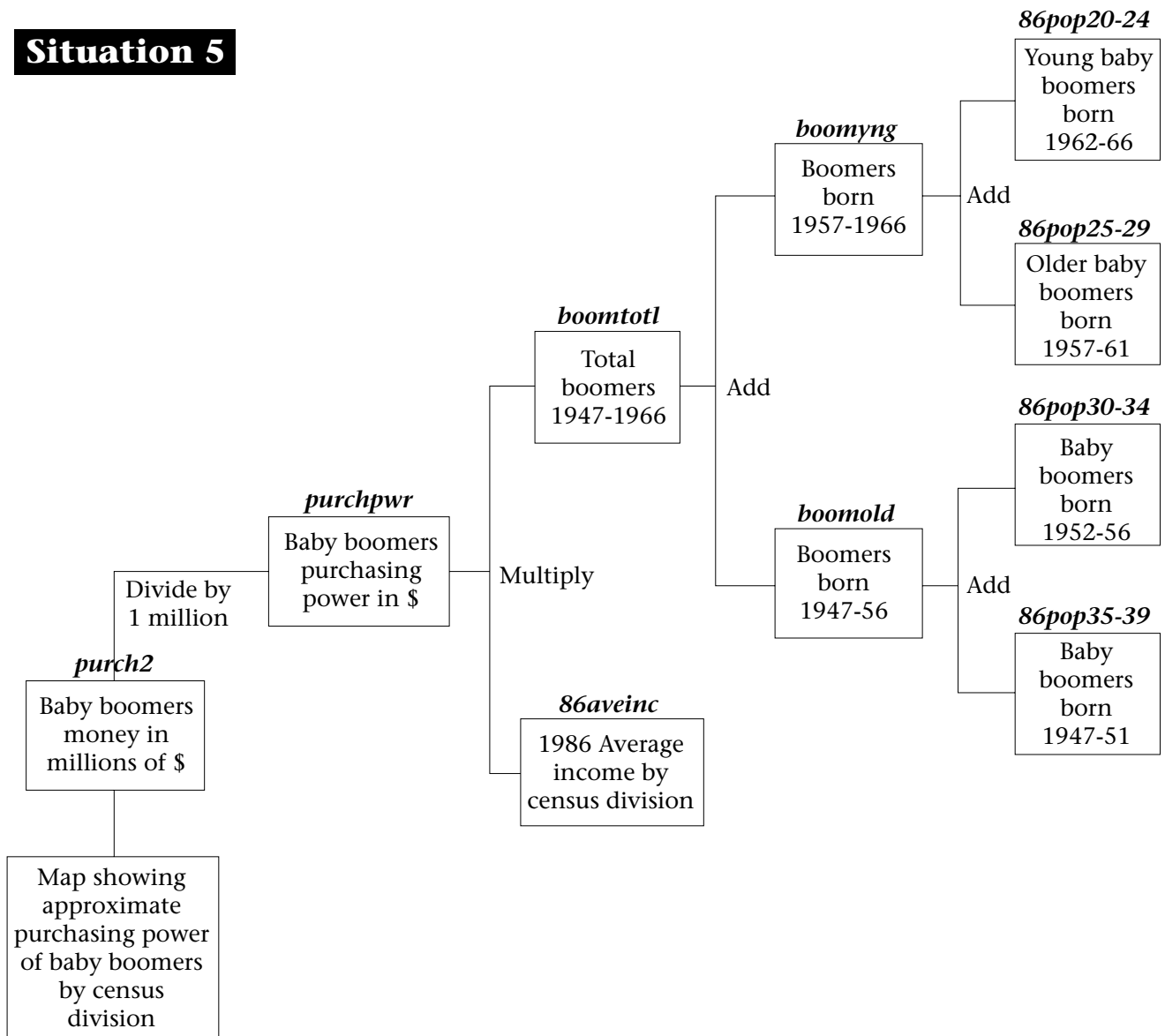
## Situation 3



## Situation 4



## Situation 5



## *Geo Tips and Techniques*

*Up-to-date and useful information and methods  
for the Geography teacher*

*Compiled by the Editor*



## Hinky Pinkys: An idea for that hot afternoon in the Geography Classroom...

Brenda Scarlett, Geography/Mathematics Teacher, Frontenac Secondary School, Kingston, ON

Looking for an exciting and stimulating exercise for that hot and sticky Friday afternoon, then this is for you. Trivia and Geopardy move aside and make way for the hinky pinky riddle game. You may develop a strained brain in order to solve the riddles of this famed game but the students will love it.

Hinky Pinkys were developed by Marilyn Burns who wanted more than the everyday riddle since with hinky pinky, the answers must rhyme!! For example, what would you call a rockin' group of sediment? - A SAND BAND! Or what do you call a Geographer who talks on and on and on? - A TEACHER PREACHER.

As you can see, hinky pinkys can be applied to Geography since it is a great way to assist students in remembering the countless terms and definitions they are introduced to throughout their geographic education. As teachers, you can begin the game by creating your own hinky pinkys, as shown below, then have students come up with their own.

This game only requires a creative imagination, and a sense of humour which as geographers and teachers, I know we have all acquired throughout the years. Enjoy these Geography-minded hinky pinkys below:

What do you call:

- |   |                        |
|---|------------------------|
| 1. paper directions to a maple tree                   | (a sap map)            |
| 2. an environmental problem answer                    | (a pollution solution) |
| 3. a bird on flat land                                | (a prairie canary)     |
| 4. a splinter water system                            | (a sliver river)       |
| 5. a very tall carnation                              | (a tower flower)       |
| 6. leaning flora                                      | (a slant plant)        |
| 7. roadway of glacial debris                          | (a moraine lane)       |
| 8. a lecturing water system an auctioned Mercator map | (preaching leaching)   |
| 9. an auctioned Mercator map                          | (a bid grid)           |
| 10. a waterfall in the Rockies                        | (a mountain fountain)  |
| 11. a small portion of a glacier                      | (an ice slice)         |
| 12. a purchased bending mountain                      | (a sold fold)          |
| 13. a mean politician                                 | (a sinister minister)  |
| 14. a yawning tourist site on the B.C. coastline      | (a bored fiord)        |
| 15. a group who worship the San Andreas region        | (a fault cult)         |
| 16. cash for Canada's wheat                           | (a paid trade)         |

This should hopefully give you an idea of how hinky pinkys could be applied to your geography classroom. Now try creating your own!!

Reference: Burns, Marilyn. *The Hink Pink Book*. Little, Brown and Co., 1981.

# Canadian Studies: Integration Puzzler on the Federal Election - June 2, 1997

Tony Schafer, Albert Cambell C.I., Agincourt, Ontario

“Western Canadians, particularly those in B.C., have complained they knew the electoral winner a few hours before the polls had closed on the coast.”

*R. Fife - Toronto Star April 20, 1997.*

### Facts

1. Under the old law, polls were open from 9 a.m. to 8 p.m. local time across Canada.
2. Under the new rules) polls will open at 9:30 a.m. and close at 9:30 p.m. local time in Ontario and Quebec (e.g. Toronto, Ontario - Eastern time).
3. Polls will close within a half an hour everywhere in Canada.
4. Saskatchewan, unlike all other provinces, is not on daylight savings time.

### Puzzler

1. What time (local daylight savings time) will the polls close in:
  - a) St. John's, Newfoundland (Newfoundland time)?
  - b) Halifax, N.S. (Atlantic time)?
  - c) Winnipeg, Manitoba (Central time)?
  - d) Calgary, Alberta. (Mountain time)?
  - e) Vancouver, B.C. (Pacific time)?

### Bonus

2. What time (local standard time) will the polls close in Regina, Saskatchewan?

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## CD ROM Surfing

Randy Orosz, Geography Teacher, Kernahan Park Secondary School, St. Catharines

Resource -*The New Groliers Electronic Encyclopedia 1991*

### Instructions and Questions:

1. Go into the Grolier electronic encyclopedia
2. Go into Browse Map Index
3. Go into Countries of Americas
4. Find the map of Canada
5. What oceans border Canada on the east and west coasts?
6. Name two large bays found in Canada.
7. What is the only sea found in Canadian territory?
8. What country is south of Canada?



9. The major cities have a red dot. List five of the major cities.

10. What do most of the major cities have in common in terms of location?



11. Name the five Great Lakes.

12. Go back to your Search Choice Screen

13. Go into Word Search

14. Enter the search word Canada and find the article on Canada

15. Activate fact box (ALT 5)

16. a) What is the area of Canada?

b) What is the capital of Canada?

c) What was the estimated population in 1990?

d) What are the two official languages?

e) Four percent of the labour force work in the agricultural industry. What industry employs the most Canadians?

f) How is Canada politically subdivided?

g) In 1989 how many universities did Canada have?

17. Esc to main article on Canada

18. Activate outline (ALT2)

19. Name the six Physical Regions found in Canada.

# Compass Rose Assignment

Duncan McCallum, Heart Lake Secondary School, Peel Board of Education

References:     *Canadian Oxford School Atlas*, 6th Edition  
                  *Ontario Road Map*

## Part A

Using a blank page 8.5" x 11" or larger, construct a compass rose that shows the 8 main directions. In order to be considered complete, your compass rose should contain all of the following:

1. a title
2. the 8 main directions shown correctly (use a protractor to measure exact bearings)
3. the use of colours or shading
4. the information from Part B shown correctly

## Part B

Print the word "Toronto" in small lettering in the centre of the compass rose.

2. Complete the following chart. To do this, fill in the blanks below. The directions from Toronto are given. First, match the correct place name from Column A. Next, enter its correct distance from Toronto from Column B. Use a road map or an atlas to help you.

Direction from Toronto	Place Name	Distance from Toronto
N	_____	_____
S	_____	_____
E	_____	_____
W	_____	_____
NW	_____	_____
NE	_____	_____
SW	_____	_____
SE	_____	_____

### Column A

Atlantic Ocean  
Brampton  
Lake Simcoe  
Montreal  
New York City  
Thunder Bay  
Welland  
Windsor

### Column B

30 km.  
70 km.  
75 km.  
320 km.  
480 km.  
550 km.  
710 km.  
900 km.

3. You are going to add the information from the chart to the compass rose.
  - a) Beside each of the 8 main directions on the compass rose represent the distance of each place from Toronto to scale using a straight line (beginning at the end of the compass point.)

Use A Scale Of 1 cm to 100 km.

Print the correct place name and its distance from Toronto at the end of each line.

- b) Choose a symbol to represent something significant for each place and add it to the compass rose. Be Creative!

## The Canadian Fishing Industry

Paul VanZant, Mayfield Secondary School, Peel Board of Education, O.A.G.E.E. Regional Councillor, Region #5 - Dufferin Peel

Listed below are four of the main species fished in Canadian waters. Using a multiple line graph, plot the information below, using a different colour for each species. Use the entire page of graph paper to create your graph.

1. What has been happening to all four types of catch since 1968?
2. What happened to the cod catch from 1950 to 1960? Explain what changes in fishing equipment might have occurred to cause this pattern.
3. Describe the pattern of lobster production over this time period. What type of government action would cause that pattern to develop?
4. What has happened to the herring catch since 1950? Only part of the herring catch is used for human food consumption. What other products could be made from this fish?
5. List any of the world's nations you think would be leading competitors to Canada's fishing industry.

Year	East Coast Cod	East Coast Herring	East Coast Lobster	West Coast Salmon
1950	400	370	9	38
1955	800	305	10	27
1960	850	360	10	15
1962	900	635	10	18
1964	1050	740	8	19
1966	1090	980	7	34
1968	1500	2920	8	36
1970	1040	2150	8	31
1972	940	1900	8	27
1974	760	1450	8	53
1976	490	1000	8	61
1978	420	960	8	73
1980	570	950	7	50
1982	640	1290	8	70
1984	600	1300	8	57
1986	610	970	8	102
1988	580	660	8	89
1990	350	255	7	94
1992	175	200	7	64

Source: Statistics Canada



## Response To Expert Panel On Social Science 1

April 28, 1997

O.A.G.E.E. - The Ontario Association for Geographic and Environmental Education

### 1. What Do You Think Technological Education At The Secondary School Level Should Include?

Technological education at Secondary School should include skills components and ethical, values, decision-making (when, where, and how to use appropriate technology) components. Geography, as a Social Science, integrates both technology skills and technology values components in an applied delivery model with real world connections.

For our association, technology in education has a very broad meaning. The UNESCO definition of technology as "the know-how and creative process that may utilize tools, resources and systems to solve problems to enhance control over the natural and man-made environment in an endeavour to improve the human condition," is appropriate for education. Technology is far more than computers and should support education throughout secondary school.

Although many adults, especially senior education administrators, are unaware, the subject of Geography employs significant technology in its diverse areas of study. In fact, in secondary schools, one entire course, Geographics (sample course outline enclosed), is devoted to teaching students how various technological tools are utilized to help solve geographic problems. This course, although a Geography credit, is most definitely a technology-based course or "geo-tech" credit.

Aerial Photography, Satellite Imagery/Remote Sensing, Surveying Equipment, Potentiometers, Gravimeters, Cartographic Equipment, Geographic Information Systems (i.e. ArcView, Idrisi, Spans, AutoCad), etc., are some of the technologies geographic educators use. Obviously, the technology involves more than "information technology" despite being aimed at providing all sorts of geographic information.

### 2a. What Do You Think Are The Core Technological Skills That All Secondary Students Should Have By Graduation?

All students should have exposure to design and technology from both a process and product standpoint. This can happen in many areas of the curriculum. Through Geography, students design models and systems, design research proposals and employ technologies to create research papers (products) to help solve problems.

All students should have a working knowledge of computers and their applications including operational competencies in word processing and software applications. Through Geography, students use computer simulations and geographic software, such as Stratagem and SimEarth, to

learn and practice skills, solve problems, make predictions, and understand their world.

All students should have skills in Information Technology. Through Geography, students retrieve and use satellite imagery, interpret air photographs and topographical maps. Most significantly, geography students are utilizing GIS (Geographic Information Systems) for spatial analysis and solving problems. Soon, many secondary Geography departments will be providing GIS experiences in all of their courses. The Geographics course provides the main vehicle for teaching GIS. In Ontario in 1993, only two or three schools offered Geographics (GOS), while by 1996-97, over 50 schools offered the program. One school has 8 sections and several have three or more. ESRI (the creator of ArcView) estimates Canada will have job opportunities for over 20 000 people trained in GIS within 5 to 7 years.

### 2b. Should Technological Education Programs In The Later Years Of Secondary School Allow Students To Develop Specialized Skills That Link With The Workplace Or Technological Programs At College Or University?

Yes. Currently, students are involved in cooperative education programs with business. These links should not be established just for technological programs but for all applicable programs. In a variety of jurisdictions, Geography students enhance and apply acquired technological skills working in: planning offices, weather offices, conservation authorities, businesses using GIS, etc.

### 3. What Role Do You Think Business, Industry, And Public Employers Should Have In The Development And Delivery Of Technological Education Programs?

Educators should develop programs in cooperation with business, industry, and public employers. Finding placements for students is an on-going problem. Students should not be a vehicle of providing replacement or cheap labour to employers. Opportunities, such as coop, should not be provided exclusively for students with workplace or college destinations. Also, entry level jobs are required. Corporations and businesses need to provide experiences for students.

At Cass Technical School in Detroit (the largest school in Michigan in downtown Detroit), Randy Raymond (International Teacher of the Year, 1996) has established many partnerships with industry, business and the City of Detroit related to GIS. Randy's geography students work with GIS helping to solve spatial problems. They have lead the "Detroit Empowerment Zone Project", a \$2 million effort to deal with inner city issues. His students created all

the maps! One reason being that his students could generate the data and the City could not! Ford Motor Company has also employed Cass students skilled in GIS to help them. One of the roles played by the partners has been to help provide the equipment to schools. Randy's school has complete labs of computers dedicated to GIS that have been part of the partnerships.

#### **4. BBT And CompST, Comment On Aspects You Think Should Be Retained And What You Think Should Be Dropped Or Changed?**

The three major areas of study are connected significantly with geographic and environmental education. Key concepts in geographic education are location/place, pattern, movement, interaction, environment, and region. Students must understand the ideas of resources management, environmental impacts, short and long term consequences (benefits/costs) of technological solutions, etc. Many of these ideas can be linked to the 10 concepts of technological education. Also, the "Levels of Complexity" Chart involves parallel stages of "inquiry" that can fit other curricular models.

In the Construction Technology description, we find it disturbing that even the authors didn't recognize the obvious links to geographical/environmental education in their list of "courses that may be offered in conjunction with Construction technology courses" as part of an integrated or packaged model. At least two of the learning outcomes, numbers 2 and 6 definitely relate. Where do students normally learn about their "built environments" and the "natural environment" if it isn't Geography? Understanding the relationships between these two environments is at the very heart of Geography. (pp 23 - rural/urban comparisons, utility systems, zoning regulations, waste disposal, recreation, are just a few of the focus areas)

This omission is found through the rest of the offerings.

For instance, Hospitality Services, focus areas include travel and tourism. The obvious link is GRE - Regional Geography, Tourism and Travel. Hence, we feel that the appropriate sections of each area should be changed to reflect this link with Geography in every instance. The "package" approach is one we encourage and would support the development of course/programs that match useful Geography course/components with technology programs. It might look like the following: (using currently offered curriculum)

Construction Technology	GNS (Environmental Studies) GUR (Urban Studies)
Hospitality Services	GRE (Travel and Tourism), GNS (Environmental Studies)
Personal Services	
Manufacturing Technology	GNS (Environmental Studies)
Technological Design	GNS (Environmental Studies)
Transportation Technology	GUR (Urban Studies), GNS (Environmental Studies)

Since the subject of Geography is, by its very nature, an integrating discipline, it is well situated to work with many areas to provide meaningful connections and under-standings.

#### **5. Comment On What You Think Are Barriers The Panel Must Consider In Developing Recommendations For Technological Education In Ontario?**

- A. The "playing field" is not level among school districts. 'Have' districts may have the necessary equipment/technology to initiate programs but many do not.
- B. With Policy Program Memoranda 113 and 116, the Ministry mandates the use of computer technology across all curriculum. There is the frustration that resources have gone to traditional areas of computer studies and technology. Therefore, the broad curriculum goals are not achieved.
- C. There is not broad recognition of the technological education that is now occurring in subject areas outside of technology and computer studies despite the limitations of equipment. Imagine what might occur with support!
- D. Few educators, other than at universities/colleges, are aware of the tremendous potential and impact that GIS will have in society. It is beginning to revolutionize both some businesses and public employers. Spatial skills and operational skills will be sorely sought.
- E. Training in GIS technologies is now quite readily available but not equipped to meet significant demand.

#### **6. Add Any Other Comments About The Content Of The Background Paper Or Suggestions To The Panel That Were Not Covered In Your Response To These Questions.**

It appears that the current government's attitude to spending in education is just the opposite to the one required to achieve the "desired" goals of broad technological education in our schools. The examples of the Background Paper give credence to the folly of decreased funding.

It is important that computers and their applications are found in every area of the curriculum. The notion of "teacher as facilitator" is one that has received much attention in recent years. Many teacher inservice programs recognize this and teach their programs emphasizing the teacher role as "guide on the side".

Thank you for the opportunity to provide some feedback to your Expert Panel in its important work.

Sincerely,

Lew French, President Ontario Association for Geographic and Environmental Education O.A.G.E.E.

# Core Geography Outcomes/Requirements For Every Student

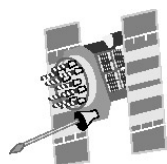
## Knowledge

- knows the location and significance of Canada's provinces, territories, and major communities
- knows the location and significance of Canada's major ecosystems and their relationship to regional economies and environments
- knows the world's major natural systems and human patterns
- knows the location and significance of major world rivers, water bodies, landforms and cities
- knows the location and significance of world cultural and economic regions including major nations and explains factors related to variations in relative living standards
- understands factors to consider in finding locations to live and in travel and tourism
- describes and explains patterns in Canada's human and natural diversity
- describes and explains Canada's role in connecting to the global community
  - trading patterns
  - environmental concerns
  - population movements
  - dynamics of peacekeeping/political geography/humanitarian concerns/disaster relief
  - interdependence
- demonstrates a working knowledge of the key elements of physical geography:
- air, water, landforms, climate, soils, plants, animals, birds, and all other living and non-living things which make up the biosphere
- uses the concept of Earth as the support system for human life to explain human patterns (e.g. agricultural patterns/systems)
- explains the concept of an ecosystem
- describes and explains examples of interaction between people and their environment (e.g. waste issues)
- understands the forces building up and tearing away the Earth's landscape
- assesses the impacts of natural events (floods, earthquakes) on the local and regional communities/economies
- recognizes how human settlements, political organizations, livelihoods, and cultures have left their imprint on the natural landscape
- has a working knowledge of the major natural cycles (e.g. hydrologic, rock) and systems (e.g. circulation of air)
- explains the interrelationships among and analyzes changes in the Earth's natural and human systems
- accounts for distributions and change from place to place (areal differentiation and spatial analysis)
- develops a working knowledge of resource patterns through case studies
- explains the effects of over-reliance on a single resource
- explains and applies the fundamentals of conservation and preservation to resource management problems and issues of sustainability
- understands the factors causing urbanization at local to world scales and analyzes and evaluates the factors influencing communities and the development of regional perspectives within Canada and the world
- assesses why and how communities are changing in composition and structure and suggests direction for the future
- knows ways in which transportation and communication networks affect locational decisions
- analyzes and evaluates economic disparities within Canada and the world using such measures as trade patterns, economic growth rates, energy consumption and population factors (literacy, labour force)

- analyzes factors affecting the location and feasibility of business and industry
- compares locational factors in primary, secondary and tertiary industry and explains why Canada has an industrial heartland and hinterland
- analyzes factors that influence land use patterns within cities or urban areas
- interprets the global patterns of population density and distribution and migrations which result from the different abilities of environments to support human populations
- recognizes the effects of changing technologies on the location and concentration of economic activities and the labour force
- predicts the consequences for physical systems of human intervention (e.g. clear cutting timberlands, large scale irrigation projects, water diversion, urban expansion)
- applies the concept of diffusion to understand the spread of phenomena (e.g. ideas, crops, technology)
- analyzes the patterns shown by, and the impact of, the movement of people and goods and services around the globe
- examines trends and recognizes how planning increases benefits and rationalizes costs
- gives examples of how external forces influence local problems and issues
- analyzes and debates issues related to:
  - economic concerns (e.g. energy production/consumption),
  - resource issues (e.g. waste management)
  - cultural and political issues (e.g. migration)
- analyzes the trends, impacts, and prospects of globalization
- identifies how global and environmental factors affect career and lifestyle choices and predicts a wide range of job/career opportunities coming available in the Canadian economy

## **Skills**

- uses and creates maps of various types at a variety of scales
- interprets maps, uses computerized Geographic Information Systems, models, charts, remotely sensed data, fieldwork, and simulations to analyze issues, synthesizes and evaluates information, make decisions, solve problems, make inferences and predictions
- applies representational tools (e.g. maps and graphs) to display data, identify patterns, discover trends, and conduct analysis
- accesses and synthesizes information from a variety of sources, collects data, detects bias, tests evidence, constructs arguments and formulates alternative solutions
- summarizes main ideas and supporting information
- formulates geographic questions to help find geographic answers (e.g. accounting for patterns or solving a problem)
- uses appropriate inquiry method (e.g. correlation or comparison)
- plans and organizes studies related to place/location, pattern, movement, interaction, environment, and region



# Geographic Information Systems

## in the Classroom

### Cartographic Modelling for GIS

Gerry Bell, Central Algoma Secondary School, O.A.G.E.E. Regional Councillor, Region #11, Northeastern Ontario

Most of us who have had some experience with GIS have found that students have a difficult time keeping track of what they are doing with the software. Utilizing the data in new and unique ways often means that complicated operations be performed and that rather abstract file names are assigned to the calculations. After a few days, it becomes difficult, if not impossible, to say for sure what calculations were performed on what data. This can be

extremely frustrating for students when they have made a mistake and are trying to track-down the error.

To solve many of these organizational problems, GIS technicians use a cartographic model to keep track of what they have done. Similar to a flowchart, the cartographic model begins with the raw data available and ends with the final map that will be produced. In between are the calculations, filenames, and data transfers that will

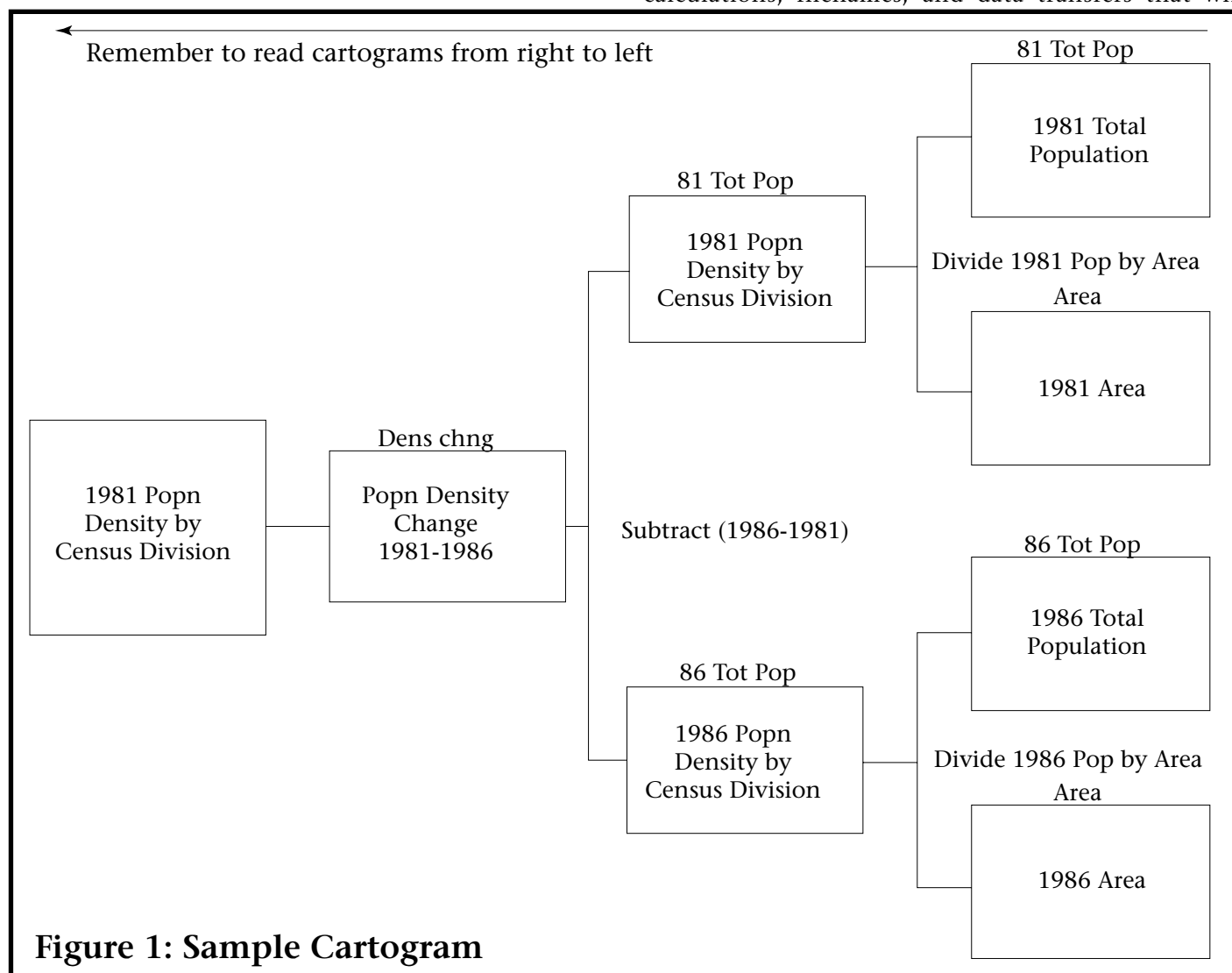


Figure 1: Sample Cartogram

# THE MONOGRAPH

comprise the final solution to the problem. The only convention to remember is that standard cartographic models begin on the right and work towards the final solution on the left.

In the “real world” this type of modelling is often presented as a situation. In a sense, it is the desired outcome that may or may not be readily achieved. Therefore, the GIS technician will have to assemble the necessary data, perform the necessary calculations, and produce the final maps based on the original situation or request.

Let us look at a simple cartographic model for a Spansmap spreadsheet exercise. We will assume that we have a situation where we need a map that shows the change in the population density of the Windsor-Quebec corridor from 1981 to 1986. We know that we have some data in Spansmap that will generate population figures and areas by census division. We also have this data for the two time periods. Therefore, using the compute function in Spansmap we can create new data to map and provide some insight into our original situation request. Before we begin, we can plan our use of the GIS software by preparing a cartographic model of the necessary steps to reach the desired outcome.

In the cartographic model (Figure 1 on the previous page), the boxes are used to identify what is available at each point in the process. File names are given immediately above the boxes. This helps students remember what names they have assigned to the different calculations. The lines connecting the boxes are used to denote some type of procedure that is occurring. This could be the addition,

subtraction, multiplication, or division of data. It is also important to note that Spansmap only allows one calculation at a time, therefore complex calculations, like percent, need to be done in stages. Further it may be necessary to perform the calculation in a sequence that is not normal but still mathematically correct. One example of this may be that the numerator in a percentage calculation be multiplied by 100 before being divided by the denominator. If this is not done, Spansmap often returns an error or all zeros in the spreadsheet. The cartogram for our situation might look like the one shown in Figure 1.

The final output map (Figure 2) needs to be tailored to the original situation or request. In this case, the mapmaker chose three levels of change. This has produced a map which clearly identifies specific regions in the corridor. Sometimes little needs to be done to the calculated data.

Often, however, the map requires some interpretation or processing so that the complex calculations are understandable to the original person requesting the data. The beauty of the cartographic model is that should questions arise about the validity of assumptions made while deriving the data, the GIS technician can immediately show what was done to the data and how the final map was derived.

Overall, cartographic models help students understand the complex operations that are being performed by the GIS. They also allow time to reflect on the process and the calculations to ensure that the correct decisions are being made.

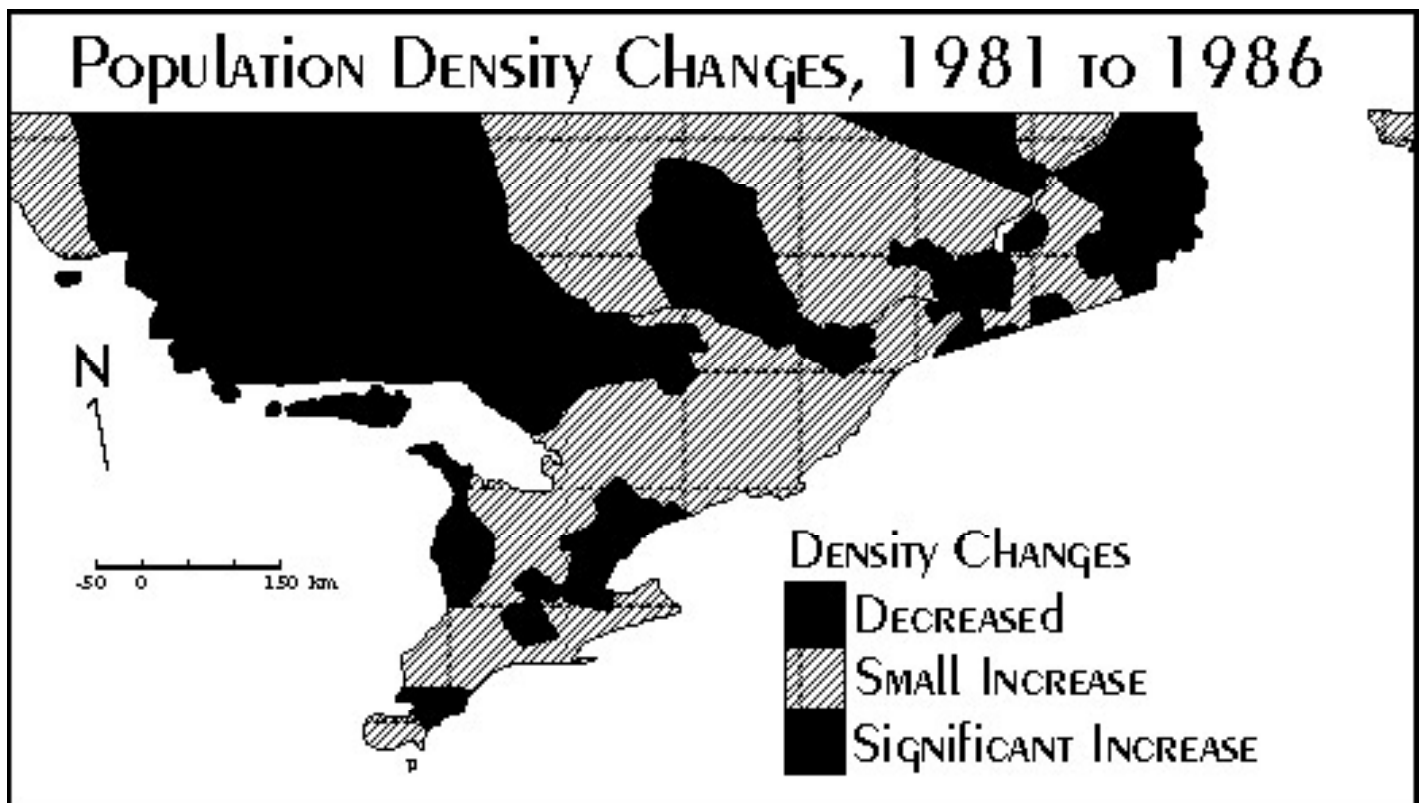


Figure 2: Final Output Map

## Book Review

### *Drawing the Line: Tales of Maps and Cartocontroversy*

by Mark Monmonier

ISBN 0-80504699-2

368 pages \$20.95 Cdn

"As powerful tools of persuasion, maps have had a remarkable effect on our view of the world." It is this perceptive viewpoint that allows Monmonier to take us on a guided tour of how maps have come to be the instruments of power and persuasion. Relying less on cartographic history and more on significant developments of map controversy, Monmonier demonstrates that our trust in maps is ill founded. The subtle cartographic propaganda that Monmonier examines attempts to reflect the widespread ignorance about how maps work. Beginning with a map projection we have all seen and probably used, he cautiously develops the idea that map authors select what suits them and ignore what does not.

His book begins with an examination of some of the most intriguing examples of "mapism" that the world has known. Defining mapism as the ill founded and unshakable belief that one map is vastly superior to all others, he sets the stage for examining the highly controversial Peters' projection. Through a careful and reasoned discussion, Monmonier dissects how this map came to be popular and why it is a piece of unoriginal mapmaking. Explaining how the publicity and tactics used to promote the map shaped its adoption amongst many prominent NGO's (Non-Governmental Organizations), Monmonier clearly shows that this map not only distorts the world but that it does so more than the maps it was supposed to replace!

Another intriguing chapter focuses our attention on one of the great map frauds of all time. The Vinland Map, supposedly drawn around 1440, shows portions of the coast of North America. If this map were true, clearly Columbus did not discover America and Europeans knew much more about the New World than was previously

thought. How this map came to have international recognition as the greatest find of the 20th century and then as one of the great map hoaxes of all time is yet another example of Monmonier showing us "how maps tend to be believed until they are discredited".

Further chapters delve into how controversial theories were promoted using maps. Examining continental drift and plate tectonics, Monmonier demonstrates how Alfred Wegener's ideas about continental drift were promoted using maps with very little evidence to support them until they finally emerged into the well developed theory of plate tectonics. Monmonier also examines issues where maps can be used to persuade and dissuade in the siting of controversial materials such as nuclear waste dumps. Through these examples Monmonier gives the reader ample cause for concern about the objectivity of computer generated maps. His exploration of Geographic Information Systems continues when he shows how GIS can play a beneficial role in the development of risk maps for environmental hazards and disease.

Throughout the book, Monmonier encourages the reader to adopt a healthy skepticism towards maps of all types. His views shake the very foundations upon which maps are based as he challenges many traditions to which people have grown accustomed. He reminds us that as maps become easier to generate, "it is not enough to be skeptical only when the map author is a propagandist". The responsibility for ensuring maps are viewed cautiously clearly falls on the viewer. Overall, the book provides an insight into maps that many Geography teachers will find both enlightening and entertaining.

Reviewed by Gerry Bell, Central Algoma Secondary School, O.A.G.E.E. Regional Councillor, Northeastern Ontario.

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