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Reading Different Text Forms: Reading Maps

Grade 9 Academic Geography

Graphical text forms (such as diagrams, photographs, drawings, sketches, graphs, schedules, maps, charts, tables, timelines and tables) are intended to communicate information in a concise format and illustrate how one piece of information is related to another. Providing students with an approach to reading graphical text helps them to become effective readers.

Purpose

- Become familiar with the elements and features of graphical texts.
- Explore a process for reading graphical texts, using a range of strategies for before, during and after reading.

Payoff

Students will:

- become more efficient at “mining” graphical texts for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- While learning to read maps is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally map reading is taught in the first unit of study (Natural Systems) and revisited and applied using different topics in each subsequent unit. See Teacher Resource, *Tips for Reading Maps* for suggested examples.
- **Maps** are visual representations of places or things: the surface of the earth or of planets, of routes, or the components of things or landscapes. Simply put they show the “what” and “where” for a set of data at a specific time.
- Grade 9 students participate in an issues based approach to geographical studies. They are expected to gather information in order to undertake analysis of issues, identify various points of view as well as develop their own supported opinions. Maps are read to support this decision-making process.
- Students should be aware of the purpose of mapping in general (to place information in a spatial context and in relation to themselves), and the specific task at hand.
- Mapping conventions include:
 - Title
 - Legend
 - Border
 - Scale
 - Direction
 - Accuracy/appearanceClear Communication includes accuracy of detail and effective use of mapping conventions.
- Pre-teach, or review:
 - Types of maps (thematic, general purpose, topographic etc).
 - Conventions of map reading.
 - Vocabulary and/or concepts associated with the map reading exercise.
- See Student Resource, *Tips for Reading Maps*.
- For further suggestions, see *Tips for Visual Literacy – Reading Maps Organizer*, p. 36, in Grade 9 Applied Geography.

Further Support

- Provide students with an advance organizer to guide them as they read a particular text. This might be a series of prompts to guide them through the reading task.



Reading Different Text Forms: Reading Maps

Grade 9 Academic Geography

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> View a series of maps (as a whole class). Ask students to identify explicit information (title, legend etc) about mapping conventions. This may be diagnostic and/or review of basic mapping conventions. Highlight mapping conventions using a variety of good examples. Select a map appropriate for a map reading exercise. See Teacher Resource, <i>Tips for Reading Maps</i>. Prepare a handout or overhead of the Student Resource, <i>Tips for Reading Maps</i>. Pose questions that help students clarify the purpose of reading maps. Activate prior knowledge about reading maps as well as the topic of study. 	<ul style="list-style-type: none"> Seek clarification of the purpose of studying the map in question. Make connections to studies. How does this map connect to our studies? Note the connections the teacher is making between studies and mapping strategy. Recall past use of maps to support the current task (prior knowledge).
<p>During</p> <ul style="list-style-type: none"> Have students work through selected prompting questions from the Student Resource, <i>Tips for Reading Maps</i>. Engage whole class discussion about the purpose/meaning of the map using focus questions such as: <ul style="list-style-type: none"> What pattern is evident? What anomaly (if any) is evident? How does the information presented in the map relate to current studies? Does this remind me of any other maps I have seen? What could cause the pattern/anomaly I have identified? 	<ul style="list-style-type: none"> Listen to the lesson. Seek clarification of the task. Skim – identify title, legend, scale etc. Clarify vocabulary and or concepts as necessary. Paraphrase the purpose of the map. Identify patterns and or anomalies.
<p>After</p> <ul style="list-style-type: none"> Help students to make connections between written text related to the map and the map. Have students restate the patterns, and or anomalies and infer the possible causes. Have students read a similar map and answer similar questions independently. Have partners or small groups share and compare answers. As a class, discuss the usefulness of the map to their studies. 	<ul style="list-style-type: none"> Explain why this information is important in the context of broader studies. Read the map to someone who has not yet seen it. Be an active participant in a discussion about the information you have read about on the map. Transfer the skill by writing about the map.

Notes

Tips for Reading Maps

1. The atlas

This resource focuses on the skills associated with reading maps and does not specifically address the question of atlas use. It is critical, however, that by the end of grade 9 all students are able to use an atlas efficiently, knowing all parts of the resource. From the Table of Contents to the Gazetteer, students need to be taught how to read and get information from the standard atlas.

2. Widely available and useful resources

The School Atlas	Most school atlases have excellent information on reading maps. They provide examples that are generally current and appropriate for CGC-1D1. These resources are particularly useful for scale and distance, grids, projections and complimentary satellite images. Teachers should take note of features in their particular atlas which can support their teaching of reading maps.	
Websites	www.ec.gc.ca	Environment Canada's Green Lane provides weather and environmental information. The mission of the Green Lane is to "help connect Canadians, exchange information and share knowledge for environmental decision-making".
	http://atlas.gc.ca/site/english/sitemap/index.html	The Atlas of Canada website will provide the most interesting, dynamic and comprehensive collection of maps and related information about Canada available anywhere on the Internet, with effective and intuitive tools for users to access them.
	http://www.canadiangeographic.ca/mapping/default.asp	Canadian Geographic provides the maps used in their latest publications.
	Your community or regional municipality	Often city/municipality websites provide excellent local maps.
	http://mapquest.com	Mapquest can be used to find everything from airports to local businesses. Useful local maps.

3. Suggested map topics (Some of these maps may be read and constructed OR just read).

Unit of Study	Title of Unit	Suggested maps to include in the unit:
1	Natural Systems	<ul style="list-style-type: none"> • Political Map of Canada • Water Body Map of Canada • Landform Regions of Canada • Climate Regions of Canada • Vegetation Regions of Canada • Ecozone Map of Canada
2	Human Systems	<ul style="list-style-type: none"> • Population by Ecozone • Local Land Use Map • Industrial Heartland (Quebec City-Windsor Corridor) • Regional Disparity in Canada • Communities in Nunavut (Human Case Study)
3	Humans in the Environment	<ul style="list-style-type: none"> • Resource base maps (Use depends on the resources your class will study.) Forestry - location of mills Agriculture - location of soft fruit growing areas Water - watersheds of Canada
4	Global Connections	Use depends on the types of Global Connections your class will study. <ul style="list-style-type: none"> • Trade (any commodity) • Location of Canadian Peacekeeping troops • "Sweatshop Countries" where clothes are manufactured

4. How to use the Student Resource

Student Resource

Tips for Reading Maps

Consider the following when you are given the task of reading a map:

1. Looking the map over

Preview the map

- 🌐 What is the title? What and where is being mapped?
- 🌐 Is this a large or small scale map?
- 🌐 Which way is up? (Where is north?)
- 🌐 What is in the legend/key?
 - How is colour used?
 - What symbols are used?
 - If the legend uses a measured unit, what is the unit of measurement?
- 🌐 What information can you get from the caption below or beside the map?
- 🌐 What type of map are you reading?
- 🌐 Is the source or the date of the map identified? (Is it a reliable or useful source?)



2. What is the purpose of the map?

When determining the purpose of the map, look for clues:

- 🌐 larger or bold fonts
- 🌐 the frequency and size of symbols
- 🌐 the use of colour

Summarize the main idea of the map in your own words.
Restate one or two specific things the map shows.

3. A closer look

Take time to study the map more carefully.

- 🌐 What is included in the map and what is left out?
- 🌐 What patterns are evident? Are there any anomalies?
- 🌐 What does this pattern tell you about the meaning of the map's subject?
- 🌐 Use the figure number or title and key words to find and read related information in written text.
- 🌐 Identify the relationships among the visuals and written information presented.

4. What is my personal connection to this map?

How can you connect your personal experiences to the data on the map?

- 🌐 "Where do I live on the map?"
- 🌐 "Where have I visited on the map?"
- 🌐 "I heard about this in the news"
- 🌐 "I am surprised/never knew that..."

5. What is the significance?

Ask yourself why this information might be important to your current studies or to you personally.

6. "I've got it!"

- 🌐 Rephrase the information orally or in writing. Imagine that you are explaining the map to someone who has not read it.
- 🌐 Sketch the pattern shown on the map, without looking at the map.
- 🌐 Explain the pattern/information based on your studies /prior knowledge and what you can infer from the map.



Writing for a Purpose: Writing Maps - Cartography

Grade 9 Academic Geography

When students can get the “picture” of a form of writing in their heads, they feel more confident about creating the final product. A template or framework is a skeletal structure for a writing form that allows students to organize their thoughts and researched information in order to write a first draft. Essay maps are another type of template.

Purpose

- Provide students with a template to scaffold their understanding of a form of writing.
- Help students organize information before drafting the piece.

Payoff

Students will:

- learn the common expectations for the form and components of a particular writing assignment.
- organize their writing and ensure that it meets the requirements of the assignment.

Tips and Resources

- While learning to make or “write” maps is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally map reading is taught in the first unit (Natural Systems) and revisited and applied using different topics in each subsequent unit. See Teacher Resource, *Tips for Cartography* for suggested examples.
- Students should be aware of the purpose of mapping in general (to place information in a spatial context and in relation to themselves), and the specific task at hand.
- **Maps** are visual representations of places or things: the surface of the earth or of planets, of routes, or the components of things or landscapes. Simply put they show the “what” and “where” for a set of data at a specific time.
- Mapping conventions include:
 - Title
 - Legend
 - Border
 - Scale
 - Direction
 - Accuracy/appearance
- Ensure that the tools necessary for the task are at hand (supplied by the teacher and/or the student). This would include:
 - blank maps
 - pencils and sharpener
 - fine point pen
 - eraser
 - data which will be mapped
- See Student Resource, *Tips for Reading Maps: Cartography*.
- For further suggestions, see *Tips for Visual Literacy – Reading Maps Organizer*, p. 36, in Grade 9 Applied Geography.

Note: Electronic sources, including GIS may also be used. For example; Arcview, MF Teach

Further Support

- The template for any individual writing assignment can be revised to make the modifications or accommodations necessary for students with special needs. For example, reduce the number of paragraphs or supporting details, create differing expectations for research, or for the complexity of the



Writing for a Purpose: Writing Maps - Cartography

Grade 9 Academic Geography

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Have students bring appropriate materials to class. • Pre-teach or review (activate prior knowledge): <ul style="list-style-type: none"> - types of maps (thematic, general purpose, topographic etc). - conventions of map reading. - vocabulary and/or concepts associated with the mapping exercise. • Pose questions that help students clarify the purpose of making a map. • Model mapping techniques. • Purpose of the map should be authentic and relevant for students. • Handout identifying expectations for each particular mapping task. 	<ul style="list-style-type: none"> • Organize and bring necessary materials to class. • Ask questions to clarify instructions.
<p>During</p> <ul style="list-style-type: none"> • Model basic cartography. See Student Resource, <i>Tips for Writing Maps: Cartography</i>. • Ask students questions to clarify the process: <ul style="list-style-type: none"> - Where should this label be located? - What is an appropriate colour for this information? - Is there another way to organize this information? 	<ul style="list-style-type: none"> • Participate in full class discussion or Socratic lesson. • Follow the model the teacher demonstrates.
<p>After</p> <ul style="list-style-type: none"> • Have students use their Student Resource, <i>Tips for Writing Maps: Cartography</i> to assess and/or peer edit another student's map. • Assign a map using different data. • Have students analyze the pattern of the map using the <i>Tips for Reading Maps</i> resource. 	<ul style="list-style-type: none"> • Use the Student Resource, <i>Tips for Writing Maps: Cartography</i> to construct (write) a map using new data. • Explain the purpose of this product. • Analyze the map using <i>Tips for Reading Maps</i>.

Notes



Tips for Cartography

1. See Student Resource

The Student Resource *Tips for Writing Maps: Cartography* is a detailed checklist for student use. Use this list, or a similar one, to set the standard expectations for cartography. Be consistent in your expectations.

2. Supplies

While students are told to be prepared and bring all the necessary equipment to class regularly, it is recommended that the teacher have “back-up” supplies to ensure that the lesson does not get derailed by materials issues.

3. Suggested topics for Cartography

Select from this list for appropriate cartography assignments.

Unit of Study	Title of Unit	Possible maps for student cartography:
1	Natural Systems	<ul style="list-style-type: none"> • Political Map of Canada (excellent review material) • Water Body Map of Canada • Landform Regions of Canada • Climate Regions of Canada • Vegetation Regions of Canada • Ecozone Map of Canada
2	Human Systems	<ul style="list-style-type: none"> • Population by Ecozone • Local Land Use Map • Industrial Heartland (Quebec City-Windsor Corridor) • Regional Disparity in Canada • Communities in Nunavut (Human Case Study)
3	Humans in the Environment	<ul style="list-style-type: none"> • Resource base maps (Use depends on the resources your class will study.) Forestry – location of mills Agriculture – location of soft fruit growing areas Water – watersheds of Canada
4	Global Connections	<p>Use depends on the types of Global Connections your class will study.</p> <ul style="list-style-type: none"> • Trade (any commodity) • Location of Canadian Peacekeeping troops • “Sweatshop Countries” where clothes are manufactured

4. GIS

If the resources are available students can use GIS to generate maps.



Tips for Writing Maps: Cartography

The standard conventions of map making include the following. When in doubt, use a map in an Atlas as a guide to follow for mapping conventions.

Title

Tells the reader both what the map is about and where the map is depicting

- | | |
|---------------------------|-------------------------------------|
| A Political Map of Canada | Land Use in Carleton Place, Ontario |
| Mining in Canada | Where Canadians Vacation Abroad |
- It is located at the top of the map, clearly visible in large font.
 - It should be underlined or boxed.

Legend

Provides the key for reading symbols and colour on your map and therefore is not needed if no symbols or colour are used. For example a map showing the location of Ecozones in Canada does not need a legend if each Ecozone is labeled.

- Symbols should be standard or logical.
- The legend must be on the face of the map. The only exception to this rule is the topographic map where the volume of symbols may prohibit placing the legend on the map's face.
- Unit of measurement must be clearly shown.
- Colours and symbols in the legend must match those on the map.

Border

The border shows exactly where the mapped area stops. It is usually the thickest line on the map.

- It should come as close to the edges of the mapped area as possible.

Scale

The scale shows how much of the real world is represented on the map. In most cases this is printed on the base map you will be given.

- If you are making a sketch map, you need to write "Not to Scale" on the face of the map.

Direction or Orientation

This tells the reader "which way is up" or north.

- Usually given by a north arrow or compass rose.
- Does not need to be located at the top of the map.

Accuracy and Appearance

This includes the effective use of mapping conventions such as colour and labels and accuracy of detail.



Tips for Writing Maps: Cartography (continued)

Colour

- Use blue ONLY for water bodies.
- Use appropriate colours for the topic at hand:
 - Forestry - shades of green
 - Pollution – shades of dirty yellow through browns
- Urban areas are identified by a red dot.

Labels

- Print, never write on a map.
- Use a fine point blue or black pen.
- The size of the labels should match the size of the item being identified. This is done in conjunction with the use of upper and lower case lettering. The more important features are typically larger and darker, less important/background information should be smaller and lighter: **CANADA, Ontario**, Timmins
- Lettering is parallel to the bottom of the map unless spaces make this impractical.
- When placing a label on a river, the letters follow the form of the river.
- Labels are NOT underlined.

General Appearance

- Is it neat and can all labels be easily read?
- Are features accurately located?
- Is it complete?

Reading Different Text Forms: Reading Graphs

Grade 9 Academic Geography

Graphical text forms (such as diagrams, photographs, drawings, sketches, graphs, schedules, charts, timelines and tables) are intended to communicate information in a concise format and illustrate how one piece of information is related to another. Providing students with an approach to reading graphical text also helps them to become effective readers.

Purpose

- Become familiar with the elements and features of graphical texts.
- Explore a process for reading graphical texts, using a range of strategies for before, during and after reading.

Payoff

Students will:

- become more efficient at “mining” graphical texts for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- While learning to read graphs is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally graph reading is taught in the first unit of study (Natural Systems) and revisited and applied using different topics in each subsequent unit. See Teacher Resource, *Tips for Reading Graphs* for suggested examples.
- **Graphs** take a variety of forms, each with a specific purpose. Those most commonly used :
 - Bar graphs show the total of sets of data being measured, they can compare data sets to one another, compare items over time, show frequency.
 - Line graphs show the relationship between two sets of data. They are used to compare items over time, show frequency or correlation, or show trends.
 - Pie graphs show the proportionate parts of the whole.
- Grade 9 students participate in an issues based approach to geographical studies. They are expected to gather information in order to undertake analysis of issues, identify various points of view as well as develop their own supported opinions. Reading graphs supports this decision-making process.
- Students should be aware of the purpose of graphing in general (to place data in a visual context for comparison), and the specific task at hand.
- Graphs are used to visually represent information in an easily understood manner.
- Graphing conventions include:
 - appropriate title
 - labels for axes
 - appropriate units of measurement
 - legend (where appropriate)
 - accuracy/appearance.Note: Clear communication includes accuracy of detail and effective use of mapping conventions.
- See:
 - Student Resource, *Tips for Reading Graphs*.
 - Student Resource, *Reading Line Graphs*.

Further Support

- Provide students with an advance organizer to guide them as they read a particular text. This might be a series of prompts to guide them through the reading task.



Reading Different Text Forms: Reading Graphs

Grade 9 Academic Geography

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Select a graph appropriate for a graph reading exercise and the topic of study. • Prepare a handout or overhead of the Student Resource, <i>Tips for Reading Graphs</i>. • Pre-teach or review: types of graphs, conventions of graph reading, vocabulary and/or concepts associated with the graph reading exercise. • View a series of graphs as a whole class. Ask students to identify explicit information about graphing conventions (title, labels etc) and when different types of graphs are used. (See Teacher Resource, <i>Tips for Reading Graphs</i>.) • Activate prior knowledge about the topic at hand and graphing. • Read any text associated with the graph. • Pose questions that help students clarify the purpose of reading graphs. 	<ul style="list-style-type: none"> • Seek clarification of the purpose of studying the graph in question. • Make connections to studies. How does this graph connect to our studies? • Note the connections the teacher is making between studies and graphing strategy. • Recall past use of graphs to support the current task (prior knowledge).
<p>During</p> <ul style="list-style-type: none"> • Review graphing conventions with students and have them identify specific elements of the graph (title, type of graph, unit of measurement, etc). • Have students work through selected prompting questions from the Student Resource, <i>Tips for Reading Graphs</i>. • Engage whole class discussion about the purpose/meaning of the graph using focus questions. 	<ul style="list-style-type: none"> • Seek clarification of the task. • Skim – identify title, scale etc. (See Student Resource, <i>Tips for Reading Graphs</i>). • Clarify vocabulary and/or concepts as necessary. • Paraphrase the purpose of the graph. • Identify patterns and or anomalies evident in the graph. • Participate actively in class discussion.
<p>After</p> <ul style="list-style-type: none"> • Help students to make connections between written text related to the graph and the graph. • Have students restate the patterns, and or anomalies and infer the possible causes. • Have students make a sketch of the pattern found on the graph. • Have students read a similar graph and answer similar questions independently. • Have partners or small groups share and compare answers. • As a class, discuss the usefulness of the graph. • Have students use relevant data to construct their own graph. • Compare different types of information and graphs that would support the topic. • Experiment with improving the graph (changing scale, changing data set, format of graph). 	<ul style="list-style-type: none"> • Explain why this information is important in the context of broader studies. • Read the graph to someone who has not yet seen it. Then discuss or explain the significance of the graph. If the graphs are line graphs, then the Student Resource, <i>Reading Line Graphs</i> will be useful. • Transfer the skill by writing about the graph. • Suggest who might use this graph. • Suggest what other information might be useful to support the information presented in this graph. • If appropriate predict future trends and the implications of this data. • Research cause/effect relating to the data presented.

Notes

Tips for Reading Graphs

1. Widely available and useful resources

The School Atlas and/or Text	Most school texts and atlases have a variety of graphs which are excellent. They provide examples that are generally current and appropriate for CGC-1D1. It is advised that teachers take note of features in their particular atlas which can support their teaching of reading graphs.	
Websites	http://www.statcan.ca/	Statcan - Huge source of demographic data. Presented at local regional and national levels.
	http://weatherbase.com/	Provides climate statistics for communities globally.
	http://www.nrcan.gc.ca/cfs-scf/national/what-quoi/sof/sof03/statistics_e.html	Green Lane is the Environment Canada website. It is huge but is easily navigated and has current course relevant data. State of Canada's Forest 2002-2003 provides graphs and raw data.
	http://www.ec.gc.ca/water/images/manage/effic/a6f1e.htm	Green Lane provides an excellent stacked bar graph showing the main uses of water in Canada.
	http://www.statcan.ca/trade/scripts/trade_search.cgi	International trade data is readily available.

2. Suggested graph topics (Some of these graphs may be read and constructed OR just read).

Unit of Study	Title of Unit	Suggested graphs to include in the unit:
1	Natural Systems	<ul style="list-style-type: none"> Climate graphs
2	Human Systems	<ul style="list-style-type: none"> Population trends – Regional migration Population trends – Rural - Urban migration Land use in local area Portion of workforce in different types of industry Regional income levels to show regional disparity in Canada
3	Humans in the Environment	<ul style="list-style-type: none"> Resource graphs (Use depends on the resources your class will study.) Forestry – rate of harvest, export levels Energy – consumption, personal use Water – uses/consumption, levels of pollution
4	Global Connections	Use depends on the types of Global Connections your class will study. <ul style="list-style-type: none"> Trade (any commodity) Percent of Canadian Peacekeeping troops deployed in each location Breakdown of the cost to make brand name athletic footwear Percent of students' clothes made in each country

3. How to use the Student Resource

The material listed in the Student Resource is intended as a thorough list. It is not intended to be used in its entirety, but rather select the elements that best fit the graph reading you want your students to complete.

Tips for Reading Graphs

Consider the following when you are given the task of reading a graph:

1. Looking the graph over

Preview the graph

- 🌐 What is the title? What is being graphed? What type of graph is being used?
- 🌐 If there is a legend/key?
 - How is colour used?
 - What symbols are used?
- 🌐 What is (are) the unit(s) of measurement?
- 🌐 What trend is evident?
- 🌐 What information can you get from the caption below or beside the graph?
- 🌐 Is the source of the graph identified? Is it a reliable or useful source?

2. What is the pattern of the graph?

Look for data general to all graphs:

- 🌐 Summarize the main idea of the graph in your own words.
- 🌐 Restate one or two specific things the graph shows.
- 🌐 What patterns are evident? Are there any anomalies?
- 🌐 What could cause the pattern/anomaly I have identified?
- 🌐 Included or excluded conclusions. What questions can this data help to answer? What can you conclude from the graph? What conclusions can you NOT draw from the graph?
- 🌐 How does the graph help you predict and/or hypothesize when problem solving or decision making?
- 🌐 Use the figure number or title and key words to find and read related written text.
- 🌐 Identify the relationships among the visuals and written information presented.

Look for data specific to different kinds of graphs:

- 🌐 In a bar graph
 - Which sets of data are being graphed?
 - Which bar is the tallest?
 - Is it much taller than other bars on the graph?
 - What is the significance of the relative height of the bars?
 - What does this mean for the topic you are studying?
- 🌐 In a line graph
 - What is the rate of change? Is it a slow increase/decrease, rapid increase/decrease, fluctuations, or is there no change?
 - See Student Resource, *Reading Line Graphs*.

Tips for Reading Graphs (continued)

- 🌐 In a pie graph
 - What data is being graphed?
 - Of the total, which section of the graph is the largest? What could explain this?
 - How do the sizes of the sectors compare to each other? Are they all about the same size? What would cause this pattern?

3. What is my personal connection to this graph?

How can you connect your personal experiences to the data on the graph?

- “I heard about this in the news”
- “I am surprised/never knew that...”
- “Does this remind me of any other graphs?”

4. What is the significance?

Ask yourself why this information might be important, to your current studies or to you personally.

5. “I’ve got it!”

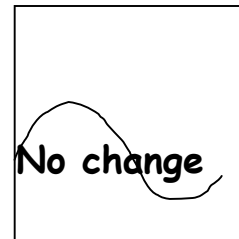
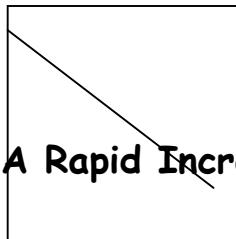
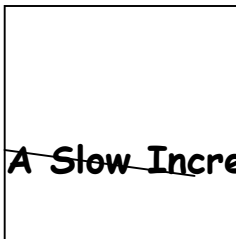
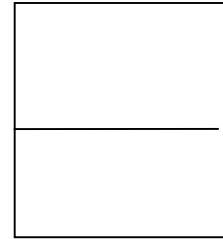
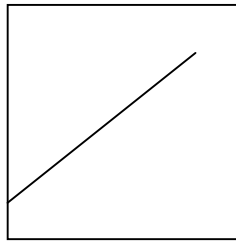
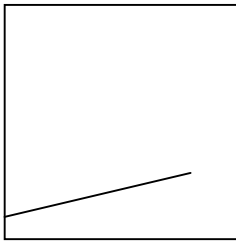
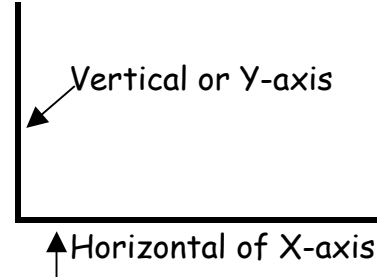
- 🌐 Rephrase the information orally or in writing. Imagine that you are explaining the graph to someone who has not seen it.
- 🌐 Sketch the pattern shown on the graph, without looking at the graph.
- 🌐 Explain the pattern/information based on your studies /prior knowledge and what you can infer from the graph.
- 🌐 Compare different types of information and graphs that would support the topic.
- 🌐 Experiment with improving the graph (changing scale, changing data set, format of graph).



Student Resource

Reading Line Graphs

A line graph is a way to illustrate how much something changes over time. For example, temperature changes over 24 hours, or 12 months or 100 years.



~~A Slow Increase~~

~~A Rapid Increase~~

~~No change~~

The line graph is used to show change over time. Line graphs can include great amounts of detail while also showing a general trend.

The vertical (y-axis) line measures the amount of the data that is plotted. The horizontal (x-axis) line is the unit of time (days, months, years etc.).

The steeper the line the more rapid the change is happening.

A Slow Decrease

A Rapid Decrease

Fluctuations

Writing for a Purpose: Writing Graphs

Grade 9 Academic Geography

When students can get the “picture” of a form of writing in their heads, they feel more confident about creating the final product. A template or framework is a skeletal structure for a writing form that allows students to organize their thoughts and researched information in order to write a first draft. Essay maps are another type of template.

Purpose

- Provide students with a template to scaffold their understanding of a form of writing and help them organize information before drafting the piece.

Payoff

Students will:

- learn the common expectations for the form and components of a particular writing assignment.
- organize their writing and ensure that it meets the requirements of the assignment.

Tips and Resources

- While learning to make or “write” graphs is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally graphing is taught in the first unit (Natural Systems) and revisited and applied using different topics in each subsequent unit. See Teacher Resource, *Tips for Graphing* for suggested examples.
- **Graphs** take a variety of forms, each with a specific purpose: bar graphs show the total of sets of data being measured, line graphs show the relationship between two sets of data, pie graphs show the proportionate parts of the whole. More complex data likely requires multiple line graphs, multiple bar graphs, stacked bar graphs or scatter graphs.
- Students should be aware of the purpose of graphing in general (to place data in a visual context for comparison), and the specific task at hand.
- Pre-teach, or review:
 - Types of graphs (bar, line pie etc).
 - Conventions of graph reading (labels, unit of measurement).
 - Vocabulary and/or concepts associated with the graph reading exercise.
- Use this strategy as a diagnostic and/or review of basic graphing conventions. Highlight graphing conventions using a variety of good examples.
- Graphing conventions include:
 - Appropriate title
 - Labels for axes
 - Legend (where appropriate)
 - Appropriate units of measurement
 - Accuracy/appearance
- Clear communication includes accuracy of detail and careful attention to the use of graphic conventions.
- Depending when this strategy is used, a socratic lesson which illustrates a variety of graphs and graphing techniques should be used in conjunction with this strategy.
- See Student Resource, *Tips for Graphing*.
- For further suggestions, see Student/Teacher Resource, *Tips for Visual Literacy – Reading Maps Organizer* in Grade 9 Applied Geography, page 36.

Further Support

- The template for any individual writing assignment can be revised to make the modifications or accommodations necessary for students with special needs. For example, reduce the number of paragraphs or supporting details, create differing expectations for research, or for the complexity of the main idea, etc.



Writing for a Purpose: Writing Graphs

Grade 9 Academic Geography

Notes

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Pre-teach or review (activate prior knowledge): <ul style="list-style-type: none"> - types of graphs (line, bar pie etc.). - conventions of graphing. - vocabulary and/or concepts associated with the graphing exercise. • Pose questions that help students clarify the purpose of making a graph. • Students are reminded to bring appropriate materials to class. (ruler, compass, graph paper etc.). • Model graphing techniques. • Purpose of the graph should be authentic and relevant for students. • Prepare a handout identifying expectations for each particular graphing task. 	<ul style="list-style-type: none"> • Organize and bring necessary materials to class. • Ask questions to clarify instructions.
<p>During</p> <ul style="list-style-type: none"> • Model basic cartography. See Student Resource, <i>Tips for Graphing</i>. • Have a full class discussion where the students are asked questions to clarify the process: <ul style="list-style-type: none"> - What kind of graph should be used? - Where should this label be located? - What is an appropriate title for the graph? - Is there another way to organize this information? 	<ul style="list-style-type: none"> • Participate in full class discussion. • Follow the model the teacher demonstrates.
<p>After</p> <ul style="list-style-type: none"> • Have students use their Student Resource, <i>Tips for Graphing</i> to assess and/or peer edit another student's graph. • Assign a graph using different data. 	<ul style="list-style-type: none"> • Use the Student Resource, <i>Tips for Graphing</i> to construct (write) a graph using new data. • Peer edit a classmates graph. • Explain the purpose of this product. • Once the graph is complete, read it using the Student Resource, <i>Tips for Reading Graphs</i>, pages 15-16.



Tips for Graphing

1. See Student Resource

The Student Resource, *Tips for Graphing* is a detailed checklist for student use. Use this list, or a similar one, to set the standard expectations for graphing. Be consistent in your expectations.

2. Supplies

While students are told to be prepared and bring all the necessary equipment to class regularly, it is recommended that the teacher have “back-up” supplies to ensure that the lesson does not get derailed by materials issues.

3. Suggested topics for graphing

Select from this list for appropriate graphing assignments.

Unit of Study	Title of Unit	Possible topics for student graphing:
1	Natural Systems	<ul style="list-style-type: none">• Climate graphs
2	Human Systems	<ul style="list-style-type: none">• Population trends – Regional migration• Population trends – Rural - Urban migration• Population Pyramids• Land Use in local area• Portion of workforce in different types of industry• Regional Income levels to show Regional Disparity in Canada
3	Humans in the Environment	<ul style="list-style-type: none">• Resource graphs (Use depends on the resources your class will study.)Forestry – rate of harvest, export levelsEnergy – consumption, personal useWater – uses/consumption, levels of pollution
4	Global Connections	Use depends on the types of Global Connections your class will study. <ul style="list-style-type: none">• Trade (any commodity)• Percent of Canadian Peacekeeping troops deployed in each location• Breakdown of the cost to make brand name athletic footwear• Percent of students' clothes made in each country



Tips for Graphing

Each graph is used for a different purpose. Be sure to select the best graph for the information you are graphing. Please note that all the graphs on this handout were derived from data using the Pearson School Atlas, 2003.

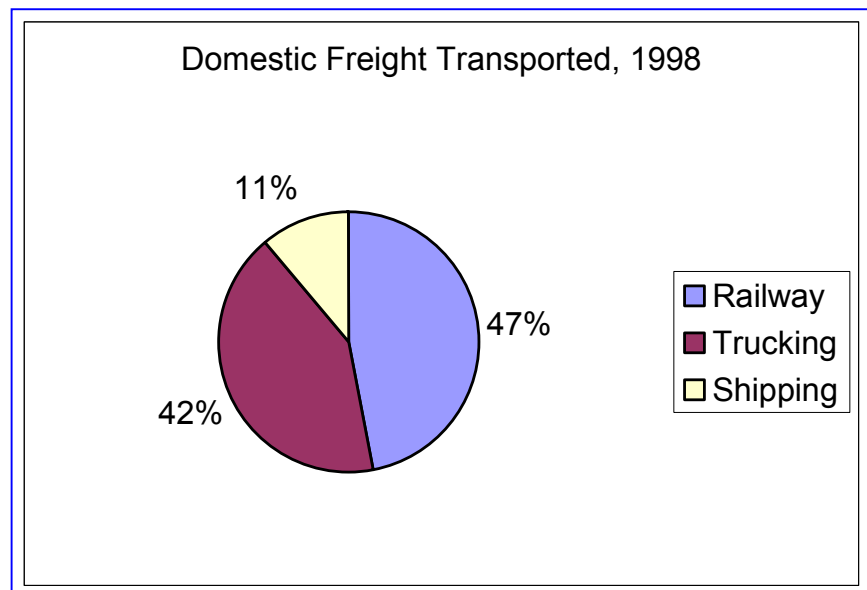
For all graphs be sure to follow these tips:

- Title ⇒ Located directly above the graph
⇒ Clearly explain what topic on the graph
- Labels ⇒ Neatly printed, usually near the feature, not on top of any part of the graph
⇒ Axes are always labeled, even if the label seems obvious: Time, Years etc.
- Legend ⇒ Multiple colours require a legend.
- Units of Measurement ⇒ Be sure to include this information on your graph (both axes).

PIE GRAPH – used to compare parts of a whole. It can show raw data or percentages.

When making a pie graph remember:

- Start at 12 o'clock, moving clockwise, with the largest percentage or the percentage you want to focus on.
- Use a compass to make the chart a perfect circle; imperfect circles can distort data and make them harder to read.
- Try to limit the number of wedges to no more than seven.
- Label the wedges outside the circle; writing inside the graph is too often hard to read.



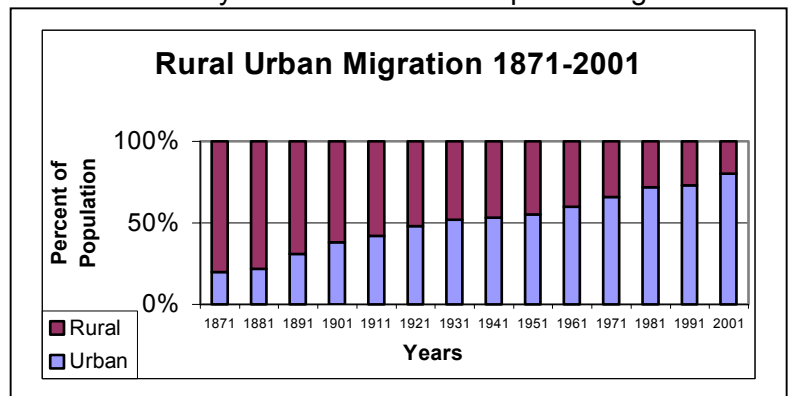
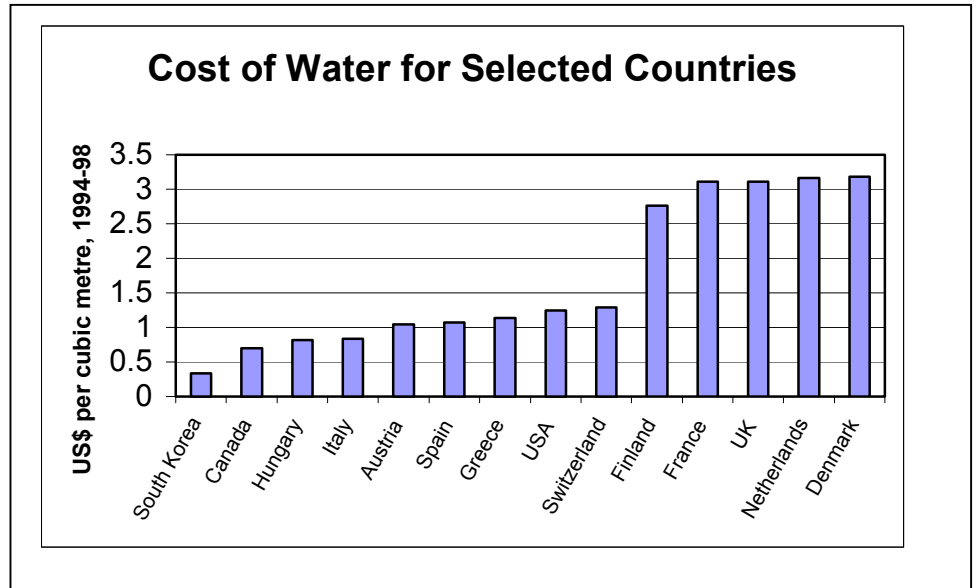


Reading Graphs

BAR GRAPH – Used to compare data, compare data over time, or show how often something happens.

When making a bar graph remember:

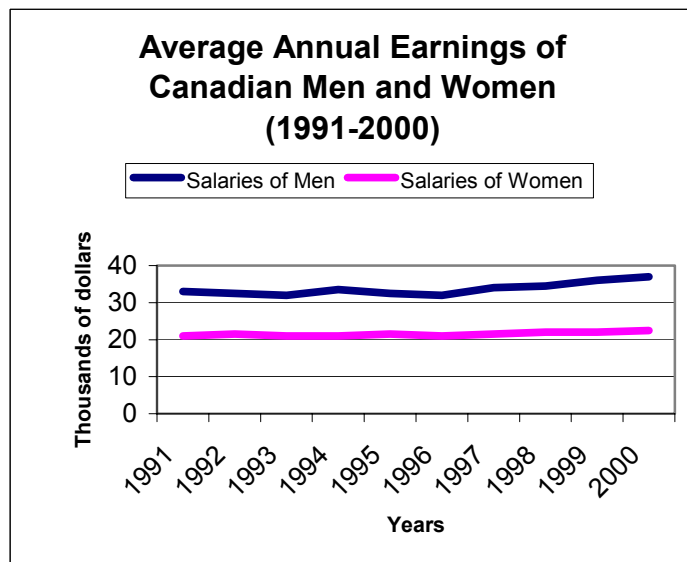
- Bars should be organized logically or chronologically.
- Put the bars close enough together to make comparisons easy, but not touching each other.
- Label both axes.
- Make all bars the same width and use different colours only when the bars are representing different things. If different colours are used, your graph will require a legend which explains the significance of the colours.
- **Multiple** or **stacked** bar graphs allow for the graphing of more complex sets of data.



LINE GRAPH – is used to compare data over time. They show trends.

When making a line graph remember:

- Take time to plot your data accurately.
- Line graphs should have both horizontal and vertical axes labelled.
- Use a **multiple** line graph when you want to compare 2 or more data sets over the same time period. Be careful to make each line easy to read by using different colours or symbols.
- When plotting more than one line on the graph, it is necessary to include a legend.



Reading Different Text Forms: Reading Visuals

Grade 9 Academic Geography

Graphical text forms (such as diagrams, photographs, drawings, sketches, graphs, schedules, visual/picture/diagrams, charts, timelines and tables) are intended to communicate information in a concise format and illustrate how one piece of information is related to another. Providing students with an approach to reading graphical text also helps them to become effective readers.

Purpose

- Become familiar with the elements and features of graphical texts used in any course.
- Explore a process for reading graphical texts, using a range of strategies for before, during and after reading.

Payoff

Students will:

- become more efficient at “mining” graphical texts for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- While learning to read visuals is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally reading visuals is taught in the first unit of study (Natural Systems) and revisited and applied using different topics in each subsequent unit. See Teacher Resource, *Tips for Reading Visuals* for suggested examples.
- **Visuals** can take the form of :
 - photographs (landforms, urban settings, transportation networks etc.)
 - diagrams or annotated diagrams (Hydrologic Cycle, cross-section of the earth, threats to the forest)
 - flowcharts (industrial processes, waste management processes etc.)
 - cartoons
 - timelines
- Grade 9 students participate in an issues based approach to geographical studies. They are expected to gather information in order to undertake analysis of issues, identify various points of view as well as develop their own supported opinions. Reading visuals support this decision-making process.
- Students should be aware of the purpose of reading visuals in general (to gather information from a spatial context and in relation to themselves), and the specific task at hand.
- Pre-teach, or review the content that supports the visual.
- See Student Resource, *Tips for Reading Visuals (Pictures or Diagrams)*.
- Pose questions that help students clarify the purpose of reading the visual.
- Activate prior knowledge about reading visuals as well as the topic of study.

Further Support

- Provide students with an advance organizer to guide them as they read a particular text. This might be a series of prompts to guide them through the reading task.



Reading Different Text Forms: Reading Visuals

Grade 9 Academic Geography

Notes

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • View a series of visuals as a whole class. Ask students to identify explicit information. What do they see? • Activate prior knowledge. How can they relate this information to other studies or their personal experience? • Select a visual appropriate for a reading exercise. • Prepare a handout or overhead of the Student Resource, <i>Tips for Reading Visuals (Pictures or Diagrams)</i>. 	<ul style="list-style-type: none"> • Seek clarification of the purpose of studying the visual in question. • Make personal connections to the visual. • Make connections to studies. • Note the connections the teacher is making between studies and the visual. • Recall past use of visuals to support the current task (prior knowledge).
<p>During</p> <ul style="list-style-type: none"> • Ensure that each student can see the visual (multiple copies or on an overhead). • Hand out and review Student Resource, <i>Tips for Reading Visuals (Pictures or Diagrams)</i>. • Engage whole class discussion about the purpose/meaning of the visual using focus questions: <ul style="list-style-type: none"> - What do you see? (foreground, mid-ground, background, colour, images, anomalies etc). - What is significant about this image? - If annotated are there any terms or ideas that need clarification? - Does this remind you of any other visual that you have seen? - Has this image been modified to better illustrate a bias? If so, how? 	<ul style="list-style-type: none"> • Seek clarification of the task. • Skim, look over the visual. • Clarify vocabulary and or concepts as necessary. • Paraphrase the purpose of the visual. • Answer focus questions the teacher poses. • Participate actively in discussions.
<p>After</p> <ul style="list-style-type: none"> • Help students to make connections between written text related to the visual. • Have students make a simple sketch of the visual. • Have students read similar visuals and answer similar questions independently. • Have partners or small groups share and compare answers. • As a class, discuss the usefulness of the visual to their studies. 	<ul style="list-style-type: none"> • Explain why this information is important in the context of broader studies. • Read the visual to someone who has not yet read it. • Transfer the skill by writing about the visual.

Tips for Reading Visuals

1. Widely available and useful resources.

The School Atlas and/or Text	Most school texts and atlases have a variety of visuals which are excellent. They provide examples that are generally current and appropriate for CGC-1D1.
Internet	When searching the internet make your search based on an image search. If using Google, for example, the main page offers this option.
Old calendars, postcards or magazines	Many visuals can be used from recycled materials – magazines, postcards and calendars are often very appropriate sources for CGC-1D1.

2. A very brief list of suggested visual topics.

Unit of Study	Title of Unit	Possible topics for student graphing:
1	Natural Systems	Visuals which represent any of the following types of regions: <ul style="list-style-type: none"> • Landforms • Vegetation • Ecozones • Cartoons showing conflict between nature and human activity
2	Human Systems	<ul style="list-style-type: none"> • Characteristics of rural and urban settings • Examples of types of land use • Transportation networks • Cartoons showing Urban issues • Flow diagram showing industrial processes
3	Humans in the Environment	Depending on the resources your class with study: <ul style="list-style-type: none"> • Forestry – cutting techniques, • Energy – electricity production, annotated diagram of Hibernia, flow chart of oil extraction in Athabasca Tar Sands • Waste – diagram and photographs of landfills, incinerators
4	Global Connections	Use depends on the types of Global Connections your class will study. <ul style="list-style-type: none"> • Photographs and political cartoons showing the working conditions in sweatshops • Photographs of Canadian peacekeepers at work • Photographs of the ports of Vancouver and St. John's

3. How to use the Student Resource.

The material listed in the Student Resource is intended as a thorough list. It is not intended to be used in its entirety, but rather select the elements that best fit the visual you want to assign to your students.



Student Resource

Tips for Reading Visuals (Pictures or Diagrams)

Consider the following when you are given the task of reading a visual (picture or diagram):

1. Looking the visual over

Preview the visual

- 🌐 What is the title? What and where is being illustrated?
- 🌐 How is colour used?
- 🌐 How are symbols used?
- 🌐 What information can you get from the caption below or beside the visual?
- 🌐 What type of visual are you reading? (diagram, annotated diagram, flowchart, photograph, computer image etc.)
- 🌐 Is the source of the visual identified? (Is it a reliable or useful source?)

2. What is the purpose of the visual?

When determining the purpose of the visual, look for clues:

- 🌐 What labels are used?
- 🌐 From what perspective is the image taken?
- 🌐 Summarize the main idea of the visual in your own words.
- 🌐 Restate one or two specific things the visual shows.

3. A closer look

Take time to study the visual more carefully.

- 🌐 What is included in the visual and what is left out?
- 🌐 Are any patterns evident? Are there any anomalies?
- 🌐 Use the figure number or title and key words to find and read related information in written text.
- 🌐 Identify the relationships among the visuals and written information presented.
- 🌐 Is there any evidence of bias? (What was kept in the frame? What was left out? What is the message of the cartoonist?)

4. What is my personal connection to this visual/picture/diagram?

How can you connect your personal experiences to the data in the visual?

- "I heard about this in the news"
- "I am surprised/never knew that..."

5. What is the significance?

Ask yourself why this information might be important, to your current studies or to you personally.

6. "I've got it!"

- 🌐 Rephrase the information orally or in writing. Imagine that you are explaining the visual to someone who has not seen it.
- 🌐 Sketch the image shown on the visual, without looking at the visual.
- 🌐 Explain the information based on your studies/prior knowledge and what you can infer from the visual.

Reading Different Text Forms: Reading Videos

Grade 9 Academic Geography

Graphical text forms (such as diagrams, photographs, drawings, sketches, graphs, schedules, videos, charts, timelines and tables) are intended to communicate information in a concise format and illustrate how one piece of information is related to another. Providing students with an approach to reading graphical text also helps them to become effective readers.

Purpose

- Become familiar with the elements and features of graphical texts used in any course.
- Explore a process for reading graphical texts, using a range of strategies for before, during and after reading.

Payoff

Students will:

- become more efficient at “mining” graphical texts for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- While all geography teachers use videos to support and extend the teaching of course expectations, the language around this strategy is awkward. For the purpose of this document this strategy will be referred to as “reading videos”. There are many valid reasons for using videos in the classroom, but none more important than how these visuals support the student’s concept attainment and general learning.
- For the purpose of this document **video** includes DVD, film, documentary, news clip, animation or movie.
- This form of reading is used with varying degrees of success. It is critical for the teacher to know why they are assigning this task to students. Once this decision is made, pose questions that will cause students to make specific reference to what they see. It is important that students not only listen to the video, they must watch the video.
- Work to provide a variety of applications, not just the simple gathering of facts and simplistic knowledge. Have students work on application, inference and analysis questions. Also have them articulate the visual component(s) of the video. See Teacher Resource, *Tips for Reading Videos* for suggested focus questions.
- In many cases segments are as powerful as the complete video. Take care to decide how much of the video is relevant to the current topic of study.
- While learning to “read” videos is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally video reading is taught in the first unit of study (Natural Systems) and revisited in each subsequent unit.
- Students should be aware of the purpose of video in general and the specific task at hand.
- Pre-teach, or review vocabulary and/or concepts associated with the video exercise.
- See Student Resource, *Tips for Reading Videos*.
- Activate prior knowledge about reading videos as well as the topic of study.

Further Support

- Provide students with an advance organizer to guide them as they read a particular text. This might be a series of prompts to guide them through the reading task.



Reading Different Text Forms: Reading Videos

Grade 9 Academic Geography

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Preview the video for appropriate content. • Review related print and Web materials, especially the teacher's guide that may accompany the video series. • Determine whether you will use the entire video or only relevant segments to illustrate objectives in your curriculum. • Leave students with something to look for; give them a purpose or goal to make them <u>active</u> viewers. Usually a viewing guide is used for this purpose. • See Teacher Resource, <i>Tips for Reading Videos</i> for a guide to determine the video usage process. 	<ul style="list-style-type: none"> • Have students write down what they are sure they know about the subject and what they think they know. • Divide students into small groups. Have each group summarize what they know about the subject and identify questions they may have. (After viewing the video have these groups answer questions, discuss new information and formulate new questions.)
<p>During</p> <ul style="list-style-type: none"> • Give students a focused viewing assignment, a task, something they are responsible for remembering or writing down, such as important facts, images or personal responses. • Use one segment at a time and direct the learning experience. • Pause frequently to allow for immediate feedback to student's personal interests and comments. • Identify students' prior knowledge or assess what they have learned by having them provide their own narration. • Stop the video to alert students that key information is coming up, or ask them to predict what will happen. • Find out how students' comprehension and impressions have changed after a second viewing. 	<ul style="list-style-type: none"> • Use Student Resource, <i>Tips for Reading Videos</i>. As a starting point, address questions 1 and 2. • Gather data that addresses the following aspects of the video: <ul style="list-style-type: none"> - How does the director manipulate the viewer's reactions? - Hypothesize and predict answers whenever a question is asked in the video. - Clarify new vocabulary as it is used. • Complete the assigned worksheet. • Participate actively in class discussions.
<p>After</p> <ul style="list-style-type: none"> • After the video, pose a question. Ask a prepared question that will reinforce what the students have just seen or that will extend newly learned concepts to other situations. • Review important information you wanted students to gather from the program. 	<ul style="list-style-type: none"> • Explain why this information is important in the context of broader studies. • Describe the images from the video to someone who has not yet seen it. • Transfer the skill by writing about the video.

Notes



Tips for Reading Videos

Consider the following when you decide to use a video to support the curriculum:

1. Ask yourself why you are using video instead of some other resource.
2. Prior to viewing, students should know why the video is being viewed. They should understand how video content supports/enhances previous or future course concepts. Students can therefore make connections, activate prior knowledge, identify important terms/concepts and generally focus their thinking.
3. Watch only the useful and relevant segments. Fast forward and pause as often as is necessary. When pausing the video you can:
 - look at background visuals or an object.
 - relate to specific course material.
 - check for student understanding.
 - emphasize a key idea, term or example.
 - have students predict what will happen next.
 - relate to student prior knowledge.
 - show key segments twice if necessary.
 - provide time for students to record information on their worksheet.
4. Mute the video if the level of narration is inappropriate. Provide your own narration which emphasizes relevant course content and concepts.
5. Provide a focus for viewing. Often this is done with a viewing guide. Have students read through the guide prior to viewing, allowing time for any necessary clarification. Check any "Teacher's Guide" that accompanies the video for suggestions for pre- and post- viewing activities, extended research and/or reading suggestions.

<p>Application</p> <ul style="list-style-type: none"> • Means to use information (facts and concepts) in a new situation. 	<p>Application words include:</p> <ul style="list-style-type: none"> • apply • demonstrate • illustrate • relate • complete • examine • problem solve • show
	<p>Sample Application Questions</p> <ul style="list-style-type: none"> • How is _____ an example of _____? • How would you respond if you were a stakeholder in this issue? • Using examples from the video show how _____ is related to _____. • Illustrate why _____ is significant. • Which scene best demonstrates the complexity of the issue?



Tips for Reading Videos (continued)

<p>Inference</p> <ul style="list-style-type: none"> Means finding all the clues and making your best guess. A combination of application and synthesis. 	<p>Inference words include:</p> <ul style="list-style-type: none"> anticipate conclude hypothesize predict apply deduce infer speculate <p>Sample Inference Questions</p> <ul style="list-style-type: none"> Infer the stakeholder’s reasoning. Speculate on the stakeholder’s motivation. Infer the cause and effect of _____. Conclude what the result will be if _____. What if _____ had happened instead of _____?
<p>Analysis</p> <ul style="list-style-type: none"> Means looking at the parts to better understand the whole. 	<p>Analysis words include:</p> <ul style="list-style-type: none"> analyze classify connect explain arrange compare divide select <p>Sample Analysis Questions</p> <ul style="list-style-type: none"> Was the reporting balanced? If not, what evidence did you see of bias? Classify _____ according to _____. Select three examples from the video that show _____. What evidence can you list for _____? Explain the motives of _____.

- After the video, lead a discussion or debate where students can:
 - react to and discuss content, opinions and content presented in the video.
 - transfer learning to another format (write about the video). Critical analysis and discussion of editorial bias are important elements of critical viewing.
 - use something from the video in the context of their prior knowledge or experiences.

Tips for Reading Videos

1. **Record the title, source and date of the video.**
2. **What is the purpose of the video?**
3. **A closer look: Take time to study the video more carefully.**
 - What is included in the video and what is left out?
 - How do these omissions create bias? Provide examples of words, and images to support your assertion.
 - How does this bias or omissions make you feel? Explain.
 - Identify the relationships between the visuals and information presented orally. Were they used to support each other, or to provide contrast?
 - What facts are used to support the main idea or point of view of the video?
 - How were the main ideas presented?
 - Interviews
 - Narration
 - Live footage
 - Taped discussions
 - Re-enacted scenes
 - Fictionalized accounts
 - How did the presentation technique impact the message or main idea of the video?
4. **What is my personal connection to this video?**

How can you connect your personal experiences to the data on the video?

 - “I have never seen...”
 - “I have recently heard about this in the news”
 - “I am surprised/never knew that...”
5. **What is the significance?**

Ask yourself why this information might be important, to your current studies or to you personally.

Engaging in Reading: **Reading Maps**

Grade 9 Applied Geography – Population Distribution of Canada

- Graphical text forms (such as diagrams, photographs, drawings, sketches, graphs, schedules, maps, charts, timelines and tables) are intended to communicate information in a concise format and illustrate how one piece of information is related to another. Providing students with an approach to reading graphical text also helps them to become effective readers.

Purpose

- Become familiar with the elements and features of graphical texts used in any course.
- Explore a process for reading graphical texts, using a range of strategies for before, during and after reading.

Payoff

Students will:

- become more efficient at “mining” graphical texts for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- Review Student Resource, *Tips for Visual Literacy – Reading Maps Organizer*. This guide can be used and modeled over several lessons, and units within the course.
- Student Resource, *Population Distribution Map of Canada*, provides an example.
- While learning to read maps is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally map reading is taught in the first units of study (Natural Systems), and revisited in each subsequent unit.
- Students should be aware of the purpose of mapping in general (to place information in a spatial context and in relation to themselves), and the specific task at hand.
- Maps are visual representations of places or things: the surface of the earth or of planets, of routes, or the components of things or landscapes. Simply put they show the “what” and “where” for a set of data at a specific time.
- Pre-teach, or review:
 - Types of maps (thematic, general purpose, topographic, etc.)
 - Conventions of map reading (title, scale, direction, etc.)
 - Vocabulary and/ or concepts associated with the map reading exercise.
- For additional information, see the following resources:
 - www.atlas.gc.ca
 - How to Read a Map – Pearson School Atlas, 2003 pages 168-175.
 - Canadian Oxford School Atlas, 2003 pages 4-7.

Further Support

- Provide students with an advance organizer to guide them as they read a particular text. This might be a series of prompts to guide them through the reading task.



Engaging in Reading: Reading Maps

Grade 9 Applied Geography – Population Distribution of Canada

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Make an overhead transparency of a course-related map (ie: Population Distribution Map of Canada) to model the process of reading maps. Use a blank “reading maps” organizer as well, on a transparency. • Preview the map with the class, noting the features of the map including the title, legend, symbols, colours, and patterns. Ask questions and record responses such as: <ul style="list-style-type: none"> - What is the title? (write the title in the organizer) - What does this tell us the map will be about? (write the topic in the organizer) 	<ul style="list-style-type: none"> • Preview the map and note strategies that others use to preview a map.
<p>During</p> <ul style="list-style-type: none"> • Continue to model and complete the organizer. Read the questions and identify how to find the information from the map. • Model the key terms from the literacy strategies section of the organizer for students. • Model rereading the map and asking questions such as: <ul style="list-style-type: none"> - What does the pattern mean? - Why might the pattern exist? - What would it be like to live there? - Why is this important? 	<ul style="list-style-type: none"> • Listen and observe the teacher modeling. Create their own organizer based on the teacher’s class example. • Identify the key terms from the literacy strategy section of the organizer, and ask questions for reading maps. • Ask questions about the map and seek clarification when necessary.
<p>After</p> <ul style="list-style-type: none"> • Ask students to read another course-related map and complete an organizer. • Have students work with partners to compare organizers. Students should use partner’s ideas to add to their own organizer. • As a class, discuss the importance and use of map reading skills. 	<ul style="list-style-type: none"> • Read another map and complete an organizer to record important information. • Use other student’s notes to add to their own. • Identify map reading strategies and resources to use in the future.

Notes



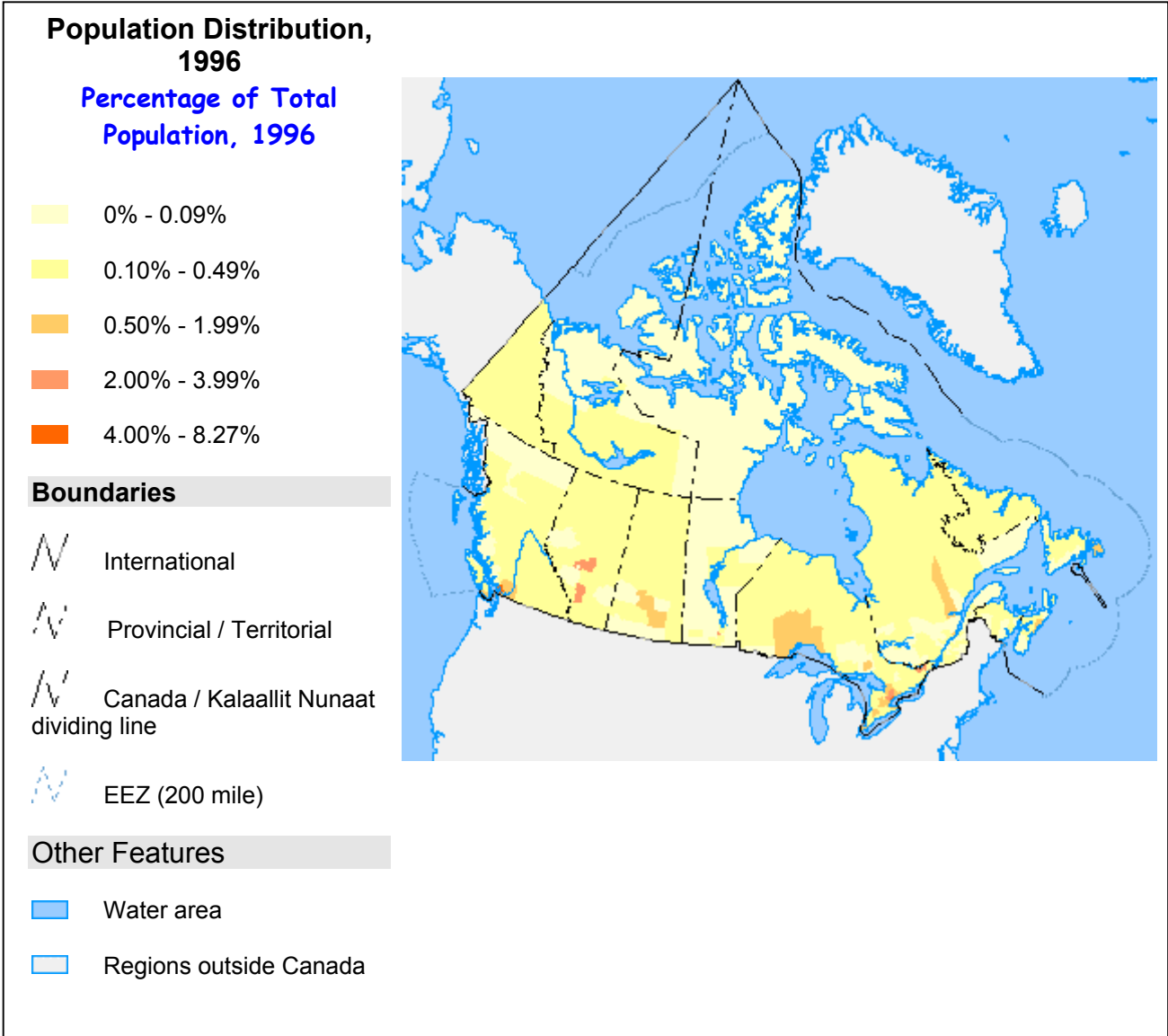
Tips for Visual Literacy - Reading Maps Organizer

Directions: Answer the following questions by reading your map.

Literacy Strategy	Question	Answer
Ask Questions	1. What is the title of the map?	
Ask Questions	2. Identify the topic of the map.	
Make Inferences	3. What do you think the purpose of the map is?	
Understand the Text	4. Identify the patterns that you see on the map.	
Make Inferences	5. What do you think the patterns mean?	
Make Connections	6. Where is the location of the map?	
Make Connections	7. Where do you live on the map?	
Visualize	8. Choose a region of the map, and visualize it. Describe what you might see there.	
Make Inferences	9. Choose one region name, and explain what you think it means.	



Population Distribution Map of Canada for 1996



Source: www.atlas.gc.ca

Writing for a Purpose: Writing Maps

Grade 9 Applied Geography – Ecozones of Canada

When students can get the “picture” of a form of writing in their heads, they feel more confident about creating the final product. A template or framework is a skeletal structure for a writing form that allows students to organize their thoughts and researched information in order to write a first draft. Essay maps are another type of template.

Purpose

- Provide students with a template to scaffold their understanding of a form of writing and help them organize information before drafting the piece.

Payoff

Students will:

- learn the common expectations for the form and components of a particular writing assignment.
- organize their writing and ensure that it meets the requirements of the assignment.

Tips and Resources

- Student Resource, *Tips for Visual Literacy – Writing Maps Checklist*. This guide can be used and modeled over several lessons, and units within the course.
- Student Resource, *Ecozone of Canada – Mapping Assignment*.
- Students should be aware of the purpose of mapping in general (to place information in a spatial context and in relation to themselves), and the specific task at hand.
- Maps are visual representations of places or things: the surface of the earth or of planets, of routes, or the components of things or landscapes.
- Pre-teach or review:
 - types of maps (thematic, general purpose, topographic)
 - conventions of map making (scale, direction, etc.)
 - relevant vocabulary or concepts (ecozone, region, population density, etc.)

Further Support

- The template for any individual writing assignment can be revised to make the modifications or accommodations necessary for students with special needs. For example, reduce the number of paragraphs or supporting details, create differing expectations for research, or for the complexity of the main idea, etc.



Writing for a Purpose: Writing Maps

Grade 9 Applied Geography - Ecozones of Canada

Notes

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Make an overhead transparency of a course-related map to model the process of writing maps. Use a blank <i>Tips for Visual Literacy – Writing Maps Checklist</i> on a transparency as well. • Review the purpose of writing maps, as well as any relevant vocabulary. Review the language used, “writing maps” as a term for literacy, which means creating maps for students. • Preview the map with the class, noting the features of the map and required conventions. Use the checklist as a guide, and show where the information is located on the model. Ask questions such as: <ul style="list-style-type: none"> - Where is the title located? - Where is the legend? - What information is given in the legend? 	<ul style="list-style-type: none"> • Preview the map and note the strategies that others use to preview a map in preparation for writing their own map.
<p>During</p> <ul style="list-style-type: none"> • Continue to model writing by making a blank transparency of the same map students will be using. Read over each convention and model where it belongs on the map. • Model rereading the instructions, and check off the list as each convention is fulfilled. 	<ul style="list-style-type: none"> • Listen and observe the teacher modeling the writing of maps. Create their own map by following the instructions and the checklist as a guide. • Identify and use the conventions as listed on the checklist. • Ask questions about the map.
<p>After</p> <ul style="list-style-type: none"> • Ask students to create or write another course-related map by using the checklist. • Have students read the map they created by using the <i>Tips for Visual Literacy – Writing Maps Checklist</i>. • As a class, discuss, compare and analyze patterns created by the map, and the importance of mapping conventions. 	<ul style="list-style-type: none"> • Create or write another map using the checklist effectively. • Use the map created to read and analyze the map using the <i>Tips for Visual Literacy</i> organizer. • Use the checklist and conventions as a strategy and a resource in the future. • Compare your use of conventions to a classmates. How does this change the ease of reading the map?



Tips for Visual Literacy – Writing Maps Checklist

Directions: Use the following conventions as a guide when constructing maps for Geography class.

1. Title

- should state exactly what the maps shows
- be clearly visible, and located at the top of the map
- be underlined with a ruler

2. Legend

- be titled and underlined
- drawn with a ruler, using boxes
- the labeling should be on the right hand side
- should include all of the symbols and colours used on the map

3. Colouring/Shading

- colour choices should suit what your are trying to show (ie: forest is green)
- do not use black or brown unless instructed by the teacher
- cities must be indicated by a red dot
- blue only used for water, nothing else

4. Labelling

- fine blue or black printing only
- all labeling must be horizontal, except along rivers
- include a directional arrow
- maps must have a border outline

5. Accuracy

- be exact
- Does your map reflect what you want to communicate?

**Remember to take pride in your work.
Map making is an art and a method of communication.**



Ecozones of Canada - Mapping Assignment

Directions: Complete the following chart by using a textbook or atlas. Then create a map of Canada's Ecozones by neatly labeling them on a map of Canada. Be sure to follow the mapping conventions!

Name Canada's Ecozones

1.	6.	11.
2.	7.	12.
3.	8.	13.
4.	9.	14.
5.	10.	15.

Reading Different Text Forms: Reading Graphs

Grade 9 Applied Geography – Ecological Footprint

Graphical text forms (such as diagrams, photographs, drawings, sketches, graphs, schedules, maps, charts, timelines and tables) are intended to communicate information in a concise format and illustrate how one piece of information is related to another. Providing students with an approach to reading graphical text also helps them to become effective readers.

Purpose

- Become familiar with the elements and features of graphical texts used in any course.
- Explore a process for reading graphical texts, using a range of strategies for before, during and after reading.

Payoff

Students will:

- become more efficient at “mining” graphical texts for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- Student Resource, *Tips for Visual Literacy – Reading Graphs Organizer*. This guide can be used and modeled over several lessons, and units within the course.
- Student Resource, *Ecological Footprint Bar Graph Comparison for 1997* provides an example.
- While learning to read graphs is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally graph reading is taught in the first unit of study (Natural Systems) and revisited in each subsequent unit.
- Students should be aware of the purpose of graphing in general (to place data in a visual context for comparison), and the specific task at hand.
- Graphs are used to visually represent information in a vivid, easily understood manner. Visuals emphasize material and can present material more compactly and with less repetition than text.
- Graphs take a variety of forms, each with a specific purpose. Those most commonly used are:
 - Bar Graphs (show the total of sets of data being measured, they can compare data sets to one another, compare items over time, and show frequency).
 - Line Graphs (show the relationship between two sets of data, and are commonly used to compare items over time, show frequency or correlation, and show trends).
 - Pie Graphs (show the proportionate parts of the whole, and can show raw data as well as percentages).
 - Multiple Bar Graphs (show the correlation between items).

Further Support

- Provide students with an advance organizer to guide them as they read a particular text. This might be a series of prompts to guide them through the reading task.

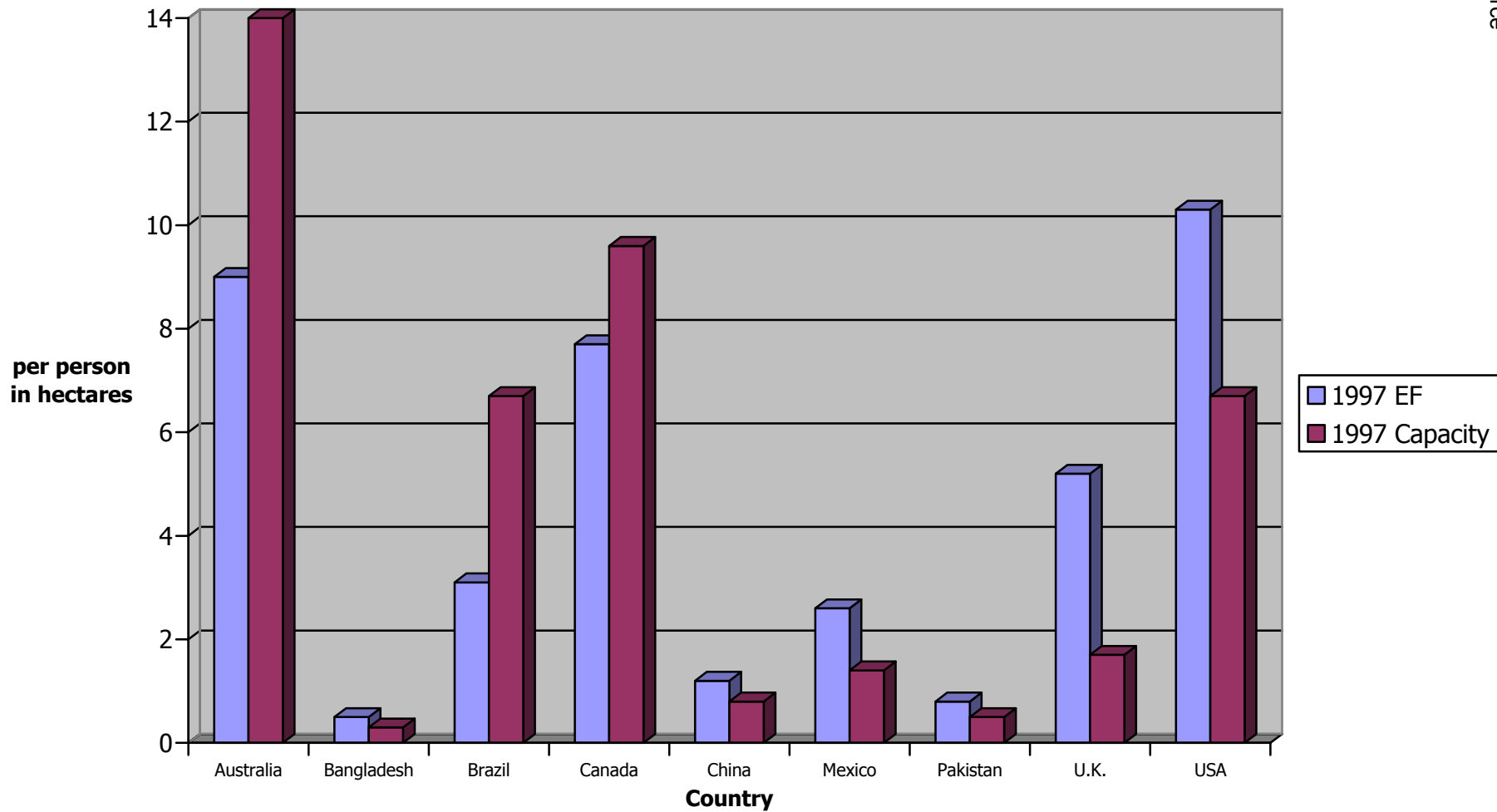


Tips for Visual Literacy - Reading Graphs Organizer

Directions: Answer the following questions by reading your graph.

Literacy Strategy	Question	Answer
Ask Questions	1. What is the title of the graph?	
Ask Questions	2. Identify the topic of the graph. What information is given on the axis?	
Understand the Text	3. Identify a trend in the graph.	
Make Inferences	4. What do you think the trend in the graph means?	
Make Inferences	5. Who do you think would use this information?	
Make Connections	6. Where is the location of the graph in the world?	
Visualize	7. What do you think it would be like to live in this location of the world? Describe what it would look like.	

Ecological Footprint Bar Graph Comparison for 1997



Source of statistics: <http://www.ecouncil.ac.cr/rio/focus/report/english/footprint/ranking.htm>

Writing for a Purpose: Writing Graphs

Grade 9 Applied Geography – Ecological Footprint

When students can get the “picture” of a form of writing in their heads, they feel more confident about creating the final product. A template or framework is a skeletal structure for a writing form that allows students to organize their thoughts and researched information in order to write a first draft. Essay maps are another type of template.

Purpose

- Provide students with a template to scaffold their understanding of a form of writing and help them organize information before drafting the piece.

Payoff

Students will:

- learn the common expectations for the form and components of a particular writing assignment.
- organize their writing and ensure that it meets the requirements of the assignment.

Tips and Resources

- Student Resource, *Tips for Visual Literacy – Writing Graphs Checklist*. This guide can be used and modeled over several lessons, and units within the course.
- Student Resource, *Ecological Footprint – Bar Graph Assignment*.
- Students should be aware of the purpose of graphing in general (to place data in a visual context for comparison), and the specific task at hand.
- Graphs take a variety of forms, each with a specific purpose: bar graphs show the total of sets of data being measured, line graphs show the relationships between two sets of data, and pie graphs show the proportionate parts of the whole. More complex data likely requires multiple line graphs, multiple bar graphs, or stacked bar graphs.
- Pre-teach or review the types of graphs, conventions of graphing (labels, units of measure), and vocabulary or concepts associated with the graph reading exercise.

Further Support

- The template for any individual writing assignment can be revised to make the modifications or accommodations necessary for students with special needs. For example, reduce the number of paragraphs or supporting details, create differing expectations for research, or for the complexity of the main idea, etc.



Writing for a Purpose: Writing Graphs

Grade 9 Applied Geography – Ecological Footprint

Notes

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Make an overhead transparency of a course-related graph to model the process of writing graphs. Use a blank tips for literacy writing graphs checklist on a transparency as well. • Review the purpose of writing graphs, as well as any relevant vocabulary. • Preview the graph with the class, noting the features of the graph and required conventions. Use the checklist as a guide, and show where the information is located on the model. Ask questions such as: <ul style="list-style-type: none"> - Where is the title of the graph? - How is the information on the graph communicated? - Does the colour of the graph have meaning? - What type of graph is it? - Why was this type of graph used? 	<ul style="list-style-type: none"> • Preview the graph and note the strategies that others use to preview a graph in preparation for writing their own graph.
<p>During</p> <ul style="list-style-type: none"> • Continue to model writing by making a blank transparency of graph paper. Read over each convention and model where it belongs on the graph. • Model rereading the instructions, and check off the list as each convention is fulfilled. 	<ul style="list-style-type: none"> • Listen and observe the teacher modeling the writing of graphs. Create their own graph by following the instructions and the checklist as a guide. • Identify and use the conventions as listed on the checklist. • Ask questions about the graph.
<p>After</p> <ul style="list-style-type: none"> • Ask students to create or write another course-related graph by using the checklist. • Have students read the graph they created by using the tips for literacy reading graphs organizer. • As a class, discuss and compare trends evident in the graph, and the importance of graphing conventions. 	<ul style="list-style-type: none"> • Create or write another graph using the checklist effectively. • Use the graph created to read the graph using the tips for literacy organizer. • Use the checklist and conventions as a strategy and a resource in the future.



Tips for Visual Literacy - Writing Graphs Checklist

Directions: Use the following conventions as a guide when constructing graphs for Geography class.

1. Title

- should state exactly what the graph shows
- be clearly visible, and located at the top of the graph
- be underlined with a ruler

2. Legend

- be titled and underlined
- drawn with a ruler, using boxes
- the labeling should be on the right hand side
- should include all of the symbols used on the graph

3. Colouring/Shading

- colour choices should suit the purpose of the graph
- do not use black or brown unless instructed by the teacher

4. Labelling

- fine blue or black printing only
- label the vertical and horizontal axes

5. Type of Graph:

Pie Graph	Bar Graph	Line Graph
<ul style="list-style-type: none">• Start at 12 o'clock with the largest percentage or the percentage you want to focus on.• Make the chart a perfect circle.• Try to limit the number of wedges to no more than seven.• Label the wedges outside the circle, or in a legend.	<ul style="list-style-type: none">• The bars should be in order by logic or chronology.• Put the bars close enough together to make comparisons easy.• Label the horizontal and vertical axes.• All bars should be the same width.	<ul style="list-style-type: none">• Label the horizontal and vertical axes.• Avoid using more than three different colours on one graph.

6. Accuracy

- be exact
- Does your map reflect what you want to communicate?

**Remember to take pride in your work.
Graphs are Geographers way to make sense of information!**



Ecological Footprint - Bar Graph Assignment

Directions: Complete the following chart by ranking each country as a positive or negative situation. Then compare the 1995 situation to the 1997 situation, and determine if the footprint is increasing or decreasing. Use the information from this chart to create a multiple bar graph which compares the 1997 footprint of each country to the 1997 carrying capacity.

	1995 Footprint (per person in ha)	1995 Available Capacity (per person in ha)	Positive or Negative Situation	1997 Footprint (per person in ha)	1997 Available Capacity (per person in ha)	Positive or Negative Situation	1995 to 1997 Footprint Change (increasing or decreasing)
Australia	10.0	16.3		9.0	14.0		
Bangladesh	0.6	0.2		0.5	0.3		
Brazil	3.8	9.1		3.1	6.7		
Canada	7.4	12.6		7.7	9.6		
China	1.5	0.6		1.2	0.8		
Egypt	1.5	0.4		1.2	0.2		
France	5.4	4.0		4.1	4.2		
Ireland	6.7	7.2		5.9	6.5		
Israel	3.7	0.3		3.4	0.3		
Jordan	1.7	0.3		1.9	0.1		
Mexico	2.6	1.4		2.6	1.4		
New Zealand	8.2	26.8		7.6	20.4		
Pakistan	1.0	0.4		0.8	0.5		
U.K.	4.9	1.8		5.2	1.7		
U.S.A.	10.9	6.7		10.3	6.7		

Source of statistics: <http://www.ecouncil.ac.cr/rio/focus/report/english/footprint/ranking.htm>

Reading Different Text Forms: Reading Images

Grade 9 Applied Geography – Pollution

Graphical text forms (such as diagrams, photographs, drawings, sketches, graphs, schedules, maps, charts, tables, timelines and tables) are intended to communicate information in a concise format and illustrate how one piece of information is related to another. Providing students with an approach to reading graphical text also helps them to become effective readers.

Purpose

- Become familiar with the elements and features of graphical texts used in any course.
- Explore a process for reading graphical texts, using a range of strategies for before, during and after reading.

Payoff

Students will:

- become more efficient at “mining” graphical texts for information and meaning.
- practise essential reading strategies and apply them to different course-related materials.

Tips and Resources

- Student Resource, *Tips for Visual Literacy – Reading Images Organizer*. This guide can be used and modeled over several lessons, and units within the course.
- Student Resource, *Power Plant Along Lake Michigan* provides an example.
- While learning to read visuals is begun at the elementary level, skill development continues into and beyond grade nine. Consequently, diagnostic assessment is necessary for teachers to begin working with students. Generally reading visuals is taught in the first unit of study (Natural Systems) and revisited in each subsequent unit.
- Students should be aware of the purpose of reading visuals in general (to gather information from a spatial context and in relation to themselves), and the specific task at hand.
- Visuals can take the form of:
 - photographs (landforms, urban settings, transportation networks, etc.)
 - diagrams or annotated diagrams (Hydrologic Cycle, cross-section of the earth, etc.)
 - flowcharts (industrial processes, waste management, etc.)
- Sources of photographs and images include:
 - Parks Canada, www.pc.gc.ca, www.ec.gc.ca
 - Geo-Institut, www.geosmile.ca

Further Support

- Provide students with an advance organizer to guide them as they read a particular text. This might be a series of prompts to guide them through the reading task.

Reading Different Text Forms: Reading Images

Grade 9 Applied Geography – Pollution

What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Make an overhead transparency of a course-related image to model the process of reading images. Use a blank Student Resource, <i>Tips for Visual Literacy – Reading Images Organizer</i> on transparency as well. • Preview the image with the class, noting features and details. Use these to form questions and responses such as: <ul style="list-style-type: none"> - What are the key features? (write in the organizer) - What do you know about the image? (write down what you can tell about the image just by looking at it) 	<ul style="list-style-type: none"> • Preview the image and note strategies that others use to preview an image.
<p>During</p> <ul style="list-style-type: none"> • Continue to model reading by completing the organizer. Read the questions from the organizer to identify the key terms in the literacy strategy section. • Model the key terms by asking questions such as: <ul style="list-style-type: none"> - What is the issue or concern? - How can we tell? - Who might use this information? - Why might this be a concern for you? - What other questions might you have? 	<ul style="list-style-type: none"> • Listen and observe the teacher modeling. Create their own organizer based on the teacher’s class example. • Identify the key terms for literacy and questions for future use when reading images. • Ask questions about the image.
<p>After</p> <ul style="list-style-type: none"> • Ask students to read another course-related image and complete an organizer. • Have students complete an organizer together and compare ideas. • Use the organizer and image as a prelude to a research project on a particular topic. 	<ul style="list-style-type: none"> • Read an image and use the organizer to record important information. • Work with a partner to complete an organizer. • Use the organizer as a basis for a research project. • Identify the image reading strategy and resources for use in the future.

Notes



Tips for Visual Literacy - Reading Images Organizer

Directions: Answer the following questions by reading your image.

Literacy Strategy	Question	Answer
Ask Questions	1. Identify the image.	
Ask Questions	What do you know about the image from looking at it?	
Make Inferences	Where might the image be located?	
Visualize	Describe what it would be like to live in the area where this image is from.	
Ask Questions	What is the issue or topic of the image?	
Make Inferences	What players (who) might be involved? Or, what might cause this issue? Who or what might cause this issue to occur?	
Make Inferences	Who might use this image, and what would they use it for?	
Make Connections	What would you use this image for in Geography class?	

Student Resource

Power Plant Along Lake Michigan



Source: www.ec.gc.ca

