

Lesson Overview

4-5 periods

Targeted Curriculum Expectations

- present the findings from research on ways of improving the balance between human and natural systems
- develop and use appropriate questions to define a topic, problem, or issue and to focus a geographic inquiry
- gather geographic information from primary sources
- evaluate the credibility of sources
- use graphic organizers to clarify and interpret geographic inquiry
- analyse a regional issue on the basis of information gathered through research
- make a planning decision concerning a regional community after studying its existing natural and human systems.
- communicate the results of geographic inquiries, for different audiences and purposes;
- identify the role of government in managing resources and protecting the environment

Background Information

This lesson asks students to research the impacts of climate change and make recommendations for community action to adapt to the impacts of climate change. Each focus group will have a chance to present their findings to the Regional government and then participate in the development of overall criteria to build a sustainable Region.

Teaching/Learning Sequence

Whole Class → Holding a Regional Council Meeting

- a) Elect a student run Regional Council. Seek student nominations or personal campaigns to sit on or chair Regional Council. Nominees or candidate must submit a one page letter and a campaign poster/blog/website or video of their abilities to coordinate a well-run, meaningful regional meeting. When the candidates have been identified, hold a vote. Students with the top three number of votes will be declared Regional Council (Group 1). This activity can be competed by students from a debate club and/or civics/political science related courses.
- b) The student with the most votes will serve as the Regional Chair. Group 1 is to follow the activities outline in TR 5.1. The rest of the class proceeds with step 2.

Small Group → Research & Presentation Development

- a) Divide student into four or more climate change focus groups. Focus groups will define, research, analyze how the following systems can be adapted to combat the impacts of climate change in the Region of Peel. They will need to recommend how the community can take action to adapt to the changes in climate.

Group 2: Natural Systems

Group 3: Built Systems

Group 4: Human Systems

Note to Teacher: Depending on the availability of time for research and different learning styles of students, you may choose to provide students with a broad topic, subtopic or specific community related adaption action to research. Please see TR 5.1 for choice board ideas.

- b) Groups should assign one or two members to write a summary of findings and another one or two to develop the presentation and additional resources. BLM 5.1, 5.2, 5.3, 5.4 details the activities that each group is to complete.

3. Whole Class → Hold a Regional Council Meeting

- a) Based on the coordination and schedule times developed by the elected council, each focus group will have a chance to present their findings and make recommendations to Regional Council members.
- b) Students listening to the presentations are to take notes using BLM 5.5.

4. Consolidation Activity → Developing Planning Criteria

- a) Asks students to analyze the information being presented and draw lines linking any interrelationships on their note taking page BLM 5.5.
- b) After listening to all focus group's presentations, students must individually analyse and record what they feel are the best five climate change recommendations that Regional Council must consider in planning a Region for future Climate Change impacts. Each student is to complete BLM 5.6 and submit their recommendations to Regional Council.
- c) The Regional Council will tally and consolidate all students criteria and post the top five criteria.

5. a) **Mapping for Climate Change →** Have students create a future Region of Peel Map that reflects the climate change recommendations. For other map information visit the Peel Data centre at: <http://www.peelregion.ca/planning/pdc/data/> (You may choose to divide the class into two groups: one group will adapt the rural areas of the Region and the other group will adapt the urban areas of the Region.) This activity can be completed as class bulletin board activity or an individual summative assessment.



Extension

1. Planning policy → Ask a guest speaker from the Region of Peel Integrated Planning Division to speak about what strategies and policies are being developed to ensure the Region of Peel is being planned for the impacts of climate change. After the talk, illustrate one of the policy ideas on the individual or class map that was produced for the “Mapping for Climate Change Activity”

2. Social Networking → Create a social networking bulletin board or voting board on Climate Change. Have students respond and question what is written on the a climate change board. Visit <http://blip.tv/foratv-environment/a-climate-change-exhibit-inspired-by-social-networking-5305834> for an example of a social networking board that can be designed and maintained.

Choice Board

Broad Topic	Sub Topic Groups	Community Action Project Specifics
Natural Systems	<ul style="list-style-type: none"> -Natural Systems in the Urban (city)Environment -Adaptations to the Natural Environment in rural areas. 	<ul style="list-style-type: none"> -Community Gardens -Green Roofs -Urban Forests -Parks -Protecting Lands/Water/Air -Invasive Species -Greenbelts
Human Systems	<ul style="list-style-type: none"> -Public Health -Emergency Disaster Response 	<ul style="list-style-type: none"> -Heat Alert Systems -Sun Protection Education Program -Vector Borne Disease Program -Cooling Centers -Emergency Response -Grown in Peel
Built Systems	<ul style="list-style-type: none"> -Transportation -Energy -Buildings 	<ul style="list-style-type: none"> -Active Transportation - Designing Energy Efficient Buildings -Water Efficiency -Solar Systems -Thermal Energy Systems, Wind Systems



Group 1: Regional Council

Your group task is to research how to run an effective meeting. Based on your research findings you are to prepare an agenda, run the meeting and report on the recommendations presented by the four focus groups.

Step 1: Research How to run an effective meeting

- a) Find websites and other sources to help you organize and run an effective meeting. Visit <http://www.peelregion.ca/council/> to view a Region of Peel Council Meeting in progress or if you are able, attend a scheduled Regional Council meeting.
- b) Discuss and write seven rules that will be followed during the meeting.
- c) Define and write roles of each member of your group.
- d) Decide how you are going to communicate the process and proceeding to the rest of the group. You may wish to design a website, blog or bulletin board to post up-to-date information and rules of the meeting.

Step 2: Set the agenda

- a) With your teacher set the date and time for the council meeting.
- b) Determine the order of presentations.
- c) Create an agenda and post it for all groups to review
- d) Review the material provided to you by the focus groups.

Step 3: Hold a Regional Council Meeting

- a) Prepare the room for the council meeting
- b) Hold the meeting according to set agenda
- c) Record the proceedings and motions for recommendations.

Step 4: Post Meeting Activities

- a) Prepare a summary report of the focus group findings and recommendations. Post for comment.
- b) Develop a set of comments on the recommendations of the focus groups.
- c) Invite others to make comments on the recommendations.



Focus Group 2: Natural Systems

Your job is to create and present a climate adaptation plan for Regional Council. The plan must recommend how the community can take action to adapt to the impacts of Climate Change on natural systems. Natural Systems include all living things including forests, wetlands, wildlife, plus the human activities to monitor, protect, and enhance the natural environment. Choose to research ways to adapt to Climate Change in rural natural system or urban natural systems. Research topic could include urban forests, greenbelt plans, parks, invasive species or tree planting programs.

Focus group tasks:

Step 1: RESEARCH

- Investigate and research information on the general topic of climate change impacts on natural systems and how communities are adapting. Use key search words such as: Climate Change, Adaptation, Natural Environment, Region, Community, Municipality, Ontario, Urban Forests, Community Gardens, Tree Planting Programs, Greenbelt, Conservation Authorities.
- Create a chart to record and organize your information.

<p style="text-align: center;">IMPACTS of Climate Change on Natural Systems (Community or Regional examples)</p>	<p style="text-align: center;">ADAPTATION ACTION</p>

- Choose one adaptation from your chart. Develop five questions about your chosen adaptation. Have your teacher approve your topic and research questions.

Step 2: FIND

- Find information that will help you describe your community action plan and answer your five questions.
- Information may be accessed in many different forms including videos, newspapers, magazines, organizations, government websites and case studies.
- Find at least one table, chart, and/or graph and one photograph illustrating your community action
- Find one example of where this adaptation to climate change has been successfully run in a community or region.

Step 3: ORGANIZE and RECORD

You may wish to organize your information using the following questions or create your own graphic organizer.

- What is a definition or description of your community action?
- What are the possible negative effects of Climate Change on the Natural systems in the Region of Peel?
- What are the possible positive effects of Climate Change on the Natural systems in the Region of Peel?
- What are the negative consequences of not implementing this community action plan?
- Describe how these actions have been successful in another community or region.

Step 4: COMMUNICATE

a) The following must be submitted to Regional Council:

- Write a one page letter to the Regional Council describing your community action plan and how it will be useful.
- Prepare a five to seven slide presentation summarizing your findings.
You may decide to use the following slide titles:
 - Positive Impacts of Climate Change on the natural system
 - Negative Impacts of Climate Change on the natural system
 - Description of Action plan
 - Case study (Where these actions worked in another community)
 - Recommendations
 - Include at least one photograph and one chart or graph
 - Where does the community action take place
- In addition to your presentation, decide how you are going to promote your adaptation action to the public. Your focus group can decide to do a video, song, built a model, brochure, poster, poster board, website to promote your community action plan e.g. build a model house with a green roof.



Focus Group 3: Built Systems

Your job is to create and present a climate adaptation plan for Regional Council. The plan must recommend how the community can take action to adapt to the impacts of Climate Change on the built systems. Built systems involves the way we plan, construct and use man-made structures and systems in our communities. These features include our roads, homes, factories, water and sewer systems, energy systems, and other related built structures. You may wish to research community action programs related to climate change and active transportation, smart commute programs, renewable energy sources (solar, wind, thermal systems), water conservation programs, or energy efficient home designs.

Focus group tasks:

Step 1: RESEARCH

- Investigate and research information on the general topic of climate change impacts on natural systems and how communities are adapting. Use key search words such as: Climate Change, Adaptation, Smart Commute, renewable energy, solar energy, water conservation, energy efficient homes.
- Create a chart to record and organize your information.

IMPACTS On Built Systems (Community or Regional examples)	ADAPTATION ACTIONS
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- Choose one adaptation from your chart. Develop five questions about your chosen adaptation. Have your teacher approve your topic and research questions.

Step 2: FIND

- Find information that will help you describe your community action plan and answer your five questions.
- Information may be accessed in many different forms including videos, newspapers, magazines, organizations, government websites and case studies.
- Find at least one table, chart, and/or graph and one photograph illustrating your community action
- Find one example of where this adaptation to climate change has been successfully run in a community or region.

Step 3: ORGANIZE and RECORD

You may wish to organize your information using the following questions or create your own graphic organizer.

- What is a definition or description of your community action.
- What are the possible negative effects of Climate Change on the built systems in the Region of Peel?
- What are the possible positive effects of Climate Change on the built systems in the Region of Peel?
- What are the negative consequences of not implementing this community action plan
- Describe how these actions have been successful in another community or region.

Step 4: COMMUNICATE

a) The following must be submitted to Regional Council:

- Write a one page letter to the Regional Council describing your community action plan and how it will be useful.
- Prepare a five to seven slide presentation summarizing your findings.
You may decide to use the following slide titles:
 - Positive Impacts of Climate Change on the built systems.
 - Negative Impacts of Climate Change on the built systems
 - Description of Action plan
 - Case study (Where these actions worked in another community)
 - Recommendations
 - Include at least one photograph and one chart or graph
 - Where does the community action take place
- In addition to your presentation, decide how you are going to promote your adaptation action to the public or school community. Your focus group can decide to do a video, song, build a model, brochure, poster, poster board, website to promote your community action plan e.g. Build a solar powered oven



Focus Group 4: Human Systems

Your job is to create and present a climate adaptation plan for Regional Council. The plan must recommend how the community can take action to adapt to the impact of Climate Change on Human Systems. It is expected that climate change will make it more difficult to manage our health and well being especially for vulnerable groups including the elderly, the young, the disabled and the poor. Extreme weather events including heat waves, floods, and storms will increase the amount of human disease and trauma. There will be increased cases of asthma, heat stroke, heat exhaustion, and vector borne and water borne diseases in the Region of Peel. You may wish to research community action programs such as emergency response programs, heat alert systems, local food production, sustainable agriculture, and programs to protect people from vector borne disease.

Focus group tasks:

Step 1: RESEARCH

- a) Investigate and research information on the general topic of climate change impacts on natural systems and how communities are adapting. Use key search words such as: Climate Change, Adaptation, health, heat alert system, cooling centres, sustainable food production, vector borne disease,
- b) Create a chart to record and organize your information.

IMPACTS of Climate Change on Human Systems (Community or Regional examples)	ADAPTATION ACTION
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- c) Choose one adaptation from your chart. Develop five questions about your chosen adaptation. Have your teacher approve your topic and research questions.

Step 2: FIND

- a) Find information that will help you describe your community action plan and answer your five questions.
- b) Information may be accessed in many different forms including videos, newspapers, magazines, organizations, government websites and case studies.
- c) Find at least one table, chart, and/or graph and one photograph illustrating your community action
- d) Find one example of where this adaptation to climate change has been successfully run in a community or region.

Step 3: ORGANIZE and RECORD

You may wish to organize your information using the following questions or create your own graphic organizer.

1. What is a definition or description of your community action.
2. What are the possible negative effects of Climate Change on the human systems in the Region of Peel?
3. What are the possible positive effects of Climate Change on the human systems in the Region of Peel?
4. What are the negative consequences of not implementing this community action plan
5. Describe how these actions have been successful in another community or region.

Step 4: COMMUNICATE

a) The following must be submitted to Regional Council:

- Write a one page letter to the Regional Council describing your community action plan and how it will be useful.
- Prepare a five to seven slide presentation summarizing your findings.
You may decide to use the following slide titles:
 - Positive Impacts of Climate Change on the human systems.
 - Negative Impacts of Climate Change on the human systems
 - Description of Action plan
 - Case study (Where these actions worked in another community)
 - Recommendations
 - Include at least one photograph and one chart or graph
 - Where does the community action take place
- In addition to your presentation, decide how you are going to promote your adaptation action to the public or school community. Your focus group can decide to do a video, song, built a model, brochure, poster, poster board, website to promote your community action plan e.g. develop a public service announcement for flood or heat alerts for radio or television use.

Some sites to check out!

Natural Systems

<http://www.lifeisbetterinpeel.ca/trca.html>
<http://www.greenbelt.ca/about-greenbelt>
<http://www.youtube.com/watch?v=4cCOy78R8wU>
<http://www.youtube.com/watch?v=zE409d9TPkM>
<http://www.youtube.com/watch?v=7UA1rjnPZtU>
<http://www.youtube.com/watch?v=I9mnd0GC0yQ&feature=related>
<http://vimeo.com/7205224>
<http://www.youtube.com/watch?v=drlNEQFXbPY>

Built Systems

Region of Peel sources:

Active Transportation: <http://walkandrollpeel.ca/>

Home and Community Conservation:

<http://www.peelregion.ca/conservation/programs/energy.htm>

Renewable Energy: <http://www.peelregion.ca/finance/corp-energy/renewable/>

Smart Commute: <http://www.peelregion.ca/planning/transportation/smartcommute/>

Bike to Work Day: <http://www.peelregion.ca/conservation/teachgreen/resource.asp?rid=327>

<http://www.youtube.com/watch?v=OvI5N-euHCM>

Walking School Bus: <http://www.peelregion.ca/health/shp/issues/1fall2001/fall-2001-6.htm>

Other sources:

Active Transportation: <http://www.youtube.com/watch?v=aphyUt3gSus>

<http://www.youtube.com/watch?v=hgllly82o5Ks&feature=related>

<http://oee.nrcan.gc.ca/transportation/idling/health.cfm?attr=8>

<http://fleetsmart.nrcan.gc.ca/index.cfm?fuseaction=docs.view&id=city-bus-cornwall>

<http://www.therecord.com/news/local/article/499201--waterloo-looks-to-be-region-s-lead-dog-in-sustainable-transportation>

<http://planetgreen.discovery.com/videos/g-word-online-clips-public-transportation-in-la.html>

http://www.metacafe.com/watch/5838801/active_transportation_planning/

<http://www.youtube.com/watch?v=dResD8pX2Og>

<http://www.youtube.com/watch?v=n5anotSSlc4>

http://www.youtube.com/watch?v=uvqU_L5PZtk&feature=related

Human Systems

Region of Peel

<http://www.peelregion.ca/planning/gip/>

<http://www.peelregion.ca/health/cleanairpeel/initiatives/energy.htm>

<http://www.peelregion.ca/health/heat/pdfs/hwg-gen-pub.pdf>

<http://www.peelregion.ca/health/heat/default.asp?page=peopleatrisk>

<http://www.brampton.ca/en/residents/Emergency-Measures/Documents/HeatAlert.pdf>

Other sources:

<http://www.hc-sc.gc.ca/ewh-semt/climat/index-eng.php>

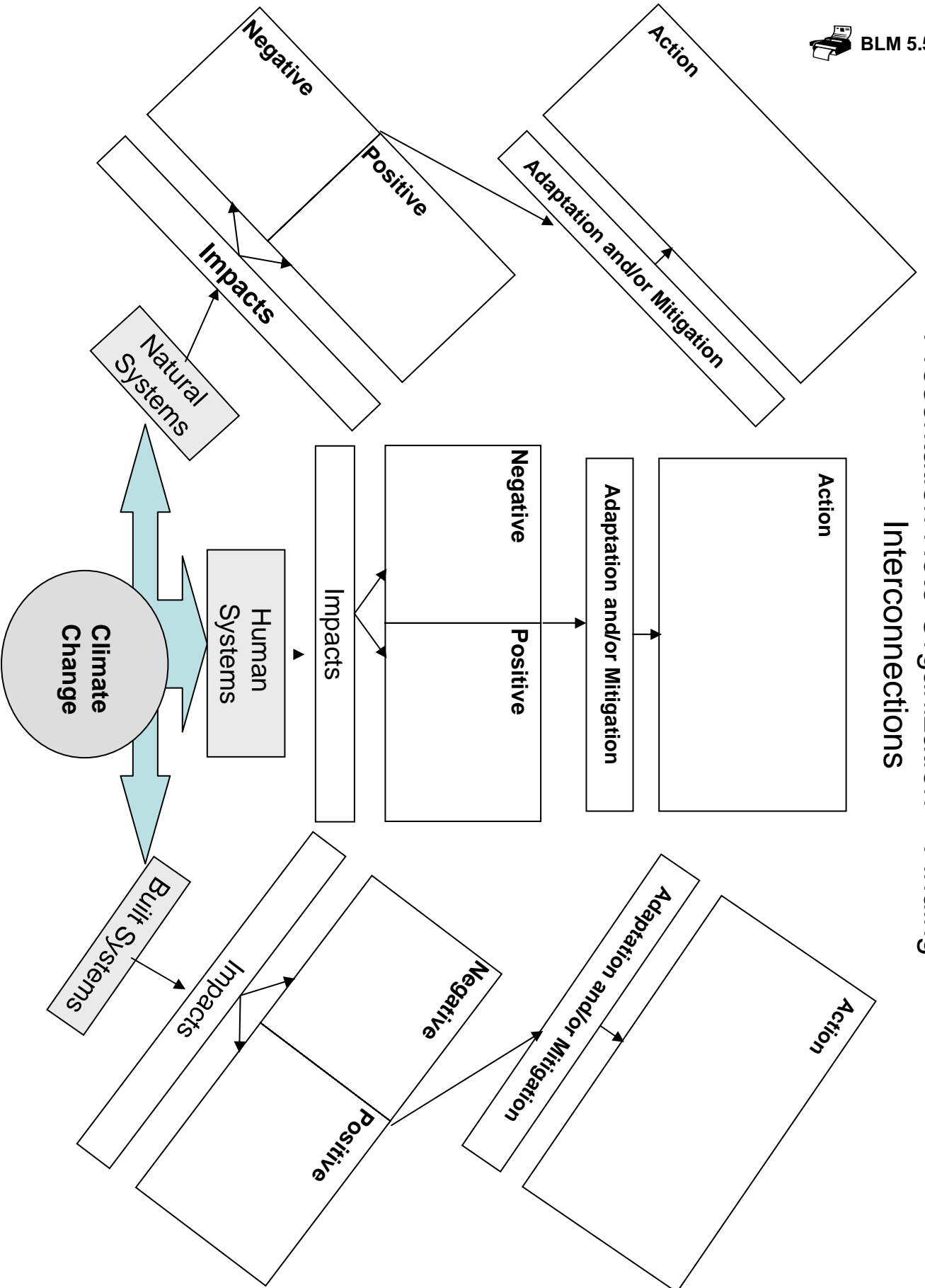
<http://www.who.int/mediacentre/factsheets/fs266/en/>

<http://www.youtube.com/watch?v=Z5gtjhWJ-3M>

http://www.youtube.com/watch?v=g_yPprC8gSQ

http://chd.region.waterloo.on.ca/en/healthyLivingHealthProtection/resources/SmogAlert_Summer_Heat_Brochure.pdf

Presentation Note Organization – Finding Interconnections



Name: _____

I recommend that Regional Council:

1. _____

2. _____

3. _____

4. _____

5. _____