



UNIVERSITY OF  
**REGINA**



**CLIMATE CHANGE EDUCATION SASKATCHEWAN**

## **Grade Six to Nine Mini Units**

### **Cross-Referenced to Saskatchewan Core Science and Social Studies**

Grade Six  
Grade Seven  
Grade Eight  
Grade Nine

November 2003

Canada



Government of  
Saskatchewan

**SaskEnergy**  **SaskPower**



Saskatchewan  
Watershed  
Authority

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## **Climate Change Education Saskatchewan – Management, Advisory and Working Committee Members**

**Director:** Dan Beveridge, Saskatchewan Instructional Development and Research Unit (SIDRU), University of Regina (November 2001 – April 2004) succeeded by Lyle Benko, SIDRU, University of Regina (April – September 2004)

**Management Committee Members:** Dan Beveridge, SIDRU, University of Regina (November 2001-April 2004) succeeded by Lyle Benko, SIDRU, University of Regina (April-September 2004); Ed Dean, Saskatchewan Environment; Lynn Anderson succeeded by Dean Elliot, Saskatchewan Learning; Sharon Metz, Saskatchewan Watershed Authority; Leslie Gosselin, SaskEnergy; Sheila Harlos, SaskPower and Climate Change Action Fund represented by: Debby Corbin, Chief, Outreach Programs, and Annette Boudreau succeeded by Kathy Crate, Program Officer, Outreach and Communications Services Division, Office of Energy Efficiency, Natural Resources Canada, Government of Canada

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- Climate Change Action Fund
- Climate Change Saskatchewan
- Regina Public School Board
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- Saskatchewan Teachers' Federation Stewart Resource Centre
- Saskatchewan Watershed Authority
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Thank you to everyone who has supported or promoted Climate Change Education Saskatchewan.

# **The One Tonne Challenge And the Climate Change Education Saskatchewan Mini-Units**

The mini-units in this package relate to specific curriculum areas that already have a fit with climate change. All of the lessons relate to climate change and use activities, readings and /or outdoor trips to teach the concept. Including the One Tonne Challenge as part of this unit of study will help the students identify ways that they can reduce their greenhouse gas emissions at home and at school. They love to protect the environment and will be keen to do all that they can for our climate.

The One Tonne Challenge, established by the Government of Canada, asks that every Canadian set the goal of reducing their personal greenhouse gas emissions by ONE TONNE (1,000 kilograms). How much is one tonne of GHG emissions? Enough to fill a two-storey 3-bedroom house with greenhouse gas!

How can individuals reduce? Use less energy. Conserve water & resources. Reduce waste. Fewer emissions means protecting our climate and having cleaner air and healthier Canadian communities.

The One Tonne Challenge website ([www.climatechange.gc.ca/onetonne/english/](http://www.climatechange.gc.ca/onetonne/english/)) has all of the information you will need to calculate your personal greenhouse gas emissions with a special calculator. You will be asked to answer questions about your daily activities and will get a personalized report about your GHG emissions. The report will identify the sources and where they come from and will show you how you compare to Canadians in general.

Once you have uncovered where you are contributing the greenhouse gas emissions you will move on to step 2; where you will be asked to select activities that you are willing to do in order to reduce your level of emissions. Get ideas from the Tips Guide and the section on Actions Taken by Canadians. There are lots of very practical and useable ideas for individuals, families and groups.

All of this is as easy as visiting the website and signing up. It only takes a few minutes to see where you fit in and to begin to think of ways that you can reduce GHG emissions. Give it a try!

[www.climatechange.gc.ca/onetonne/english/](http://www.climatechange.gc.ca/onetonne/english/)

**Go ahead! Take the Challenge! Reduce greenhouse gas emission!**



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**CLIMATE CHANGE EDUCATION SASKATCHEWAN**

## **Grade Six Mini Unit**

### **Cross-Referenced to Saskatchewan Core Science and Social Studies**

Janet Galger  
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Editor:  
Maxine Koskie

November 2003

Canada



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## Grade Six

GRADE 6 – SCIENCE, Unit 4 – Ecosystems and Unit 9 – Earth’s Climate

**This unit has been designed to incorporate objectives from Unit 4 and Unit 9 of the Grade 6 Science Curriculum. It can be taught as a unit on its own or as part of Unit 4 or Unit 9.**

### Learning Objectives

#### Unit 4 - Ecosystems

- ❖ Investigate factors which influence an ecosystem.
- ❖ Inquire into the effects of change in an ecosystem.
- ❖ Develop a sense of responsibility for the preservation of the ecosphere
- ❖ Understand the personal, moral, social, and cultural aspects of how we interact in the ecosphere. (PSVS)

#### Unit 9 – Earth’s Climate

- ❖ Describe the Saskatchewan climate.
- ❖ Recognize long-term climatic patterns.
- ❖ Develop a positive disposition towards lifelong learning. (IL)
- ❖ Become compassionate, empathetic, and fair-minded people who can make positive contributions to society, as individuals and as members of groups. (PSVS)

**Evaluation** – Specific lesson and unit evaluations are not provided, but it is recommended that teachers use a variety of evaluation templates and rubrics to help evaluate each lesson. Excellent relevant examples of various evaluation tools and techniques are found in the Social Studies, Science, English Language Arts, and Health Curriculums. The evaluations should reflect the objectives of the lesson and type of activity in the lesson.

## Lesson 1

## Introduction – The Hook!

### Objectives

- ❖ TSW gain an appreciation for the environment and their role in protecting it.

### Materials

- ❖ A grandparent or great-grand parent (special guest)  
Or
- ❖ Several cars, some new, some old to do exhaust check on.  
Or
- ❖ ‘Challenge’ sheet.

### Instructional Suggestions

- ❖ To set the stage for the unit choose one of the following to set the stage and hook the students. This first lesson should meet the students where they are at and slowly bring them to their role in protecting the ecosphere as the unit progresses.
  - Invite a grandparent, great-grand parent or elderly member of the community into the classroom to share changes he/she has seen in his/her life. Help the students see the relationship between these changes the environment through asking questions.
  - Arrange to have several vehicles at school, some new and some old, to do a quick exhaust check on. To do the exhaust check use an elastic band to hold a white cloth over the exhaust for 30 seconds. In class compare the colour of the cloth from each vehicle. Use this data and discussion to introduce the idea of the greenhouse effect and pollution.
  - Talk about how each member of the class arrived at school that day. Make a list and discuss how much energy they think each means of transportation would take and how much pollution each means would cause. Challenge the students to get to and from school without using a vehicle – discuss this including what means their grandparents may have used.
- ❖ It should be noted that any combination of the above may be used to hook the students. Teachers should base it on the needs and interest of their class.

## **Lesson 2                      What is the greenhouse effect?**

### **Objectives**

- ❖ TSW gain an understanding of how a greenhouse works.

### **Materials**

“The Greenhouse Effect”, Toronto Environmental Alliance  
([www.torontoenvironment.org](http://www.torontoenvironment.org))

- 1 larger glass jar which can be inverted
- 2 thermometers
- modelling clay to hold the thermometers upright
- graph paper for each student
- pages 22, 23, 24 of the Toronto Environmental Alliance

### **Instructional Suggestions**

- ❖ Have the student formulate a hypothesis – What do you think will happen?
- ❖ Procedure: Before Set the 2 thermometers upright with the modelling clay as a pedestal, invert the glass jar over one thermometer and place both in the sunlight. Record observed temperatures every 15 minutes for one hour. Graph the temperatures.
- ❖ Discussion: What has happened to our temperatures? Why? Why is there a difference between the two thermometers? What is happening inside our greenhouse? How is our greenhouse like the earth’s atmosphere? (How does the earth’s atmosphere act as a greenhouse?)
- ❖ The students should write up the experiment following scientific procedures: Title, Purpose, Hypothesis, Materials, Method, Observations, and Conclusion with diagram.

### **Alternate Activity**

SEEDS – Solar House

## Lesson 3

## Let's Have a Closer Look at the Atmosphere

### Objectives

- ❖ TSW gain an understanding how the atmosphere works.
- ❖ TSW gain an understanding of how human activity impacts the atmosphere (Enhanced Greenhouse Effect).
- ❖ TSW identify how humans impact the greenhouse effect.
- ❖ TSW conduct a car survey.

### Materials

- ❖ Transparency and student handouts of p. 28 (Toronto Environmental Alliance - TEA)
- ❖ Information and graphs showing percentage of greenhouse gases in the atmosphere  
Could used as overheads and as student handouts – found at  
<http://www.climatechangesask.ca/>  
[http://www.climatechange.gc.ca/plan\\_for\\_canada/challenge/](http://www.climatechange.gc.ca/plan_for_canada/challenge/)
- ❖ Greenhouse gases and their sources (p. 41 of TEA)
- ❖ Car survey p. 51-52 (TEA)
- ❖ Recording of Don Waite's "Fast Car, Gas Car!"

### Instructional Suggestions

- ❖ Review the concept of greenhouse effects from lesson 1.
- ❖ Use transparency (p. 28 TEA) to help with the review and to introduce the concept of greenhouse gases in the atmosphere.
- ❖ Discuss greenhouse gases that make up the atmosphere (use the pie chart as a visual aid)
- ❖ Explain to the students that the greenhouse gas balance is being disturbed by the addition of emissions from other sources on earth. This is called the "Enhanced Greenhouse Effect."
- ❖ Next, look at the sources of these emissions – handout (p. 41 of TEA). Read through the handout as a whole group, highlighting the important points as you go.
- ❖ Then, have the students work in small groups (3-4) to answer the question "Which greenhouse gas is produced when I do ...?" on handout p. 41
- ❖ Have the students share their answers with the whole class.

- ❖ Explain that - now CO<sub>2</sub> is the largest component of the pie chart and its concentration in the atmosphere is increasing, largely due to automobile emissions. In Saskatchewan alone 19% of CO<sub>2</sub> emissions is generated from transportation.
- ❖ Discuss and assign the Car Survey (p. 51-52 T.E.A.), the students should have it completed for next class.

## Lesson 4

## Climate Change in Saskatchewan

### Objectives

- ❖ TSW share and discuss the results of their car surveys.
- ❖ TSW participant in a discussion on how Climate Change will affect the climate in Saskatchewan.
- ❖ TSW demonstrate an understanding of how Climate Change will affect the climate in Saskatchewan.
- ❖ TSW demonstrate an awareness of how Climate Change in Saskatchewan will impact the economy and daily lives of people.

### Materials

Student copies of a Saskatchewan eco-zones map

<http://www.virtualsk.com/maps/index.html#eco>

Up-dated information on Climate Change in Saskatchewan –

<http://www.climatechangesask.ca>

Recording of Don Waite’s “Fast Car, Gas Car”

City of Regina – Cool Down the City Program

[http://www.cityregina.com/content/info\\_services/climate/information/index.shtml](http://www.cityregina.com/content/info_services/climate/information/index.shtml)

### Instructional Suggestions

- ❖ Review atmospheric greenhouse gases (pie chart) from Lesson 2.
- ❖ Share and discuss the “Car Survey” results (play Don Waite’s song again)
- ❖ Discuss ‘How climate change will affect the climate of Saskatchewan’:
  - Milder winters
  - Droughts
  - Warmer temperatures in summer
  - Extreme weather events

\*Up-dated information can be found at: <http://www.climatechangesask.ca/>
- ❖ To further discuss ask the students “How does change in the climate in Saskatchewan impact the economy and daily lives of people?” Brainstorm a list of ideas and then compare it to the notes below:
  - Agriculture:
    - Lengthened growing season
    - Soil erosion
    - Extreme weather occurrences – flooding, droughts, precipitation at inopportune times
    - Insects and diseases
  - Forestry:

- Lose parkland belt
- Increase forest fires
- Increase insects/disease
- Loss of species

Aquatic systems:

- Increased water temperature leads to elimination of cold water species
- Lower water levels
- Increase in salinity in lakes
- Impact on agriculture

Daily life:

- Increased use of air conditioning (\$)
- Water rationing
- Power blackouts
- Energy price increase

\*Use Climate Change, Saskatchewan Edition

- ❖ Explain that the students have learned a lot about climate change and its impact on our economy and our daily lives. To help the students remember what they have learned so far and then to test their knowledge of energy consumption, greenhouse gases and climate change, they are going to make climate change flip-flop games. (City of Regina – Cool Down the City Program).
- ❖ Play the game.
- ❖ Discuss as a class how they felt during the game, what they thought and what they learned.

## **Lesson 5                      So What Can We Do?**

### **Objectives**

- ❖ TSW brainstorm ways to reduce greenhouse gas emissions – brainstorm ways to apply their knowledge.
- ❖ TSW compare energy use from 100 years ago to their present energy consumption.
- ❖ TSW complete an “Energy Efficiency Report Card”.
- ❖ TSW make a personal ‘Energy Conservation’ plan.

### **Materials**

Video “Cool Down the City” - if in Regina  
Students handouts p. 67-70 and p. 73 of T. E. A.  
- Energy Efficiency Report Card  
Chart paper

### **Instructional Suggestions**

- ❖ As a class brainstorm ways to reduce greenhouse gas emissions in our daily lives, record the ideas on chart paper.
- ❖ View video “Cool Down the City” to demonstrate what is being done by the City of Regina. Add additional ideas to the list.
- ❖ Introduce “Times Have Changed” (p.67-70, T. E. A.) and complete the ‘energy audit’ exercise on kids’ activities 100 years ago as compared to now! You may wish to do the 100 years ago audit as a whole class activity and then have students work in pairs to complete the comparison to now part (you may assign a specific portion or all of it).
- ❖ Come back together as a class to share audits. Ask the students ‘why’ they think there is such a huge difference in the energy audits.
- ❖ Inform the students that now they will look at energy use in their homes. Explain the “Energy Efficiency Report Card” (p. 73, T. E. A.) and send it home to be completed. Give a specific due date.

<b>Energy Source</b>					
<b>Time of Day</b>	<b>Activity</b>	<b>Electrical</b>	<b>Natural Gas</b>	<b>Battery</b>	<b>Auto fuel</b>
08:00	Waking up	Clock radio			
08:15	Shower		Hot water		
08:30		Dry hair Radio Kettle Toaster		Walkman	Ride to school

- ❖ Have the student work in small groups to share their report cards results.
- ❖ Come back together as a large group to brainstorm ways in which the students could reduce the amount of energy they use at home and at school. Remind the students that the amount of energy they use is directly related to the amount of green house gas emissions – high consumption ultimately leads to increased green house gas emissions and thus contributes to the ‘enhanced greenhouse effect’ and climate change. Use the report card to help the students dissect their plan.
- ❖ As a class make an “Energy Saving” school and home plan. This plan should be realistic and should involve things that every student can do, such as turning off the lights when no one is in the room, recycling, not leaving taps run, and so on. Have each student keep a track of his/her successes.

### **Additional Activities**

- ❖ Build a solar house model!
- ❖ Build a solar hot dog cooker.
- ❖ Climate Change, Saskatchewan Edition by Climate Change Saskatchewan can be explored further and many more lessons developed.
- ❖ “Taking the carbon dioxide out” (gr. 4-7) from Project Forests is a valuable, hands on activity.
- ❖ “What did your lunch cost Wildlife?” (gr. 4-12) from Project WILD.
- ❖ “Flip the Switch for Wildlife!” (gr. 5-12) from Project WILD.
- ❖ “The Global Warming Game” (p. 38-58) of *Global Warming and the Greenhouse Effect*. University of California at Berkley, 1990. ISBN Prof. 363-73 GLO 1990)
- ❖ Keepers of the Earth to apply First Nations’ context.



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**CLIMATE CHANGE EDUCATION SASKATCHEWAN**

## **Grade Seven Mini Unit**

### **Cross-Referenced to Saskatchewan Core Science and Social Studies**

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## Grade Seven

### GRADE 7 – SOCIAL STUDIES, CANADA AND ITS PACIFIC NEIGHBOURS - UNIT 1 - Location

Topic Nine: Human-Environment Interaction and Relationship

**This unit has been designed to cover the objectives for the above mentioned unit, therefore it can be taught as a unit on its own to replace the suggested one in the Saskatchewan Evergreen Curriculum, or it can be incorporated into the existing unit.**

<b>Learning Objectives</b>		
<b>Knowledge/Content</b>	<b>Skills/Processes</b>	<b>Values/Attitudes</b>
<ul style="list-style-type: none"> <li>❖ Know how humans alter places in distinctive ways. (CCT)</li> <li>❖ Know some positive and negative consequences of human interaction with environments. (CCT)</li> <li>❖ Give examples of the role that technology plays in shaping the characteristics of places and regions.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Discuss how culture and experience influence people’s perception of places.</li> <li>❖ Interact effectively in groups to achieve specific tasks. (COM, PSVS)</li> </ul>	<ul style="list-style-type: none"> <li>❖ Be aware that humans depend on the environment in a variety of ways.</li> <li>❖ Appreciate that humans affect the environment everyday in large and small ways.</li> <li>❖ Appreciate that humans have a responsibility to manage and protect their environment. (PSVS)</li> </ul>

<http://www.sasked.gov.sk.ca/docs/midlsoc/gr7/index.html>

### **CLIMATE CHANGE MINI-UNIT – 6 lessons**

#### **Prerequisite learning – Topic 8: Climate and Climate Change**

**Evaluation** – The unit evaluation is based upon the quality of action plans the students develop and carry out in lesson six. Specific lesson evaluations are not provided, but it is recommended that teachers use a variety of evaluation template and rubrics to help evaluate each lesson. Excellent relevant examples of are found in the Social Studies, Science, English Language Arts, and Health Curriculums. The evaluations should reflect the objectives of the lesson and type of activity in the lesson.

## **CLIMATE CHANGE SASKATCHEWAN WEB SITE:**

<http://www.climatechangesask.ca>

### **Website Resources**

Environment Canada

<http://www.ec.gc.ca>

Government of Canada – Climate Change Impacts and Adaptations

<http://adaptation.nrcan.gc.ca/>

SaskEnergy

<http://www.saskenergy.com>

Saskatchewan Environment

<http://www.se.gov.sk.ca>

Saskatchewan Soils Conservation

<http://paridss.usask.ca/consgroups/ssca/sscahome.htm>

Saskatchewan Research Council

[http://www.src.sk.ca/cgi-bin/generate\\_page.pl](http://www.src.sk.ca/cgi-bin/generate_page.pl)

City of Regina Climate Change page and links to other sites

[http://www.cityregina.com/content/info\\_services/climate/information/climate\\_change.shtml](http://www.cityregina.com/content/info_services/climate/information/climate_change.shtml)

SaskPower

<http://www.saskpower.com/index.shtml>

GT – Climate Vocabulary

<http://www.greenteacher.com>

Saskatchewan Agriculture and Food

<http://www.agr.gov.sk.ca>

Government of Canada Climate Change Site

[http://climatechange.gc.ca/english/actions/what\\_are/federal\\_toolkit.shtml](http://climatechange.gc.ca/english/actions/what_are/federal_toolkit.shtml)

Environment Canada Weather Office Site

<http://www.ec.gc.ca/envhome.html>

Saskatchewan Forestry Association

<http://www.whitebirch.ca/about/about-us.shtml>

To calculate your own and your household's emissions

<http://www.climcalc.net>

Saskatchewan Mining Association <http://www.saskmining.ca/>

Information on sustainable and renewable energy

<http://www.newenergy.org/>

## Lesson 1 & 2

### Part A The Relationship between Humans and Their Environment

#### Objectives

- ❖ TSW be aware that humans depend on the environment in a variety of ways.
- ❖ TSW appreciate that humans affect the environment everyday in large and small ways.
- ❖ TSW appreciate that humans have a responsibility to manage and protect their environment. (PSVS)
- ❖ TSW describe the movement of water within the water cycle.
- ❖ TSW identify the states of water as it moves through the water cycle.

#### Materials

*The Lorax* by Dr. Seus

*The Incredible Journey I – Project WET* **OR**

*The Blue Traveler Part I – p. 43 - 63 Conserve Water! Educator's Guide*

(These activities will need advanced preparation)

#### Instructional Suggestions

- ❖ Read aloud *The Lorax* by Dr. Seus. The story presents an interesting example of human-environment interaction. Discuss different characters, who they symbolize, their interactions and student's reactions to them. How is each character affected by the Once-ler? Who is the Somebody? What is his purpose?
- ❖ Explain to students that this unit explores the relationships between humans and their environment, and that they will consider such questions as: What are some things for which humans depend on the environment? What are some ways that human actions affect or alter the physical environment? What are some of the consequences of those actions? What are some past examples in which the physical environment affected humans and their actions? What happened? What were the consequences? How does society control how humans affect the environment?
- ❖ Explain to the students that our actions affect the environment in different ways, one of them being the hydraulic cycle. To review how water molecules travel through the natural environment (one without man's interference) they will participate in an interactive activity called *The Incredible Journey (Project WET – pp. 161 – 165)* or *The Blue Traveler (Conserve Water! Educator's Guide)*
  - This activity takes about 50 minutes to prepare – it is suggested that you have your students assist you in preparing the materials. Arts Ed. class could be used to cut out the dice, draw the pictures on them, assemble them, and then tape with

clear packing tape to preserve them. (See dice template, Appendix A). The students could also make the posters for the nine stations. You will need to make a second set of dice for the *The Blue Traveler Part II*, which is used, in the next lesson.

- ❖ After the students have participated in the activity have them share their results. These could be posted on chart paper, made into graphs, or just verbally shared. It is important that the students have a general feel for the ‘natural’ water cycle without human interference, because the next lesson (*The Blue Traveler Part II*,) will have them follow the water cycle with the human activities added in.

## Lesson 1 & 2

### Part B                      The Human Impact on the Water Cycle

#### Objectives

- ❖ TSW know how humans alter places in distinct ways. (CCT)
- ❖ TSW know some positive and negative consequences of human interaction with the environment. (CCT)
- ❖ TSW give examples of the role that technology plays in shaping the characteristics of places and regions.
- ❖ TSW be aware that humans depend on the environment in a variety of ways.
- ❖ TSW appreciate that humans affect the environment everyday in large and small ways.
- ❖ TSW appreciate that humans have a responsibility to manage and protect their environment. (PSVS)
- ❖ TSW interact effectively in groups to achieve specific tasks. (COM, PSVS)

#### Materials

*The Blue Traveler Part II, Conserve Water! Educator's Guide*

(This activity will need advanced preparation)

#### Instructional Suggestions

- ❖ Start today's lesson with a brief reflection on last day's activities.
- ❖ Brainstorm different human activities that could affect the water cycle. Introduce *Water Journey Part II*; keeping in mind the purpose of this activity is to help students make connections between man's activities and its impact on the water cycle.
- ❖ After the activity discuss the difference between the 'natural' water cycle and the water cycle of today. Ask the question, "What is the water cycle today?" From here break the students into small groups to web one way their local area impacts the water cycle (i.e. industrialization and technologies including: farming, ranching, deforestation, fishing, urbanization, recreation, transportation, etc.) See web template, Appendix B.
- ❖ Small groups then share their findings with the class.
- ❖ Have the students share and discuss their concerns about the human impact on the water cycle.
- ❖ The students have some homework to do for the next lesson:

- The students should ask their parents what type of local crops they grow (including gardens) and what natural resources do they use to grow the crops. The students should record the answers and bring them to class next day.

### **Alternate Activities or Extension**

- ❖ Include First Nations beliefs and understanding of ‘cycles’. Keepers of Life
- ❖ Create posters of the water cycle illustrating what they have learned
- ❖ Do a “cloud in a bottle” activity.
- ❖ Look at the states of water – have real examples

## Lessons 3

## Climate Change, Is It Good for Us?

### Objectives

- ❖ TSW know how humans alter places in distinctive ways. (CCT)
- ❖ TSW know some positive and negative consequences of human interaction with environments. (CCT)
- ❖ TSW give examples of the role that technology plays in shaping the characteristics of places and regions
- ❖ TSW discuss how culture and experience influence people's perception of places.
- ❖ TSW interact effectively in groups to achieve specific tasks. (COM, PSVS)
- ❖ TSW be aware that humans depend on the environment in a variety of ways.
- ❖ TSW appreciate that humans affect the environment everyday in large and small ways.

### Materials

*Is Climate Change Good for Us?* – Green Teacher pp. 17 – 19

Optional:

- computers to make personalized data collection sheets
- “Cool Down the City” video

### Instructional Strategies

- ❖ Using last day's webs as a springboard, have the students generate a list of various ways in which the Pacific Rim Countries, they are studying, impact the water cycle.
  - Extend the students thinking to go from human impact on the water cycle to human impact on climate change.
  - Include how culture and experience influences people's perception of the environment.
- ❖ Have the students share their lists with the class
- ❖ Discuss the positive and negative impacts both at home and around the world.
- ❖ You may wish to show your students the video, “Cooling down the City” for a brief review of Climate Change.

- ❖ Activity – “*Is Climate Change Good for Us?*” from Teaching About Climate Change – Green Teacher
  - Activity extensions:
    - Integration of technology – have the students use *MSWord* to make their own data collection sheets. These could be personalized to include other options of ‘types of Climate Change’ such as increased night temperatures, decreased night temperatures, melting glaciers, increase in ocean levels, and increase in extreme weather events.
      - The students could include a column for ‘How would it affect ...’ another Pacific Rim Country.
- ❖ Have the students share and discuss their responses (positive and negative) and concerns they may have about Climate Change and how it affects them.

## Lesson 5

## Climate Change, Round Table Discussion

### Objectives

- ❖ TSW know how humans alter places in distinctive ways. (CCT)
- ❖ TSW know some positive and negative consequences of human interaction with environments. (CCT)
- ❖ TSW give examples of the role that technology plays in shaping the characteristics of places and regions.
- ❖ TSW discuss how culture and experience influence people's perception of places.
- ❖ TSW interact effectively in groups to achieve specific tasks. (COM, PSVS)

### Materials

*Climate Change Round Table* from Teaching about Climate Change – Green Teacher pp. 69 – 70

OR

*Roundtable Discussion* from Toronto Environmental Alliance – “Our Changing Environment” (TEA) pp. 91 – 95

### Instructional Strategies

- ❖ After looking at various ways in which people have and are impacting climate change the students will be learning how to participate in a roundtable discussion. A roundtable discussion is different from a debate. Open discussions and problem solving together is of vital importance when dealing with climate change issues.
- ❖ Use either of the above resources. You may wish to select a local issue with interest groups and positions that are related to your local area.
  
- ❖ Encourage the roundtable discussion to incorporate how we affect climate change and how climate change affects us.

## Lesson 6

### Objectives

- ❖ TSW interact effectively in groups to achieve specific tasks. (COM, PSVS)
- ❖ TSW appreciate that humans affect the environment everyday in large and small ways.
- ❖ TSW appreciate that humans have a responsibility to manage and protect their environment. (PSVS)
- ❖ TSW make a personal and group commitment to managing and protecting the environment in and around their school.

### Materials

*What Cool Schools Can Do* from Teaching about Climate Change – Green Teacher pp. 56 – 58

### Instructional Suggestions

- ❖ Identify with the students that they have gone from **awareness** of Climate Change, to **understanding** how humans impact it and how it impacts us, to **concern** about the effects of Climate Change.
- ❖ Tell the students that they will now try to use their awareness, understanding and concern to help them do their part to help mitigate Climate Change and to help adapt to Climate Change. Using ideas from *What Cool Schools Can Do* facilitate the generation of a list of actions the students can take in their school to help mitigate Climate Change and ideas for adapting to Climate Change. Help students gain an appreciation that they have a responsibility to manage and protect the environment. It may be useful to general the mitigation list before you start on the adapting list.

Evaluation
------------

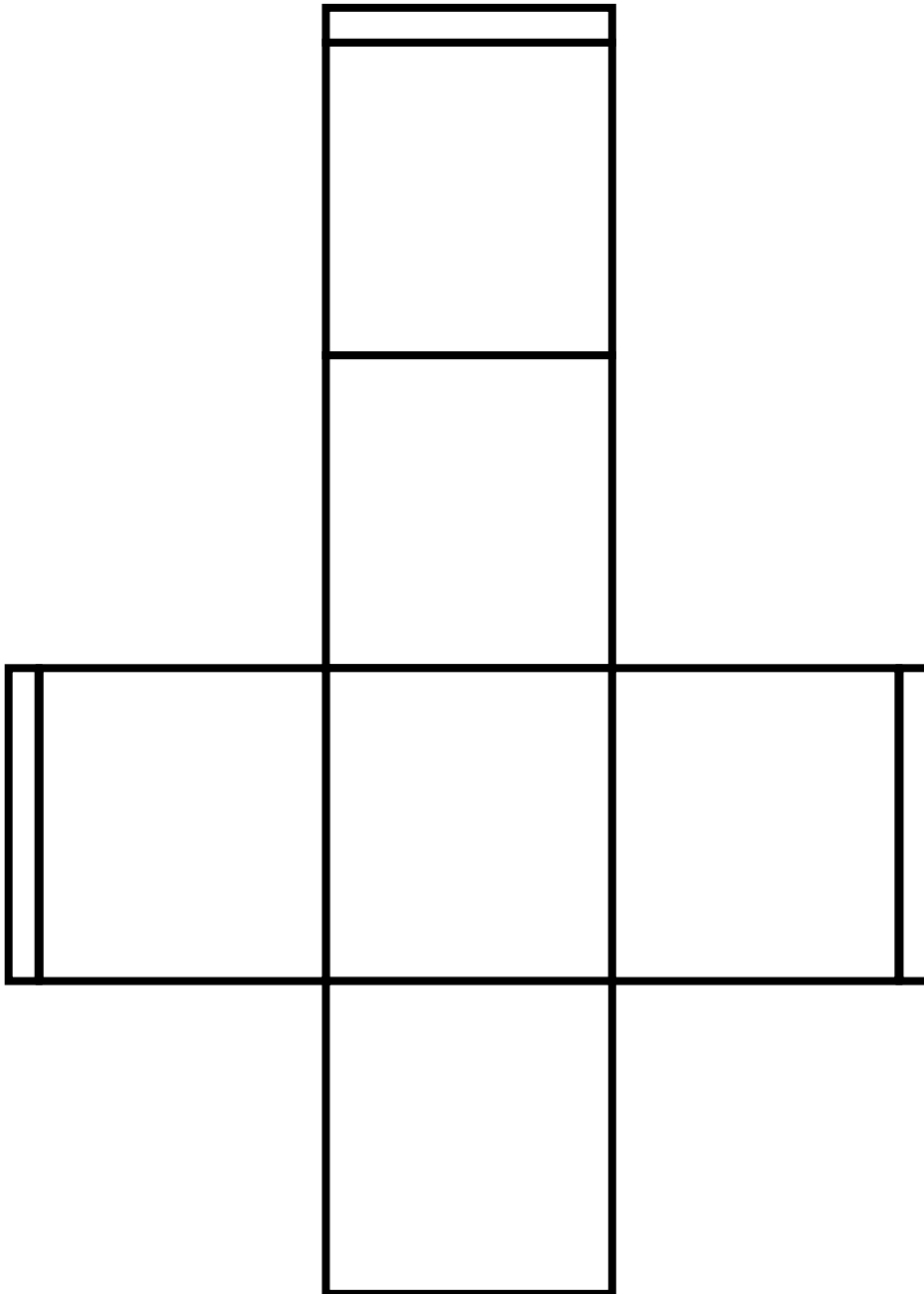
- ❖ Using the roundtable consensus model and the lists they have just generated, have the students develop a personalized plan of action to manage and protect the environment and thus mitigate and adapt to Climate Change in their school. Their plan should include how and when they will implement it, how they will evaluate the success of their plan, and how and when they will revise their plan.
  - Possible extension could include having students make posters or advertisements to bring awareness to the entire school, or even the community about Climate Change and/or their project.
  - Have the students buddy with a younger grade to teach them about Climate Change or to join in the project.
  - Hold a school environment awareness week and plan a school assembly.
  - Invite guest speakers in.
  - Research further information on the internet through [www.climatechangesask.ca](http://www.climatechangesask.ca)

**Appendix A**

Incredible Journey

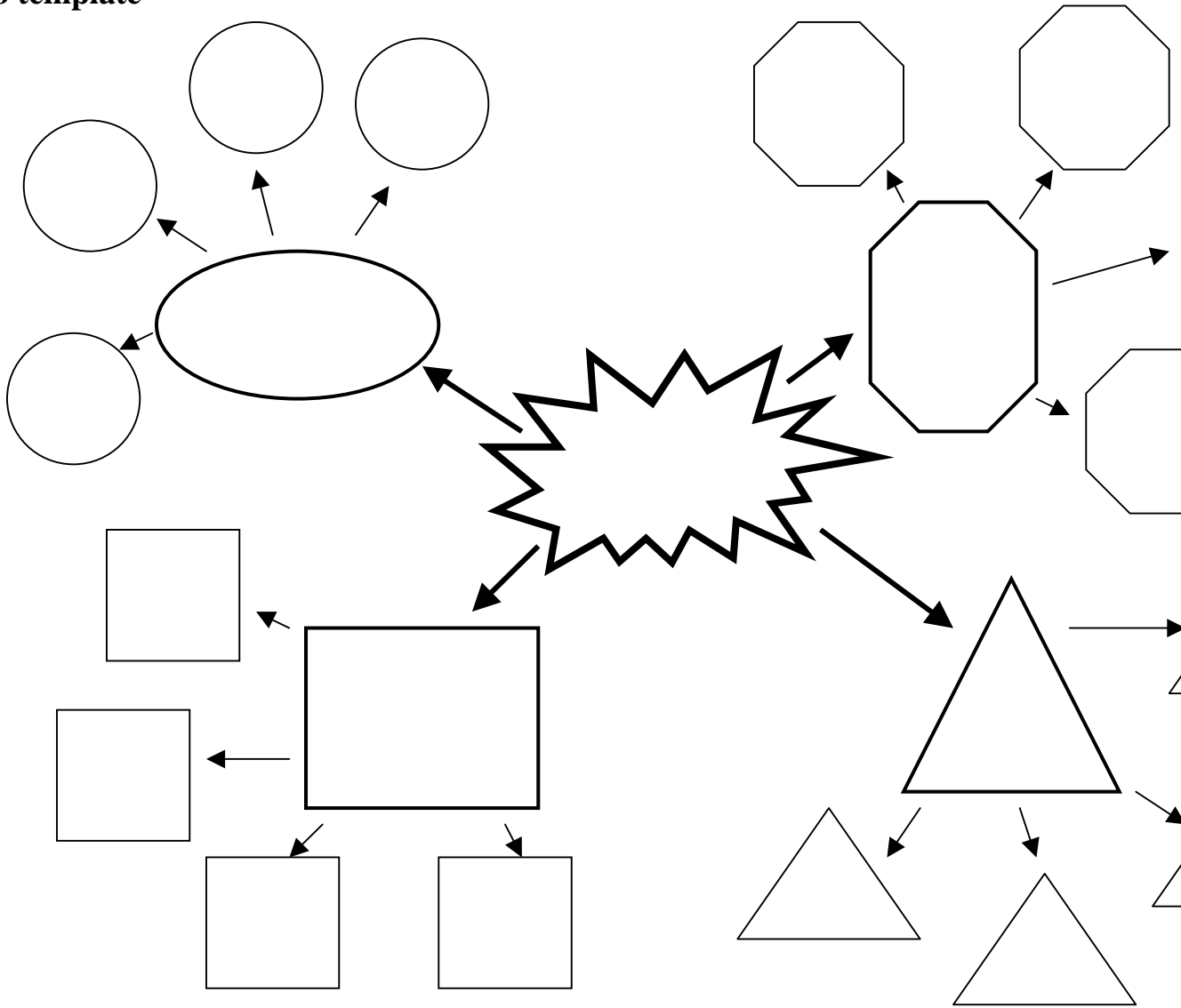
Dice template.

(Enlarge as necessary)



**Appendix B - see next page**

**Web template**





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**CLIMATE CHANGE EDUCATION SASKATCHEWAN**

# **Grade Eight Mini Unit**

## **Cross-Referenced to Saskatchewan Core Science and Social Studies**

Patty Serwotski

Editor:  
Maxine Koskie

November 2003

Canada



Government of  
Saskatchewan

**SaskEnergy**  **SaskPower**



Saskatchewan  
Watershed  
Authority

## Grade Eight

GRADE 8 –SCIENCE, ENERGY RESOURCES IN SASKATCHEWAN (and their contribution to climate change)

**This unit has been developed to best fit into the Grade 8 Science Unit – Energy Resources in Saskatchewan. It can be taught as a unit on its own or it can be incorporated into the unit it was designed for.**

### Learning Objectives

- ❖ TSW review the concept of the Greenhouse Effect.
- ❖ TSW identify the greenhouse gases and their sources.
- ❖ TSW understand how the Earth’s atmosphere naturally acts like a greenhouse using a diagram.
- ❖ TSW graphically demonstrate how the natural greenhouse effect is no longer working well because of a thicker greenhouse gas layer in the atmosphere.
- ❖ TSW read a brief story called “Times Have Changed”
- ❖ TSW appreciate that energy uses have increased over the past 100 years.
- ❖ TSW create a cartoon poster illustrating their own daily lives following the example of the story, “Times Have Changed”.
- ❖ TSW identify the locations of the following energy resources: coal, natural gas, petroleum, biomass (forestry), and uranium (Hydro-Electricity and Wind Power are included for information purposes).
- ❖ TSW identify three advantages and three disadvantages of each energy resource.
- ❖ TSW realize that when fossil fuels are burned, a variety of invisible products are released.
- ❖ TSW become acquainted with sources and types of air pollutants, their impact on the health of people, the environment, and climate change.
- ❖ TSW evaluate their own uses of energy and their impact on global climate change.
- ❖ TSW identify ways in which they can help reduce emissions of Greenhouse Gases.
- ❖ TSW make a Personal Action Plan which states what they intend to do to help reduce their own emissions of Greenhouse Gases.

**Evaluation** – Specific lesson and unit evaluations are not provided, but it is recommended that teachers use a variety of evaluation templates and rubrics to help evaluate each lesson. Excellent relevant examples of valuable evaluation tools and techniques are found in the Social Studies, Science, English Language Arts, and Health Curriculums. The evaluations should reflect the objectives of the lesson and the type of activity in the lesson.

## **Lesson 1-2            What is the Greenhouse Effect?**

### **Objectives**

- ❖ TSW review the concept of the Greenhouse Effect.
- ❖ TSW identify the greenhouse gases and their sources.
- ❖ TSW understand how the Earth's atmosphere naturally acts like a greenhouse using a diagram.
- ❖ TSW graphically demonstrate how the natural greenhouse effect is no longer working well because of a thicker greenhouse gas layer in the atmosphere.

### **Materials**

TEA - The Environmental Alliance

Student Handout 3a; Student Handout 3c; Handout 3c Teacher's edition; (pages 25, 28, 29, 30, 31, 32,); Student Handout 5a (page 41)

### **Suggested material preparation**

Using overheads and handouts from TEA follow the procedures listed to review the greenhouse effect. The overheads for handout 3c consist of 3 pages. Copy the 3 pages onto overheads. Tape the left edge of the overheads together so that they are properly lined up when you flip one over the other.

### **Instructional Suggestions**

- ❖ Follow the procedures listed on p. 23 in TEA. Follow procedures 1 through 4, then omit the experiment procedures, continue with procedures 10 through 14.
- ❖ Greenhouse gases information is found on pages 38-39. Follow the procedure and discuss as a class.
- ❖ Assign the questions listed at the bottom of page 41.

### **Alternate Activities**

- ❖ Bring in an old bent up car and a fuel efficient car, hold up a piece of white cloth to each exhaust for 30 seconds and compare them. Use this to introduce greenhouse gases.
- ❖ Do other greenhouse experiments from TEA
  - Pages 33 – 36 *More Greenhouse Experiments*
  - Pages 38 – 41 *Greenhouse Gases*

## **Lesson 2**

## **Energy Use: Yesterday and Today**

### **Objectives**

- ❖ TSW read a brief story called “Times Have Changed”
- ❖ TSW appreciate that energy uses have increased over the past 100 years.
- ❖ TSW create a cartoon poster illustrating their own daily lives following the example of the story, “Times Have Changed”.

### **Materials**

TEA Lesson 12, pages 65-66

TEA Handout 12a, pages 67 – 70

Poster Paper

Pens, pencils, coloured markers, etc.

### **Instructional Suggestions**

- ❖ Follow the procedures on pages 65-66. You may choose to let students create their own cartoon depiction of their own daily life either individually or as a small group.
- ❖ The students should present or share their cartoon depiction with the class when finished.

## Lesson 3

## Where are Fossil Fuels Found in Saskatchewan?

### Objectives

- ❖ On a blank map of Saskatchewan, students will identify the locations of the following energy resources: coal, natural gas, petroleum, biomass (forestry), and uranium (Hydro-Electricity and Wind Power are included for information purposes).
- ❖ TSW identify three advantages and three disadvantages of each energy resource.

### Materials

Blank map of Saskatchewan

<http://www.canadainfolink.ca/saskblank.htm>

<http://canadaonline.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fwww.gov.sk.ca%2Faboutsask%2Fmap%2F>

[http://atlas.gc.ca/site/english/maps/reference/provinceterritories/saskatchewan/reference\\_map\\_view\\_image](http://atlas.gc.ca/site/english/maps/reference/provinceterritories/saskatchewan/reference_map_view_image)

Resource Map from Saskatchewan

Saskatchewan Mining Association <http://www.saskmining.ca/>

Saskatchewan Industry and Resources <http://www.ir.gov.sk.ca/>

Saskatchewan Mineral Resources

<http://www.ir.gov.sk.ca/default.aspx?DN=3385,2936,Documents>

TEA Student handouts 14b, 14c, 14d, 14e, 14f, 14g (pages 81-86)

Information is also found through the SaskPower website

<http://www.saskpower.com/>

Hands on examples of resources

### Instructional Suggestions

- ❖ Hand out information sheets on coal, natural gas, petroleum, biomass (forestry), uranium, Hydro-electricity, and Wind Power.
- ❖ Have students, in groups or individually, identify three positive advantages (to whom) and three disadvantages for each source of energy.
- ❖ Have the students share their list with the class to make a master list, this could be recorded onto chart paper.

- ❖ On a blank map of Saskatchewan, identify locations where the different energy resources may be found.
- ❖ Have the students brainstorm a list of the possible impact each of these resources may have on the environment when developed and used. Encourage them to consider where the resource is located and how it is processed.
- ❖ Alternate exercise: Have students break into groups and research the 'about steps', they could present their findings in a power point presentation.

## **Lesson 4                      Burning Fossil Fuels**

### **Objectives**

- ❖ TSW realize that when fossil fuels are burned, a variety of invisible by-products are released.

### **Materials**

Science Directions Sample Activities and Supplementary Materials, Allan S. Melenchuk  
Activity 1-4 Burning Fossil Fuels

### **Other Resources**

- ❖ Lime Water experiment – Science Directions 9
- ❖ Burn candle and put beaker over top (bottom up) to show the released carbon that accumulates on the bottom of the upside down beaker.
  - Blow the candle out and hold a flame to relight the aerosolized hydrocarbons that are still in the upside down beaker.
- ❖ SEEDS
- ❖ Coal kit (in school libraries)

## Lesson 5            The Clean Air Game

### **Objectives**

- ❖ TSW become acquainted with sources and types of air pollutants, their impact on the health of people, the environment, and climate change.

### **Materials**

The Green Teacher, pages 61-63

### **Instructional Suggestions**

The objectives of the game are to acquaint students with sources and types of air pollutants, their impact on the health of people and the environment, and actions individuals can take to prevent or reduce air pollution.

- ❖ Photocopy the game board onto light coloured paper and laminate for durability. Provide students with game pieces such as fruit loops, raisins, etc. Have a “fresh air” jar for the winners to take a whiff from at the end of the game. Other “prizes” may be awarded as the teacher sees fit.
- ❖ Play the ‘Clean Air ‘game.
- ❖ Discuss as a class how the students felt during the game, what were their thoughts and what did they learn.

## **Lesson 6**

## **Home and School Energy Audit**

### **Objectives**

- ❖ TSW evaluate his/her own use of energy and how he/she impacts global climate change.

### **Materials**

Energy check on SaskEnergy website <[www.saskenergy.com/services/energycheck.htm](http://www.saskenergy.com/services/energycheck.htm)>

### **Instructional Suggestions**

- ❖ Following the prompts on the SaskEnergy Homepage, have students fill in the information required to discover the energy uses of their own homes or of the school.
- ❖ Upon completion and reflection, have a discussion and sharing session in regards to the individual impacts and then help the students make the connection to the overall compounding impact, when you put everyone's energy use together, it has on the environment.

## **Lesson 7**

## **Where Do We Go From Here?**

### **Objectives**

- ❖ Having identified the fossil fuels found in Saskatchewan and the impact of their usage on Climate Change, students will identify ways in which they can help reduce emissions of Greenhouse Gases.
- ❖ TSW make a Personal Action Plan which states what they intend to do to help reduce their own emissions of Greenhouse Gases. Along with the action plan will be a date for implementation of their plan.
- ❖ TSW also devise a way to monitor their success in following this plan.

### **Materials**

Green Teacher, Teaching About Climate Change – “What Cool Schools Can Do”, pp. 56 – 58

### **Instructional Suggestions**

- ❖ Teachers may have students brainstorm their own ideas of how to reduce Greenhouse Gas Emissions, or teachers may use the suggested lesson as a springboard for ideas.
- ❖ The students should develop a school and/or home ‘energy saving’ action plan. This plan should be realistic and should involve things that the students can do on their own. How do we plan for the inevitable? Have each student keep track of his/her successes. Review the plan implementation and successes regularly and promote the successes throughout the school.

## **CLIMATE CHANGE SASKATCHEWAN WEB SITE:**

<http://www.climatechangesask.ca>

### **Website Resources**

Environment Canada

<http://www.ec.gc.ca>

Government of Canada – Climate Change Impacts and Adaptations

<http://adaptation.nrcan.gc.ca/>

SaskEnergy

<http://www.saskenergy.com>

Saskatchewan Environment

<http://www.se.gov.sk.ca>

Saskatchewan Soils Conservation

<http://paridss.usask.ca/consgroups/ssca/sscahome.htm>

Saskatchewan Research Council

[http://www.src.sk.ca/cgi-bin/generate\\_page.pl](http://www.src.sk.ca/cgi-bin/generate_page.pl)

City of Regina Climate Change page and links to other sites

[http://www.cityregina.com/content/info\\_services/climate/information/climate\\_change.shtml](http://www.cityregina.com/content/info_services/climate/information/climate_change.shtml)

SaskPower

<http://www.saskpower.com/index.shtml>

GT – Climate Vocabulary

<http://www.greenteacher.com>

Saskatchewan Agriculture and Food

<http://www.agr.gov.sk.ca>

Government of Canada Climate Change Site

[http://climatechange.gc.ca/english/actions/what\\_are/federal\\_toolkit.shtml](http://climatechange.gc.ca/english/actions/what_are/federal_toolkit.shtml)

Environment Canada Weather Office Site

<http://www.ec.gc.ca/envhome.html>

Saskatchewan Forestry Association

<http://www.whitebirch.ca/about/about-us.shtml>

To calculate your own and your household's emissions

<http://www.climcalc.net>

Saskatchewan Mining Association <http://www.saskmining.ca/>



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**CLIMATE CHANGE EDUCATION SASKATCHEWAN**

## **Grade Nine Mini Unit**

### **Cross-Referenced to Saskatchewan Core Science and Social Studies**

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Editor:  
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November 2003

Canada



Government of  
Saskatchewan

**SaskEnergy**  **SaskPower**



Saskatchewan  
Watershed  
Authority

## Grade Nine

### Which Should Come First - Climate Change or Personal Change?

GRADE 9 – SCIENCE, DIVERSITY OF LIFE, THE ATMOSPHERE, and RISKS AND LIMITS

**This unit has been developed to cover objectives from several science units, including the above three, and therefore it can be inserted into any one of them or it can be taught as a unit of its own.**

#### Learning Objectives

- ❖ TSW identify change as a reality (Social Studies) – analyzing change.
- ❖ TSW recognize personal changes (physical, emotional, mental, spiritual, health).
- ❖ TSW recognize changes that have occurred within their own communities and determine the impacts.
- ❖ TSW develop an understanding of the concepts of weather and climate (science – diversity of life).
- ❖ TSW develop an understanding of climate change from a global and provincial view point.
- ❖ TSW research and determine the changes in Saskatchewan soils, energy, fisheries, water, recreation, forests, and economics as a result of climate change.
- ❖ TSW question the impacts of the changes and discuss the adaptations that humans will need to go through in order to continue to thrive under those conditions.
- ❖ TSW move from the limited understanding of human changes to how these will impact the environment and other species.
- ❖ TSW see the necessity for mitigation and adaptation to lessen the effects of climate change and to reduce their impact on climate change.
- ❖ TSW make a personal action plan to demonstrate a personal commitment to change to lessen the effects of climate change and to reduce their impact on climate change.
- ❖ TSW gain a deeper appreciation in regards to the impact their actions have on other species.
- ❖ TSW gain a deeper appreciation for their commitment to personal change.

**Evaluation** – Specific lesson and unit evaluations are not provided, but it is recommended that teachers use a variety of evaluation templates and rubrics to help evaluate each lesson. Excellent relevant examples of valuable evaluation tools and techniques are found in the Social Studies, Science, English Language Arts, and Health Curriculums. The evaluations should reflect the objectives of the lesson and the type of activity in the lesson.

**Purpose** Focusing on the concept of climate change, grade 9 students will develop cooperative learning skills, research skills, and decision-making skills. Using creative experiences and activities they will learn that change is a reality and inevitable by examining their own personal changes, look at changes that are occurring in the environment, and investigate how these changes relate to climate change. This activity will take the students from awareness to determining what actions they can and will commit to taking to reduce their impact on the environment and other species.

**Method** Through exploring changes in the body, the community, weather, and climate the students will determine that change is necessary and they will appreciate that the degree of change can be influenced by other factors. Using discussion and group work resources, students will design a human body that should evolve to best adapt to climate change. Once students realize their “perfect” human for the changes in climate would not be realized fast enough, they will explore alternative actions and behaviours that humans should adopt to slow the pace and magnitude of climate change, while recognizing that other species and the environment will also be impacted.

**Background** In elementary grades, students learn about weather, climate, and community and recognize that they are going through personal changes during this time of adolescence. As well, they should have experience in group work and cooperative learning strategies in addition to possessing problem solving and decision-making skills.

## Materials

Project Wild

Poster paper

Markers

Support resources for students to research in the areas of:

Fisheries

Water

Energy

Soils/Agriculture

Recreation

Forests

Economics

Specific resources, including those available on the web, should be provided

Environment Canada (<http://www.ec.gc.ca/>)

Natural Resources Canada

(<http://sts.gsc.nrcan.gc.ca/adaptation/sensitivities/>)

Climate Change Saskatchewan (<http://www.climatechangesask.ca>)

SaskEnergy (<http://www.saskenergy.com/>)

Saskatchewan Environment (<http://www.se.gov.sk.ca/>)

Saskatchewan Soils Conservation

(<http://paridss.usask.ca/consgroups/ssca/sscahome.htm>)

Saskatchewan Research Council

([http://www.src.sk.ca/cgi-bin/generate\\_page.pl](http://www.src.sk.ca/cgi-bin/generate_page.pl))

Cool Down the City Video

([http://www.cityregina.com/content/info\\_services/environmental/climate.shtml](http://www.cityregina.com/content/info_services/environmental/climate.shtml))

SaskPower (<http://www.saskpower.com/index.shtml>)

GT – Climate Vocabulary (<http://www.greenteacher.com/>)

Good for Us (pp. 17-19)

Greenhouse Effect (pp. 9-10)

Saskatchewan Agriculture & Food (<http://www.agr.gov.sk.ca/>)

Government of Canada Climate Change Site

([http://climatechange.gc.ca/english/actions/what\\_are/federal\\_toolkit.shtml](http://climatechange.gc.ca/english/actions/what_are/federal_toolkit.shtml))

Environment Canada Weather Office Site

(<http://www.ec.gc.ca/envhome.html>)

## **Lesson 1                      Personal Change Through Time (Suggested Time: 1 hour)**

### **Objectives**

- ❖ TSW identify change as a reality (Social Studies) – analyzing change.
- ❖ TSW recognize personal changes (physical, emotional, mental, spiritual, health).

### **Instructional Suggestions**

- ❖ Depending on the comfort level of the teacher and students, this could be done as a large group or in gender separated mini-groups, to discuss and record the personal changes (emotional, mental, physical, and spiritual) that have taken place between childhood and adolescence. Include learning to drive. (Suggested time: ½ hour).
- ❖ Through a class discussion, students will assist in identifying that:
  - there are many different changes or kinds of change (physical, mental, emotional, and spiritual) (Medicine Wheel – First Nations)
  - change is a reality (normal)
  - change can affect everything
  - change is beyond our control sometimes
  - change can be good and/or bad depending on who you are and how it affects you
  - there may be a need to adapt to change.

## **Lesson 2**                    **Changes in our Community** **(Suggested Time: 1 hour)**

### **Objective**

- ❖ TSW recognize changes that have occurred within their own communities and determine the impacts

### **Instructional Suggestions**

- ❖ Break the class into medium sized (4-5 students) groups.
- ❖ Have each group define what a community is by creating a poster of what they see as their “community”.(social studies – sustainable living – green teacher)
- ❖ Discuss changes that have occurred within the community (i.e. new shopping centres built? New roads? Stores openings or closing? School closures? New bus route? New bike trails, etc.)
- ❖ Discuss what change has caused good things? Bad things? Other impacts that the change has caused.
- ❖ Begin to explore what makes their community sustainable. Since this is such a complex concept, it should only be introduced with a brief definition of some possible criteria that may be considered to make a community sustainable.

### **Possible activity**

- ❖ Burn a candle – observing change – physical and chemical
  - Observe, draw a candle
    - Before it is lit
    - When being lit
    - When burning
    - When putting it out

### **Lesson 3**

## **Weather & Climate – What’s the Change? (Suggested Time: 1 hour)**

### **Objective**

- ❖ TSW develop an understanding of the concepts of weather and climate (science – diversity of life).

### **Instructional Suggestions**

- ❖ Review differences between weather and climate by having students conduct research on these two topics individually, or in small groups.
- ❖ To discuss weather, discuss how it has changed through the seasons of that year, time of that day, etc. and what is “normal” for that city/area.
- ❖ Look on Environment Canada weather website for “average” temperatures for that city/area.
- ❖ Look at weather forecasts for 3, 5, or 7 days. (Environment Canada’s website)
- ❖ Look at “normal” climate of Saskatchewan.
  - At the end of this research, students should understand that climate is what we expect (developed from years of data) and weather is what we get (the current situation).

## **Lesson 4**

## **Climate Change (Suggested Time: One Hour)**

### **Objective**

- ❖ TSW develop and understanding of climate change from a global and provincial viewpoint.

### **Instructional Suggestions**

- ❖ Bring in a resource person to explain the concept of climate change and provide information on the science of climate change, what it could mean for our social systems, and what some environmental impacts may be. (Look at Climate Change Saskatchewan's Speakers Forum for potential presenters).
- ❖ Or use Saskatchewan's climate change website.

## **Lesson 5                      Researching Change** **(Suggested Time: Up to 2 hours)**

### **Objective**

- ❖ TSW research and determine the changes in Saskatchewan soils, energy, fisheries, water, recreation, forests, and economics as a result of climate change.

### **Instructional Suggestions**

- ❖ Teacher needs to assign one small group of students for each of the following topics: (refer to websites)
  - Water;
  - Agriculture/soils;
  - Forestry;
  - Energy;
  - Recreation;
  - Economics;
  - Fisheries.
- ❖ From the resources that the students are provided, they will determine the types of changes that will happen in the future and report on future impacts in their key area (e.g., water, agriculture, forestry, etc.) under climate change conditions....say, for the year 2050.
- ❖ After the students are finished their research, they need to plan how they will report their findings to the rest of the class, this should be done in summary form. They may use any choice of presentation style/format they choose, such as: a poster, reader's theatre, TV documentary, or an oral presentation. One hour should be provided for conducting the research and preparing their presentation, and one hour should be provided for the presentations.

## **Lesson 6                    “The Perfect Human” and Climate Change (Suggested Time: 1 hour)**

*From Project WILD: p. 139 – Adaptation Artistry and p. 197 – Fashion a Fish*

### **Objective**

- ❖ TSW question the impacts of the changes and discuss the adaptations that humans will need to go through in order to continue to thrive under those conditions.

### **Instructional Suggestions**

- ❖ Students develop their own posters showing the changes the human body would need to develop to adapt to the effects of climate change, based on what they found in Lesson 5. What kind of changes would the human body need to undergo in order to best live in this new environment that has been affected by climate change?
- ❖ Discuss their theories of what this “perfect” human would look like, eat like, drink like, or do for work. (E.g. would we be able to drink salt water, live with less to eat, be smaller? Where would we live? Etc.)
- ❖ Students should also be asked to consider how they would sustain themselves under these climate change conditions? How will the environment sustain itself? And, finally, what do you need to do to help the environment sustain itself?
- ❖ Following this discussion, students will realise that climate change is going to happen too quickly for humans to adapt in ways such as those described in the posters. Therefore, there will be a realisation that humans must change their ways to reduce their impact on the climate...personal change!
- ❖ Or the students could invent an animal to fit a niche.

## **Lesson 7**

# **Our Adaptation to Change (Suggested Time: 1 hour)**

### **Objectives**

- ❖ TSW move from the limited understanding of human changes to how these will impact the environment and other species.
- ❖ TSW see the necessity for mitigation and adaptation to lessen the effects of climate change and to reduce their impact on climate change.
- ❖ TSW make a personal action plan to demonstrate a personal commitment to change to lessen the effects of climate change and to reduce their impact on climate change.

### **Instructional Suggestions**

- ❖ Students will discuss and describe the lifestyle or behavioural change that they can make to reduce their impact on the climate and to lessen the effects of climate change.
- ❖ Through discussions about their bodies, the communities and the environment in Saskatchewan, students will recognize that change is a reality and is normal. However, they will also understand that there are some changes that humans are causing that are very negative for our environment and other species. As such, students recognise that it is in times like these that humans must make changes to their lifestyles as human beings, or those of other species will not be able to adapt quick enough to the climate change that the humans cause. Therefore, in summary, students will realise that personal change should occur to reduce our impact on climate change. To do so, students will make commitments to an action that they personally will take on to reduce their impact.
- ❖ Have each student develop and sign a contract for (an) action(s) that will reduce his or her individual impact on the climate. In other words, students will make a commitment to change something in their lives to reduce their impact on the climate (e.g. turning off bedroom light).

**Lesson 8**                      **Taking it Beyond...**  
**(Suggested Time: ½ hour)**

**Objective**

- ❖ TSW gain a deeper appreciation in regards to the impact their actions have on other species.
- ❖ TSW gain a deeper appreciation for their commitment to personal change.

**Instructional Suggestions**

- ❖ To close this unit, read a First Nation story or legend that demonstrates or relates to the impacts of our actions on other species in our environment.
  - Consult with Bill Asikinack to find a recommend story or legend that closes with the First Nations' perspective of world. This story could be about someone who learned a lesson in nature and has committed to some action that protects/enhances the environment or species.
  - Other First Nations resources are Keepers of the Earth and Practicing the Laws of Circular Interaction