What? No Cars?

What Would Happen If Cars Were Banned From The City?

Purpose: The purpose of this project is to create an awareness of the complexity of the urban prairie dependence on the automobile. As well, the project invites the creative consideration of active transport alternatives.

Description: This project looks at the issues arising out of the dependence on automobiles in the urban prairie context. Students learn to use a tool known as a Futures Wheel and examine the consequences of removing automobiles from their lives. As a culminating activity, after a thorough examination of the consequences of such a decision, students are challenged to design a wild and wacky new form of active transport vehicle. Examples of such machines might be found in some of the Dr. Seuss books. To present their designs and advertisements, groups of students take on the roles of car companies and use the format of a new car showcase to show their work to classmates.

Materials:

- Student sheets
- Dr. Seuss books with vehicle pictures
- Large sheets of paper (28 cm x 43 cm) for futures wheels
- Materials for the final presentation of the designs (paper for posters or pamphlets, found materials for models, car ads, video clips of the new car shows in Detroit)

Grade Level and Curricular Connections:

This plan can be used in conjunction with the following curricula:

	Saskatchewan	Alberta
Social Sciences	• **Grade 8** Unit 2- Citizenship – T 8 • **Grade 9** Unit 2 – Change – T 10	• **Grade 9** - Responding to Change
Science	• **Grade 6** – Simple machines • **Grade 7** Unit Structure and design • **Grade 8** - Energy Resources in Saskatchewan - 3	• **Grade 8** – Mechanical Systems 3 & 4
Language Arts	• All strands of L.A. - Reading, writing speaking and listening.	• **Grade 9** - General Outcomes 3 and 5.
Health		• **Grade 9** - Personal Health

Preparation Time:

- Time to read and understand the background material.

Activity Time:

- Total of six 45-60 minute sessions over a two-week time period. (This allows time for homework to be completed).

Timeline:

Day 1

- Introduce future wheels; do sample together.
- Introduce the idea of banning cars from cities.

Day 2

- Students prepare futures' wheel in pairs on topic of "No Cars".

Day 3

- Design task introduced; Dr Seuss books available.
- Final presentation format introduced.

Day 4

- Design work.
- Rough draft of design.
- Rough draft of ad for vehicle.

Day 5

- Finalize design.
- Prepare final presentation.

Day 6

- Presentations of designs.

Vocabulary:

- **Future Wheel** –*"A futures wheel is used to examine the possible consequences of a particular trend, event or action, and to identify the cause and effect relationships of these consequences."*
  http://www.sasked.gov.sk.ca/docs/history10/activity/unit1/u1act9tis.html

- **First order consequence** – *the immediate consequence of the continuation of a trend or event.*

- **Second order consequence –** *An immediate consequence of a first order consequence.*

- **Third order consequence –** *those implications that flow from second order consequences.*

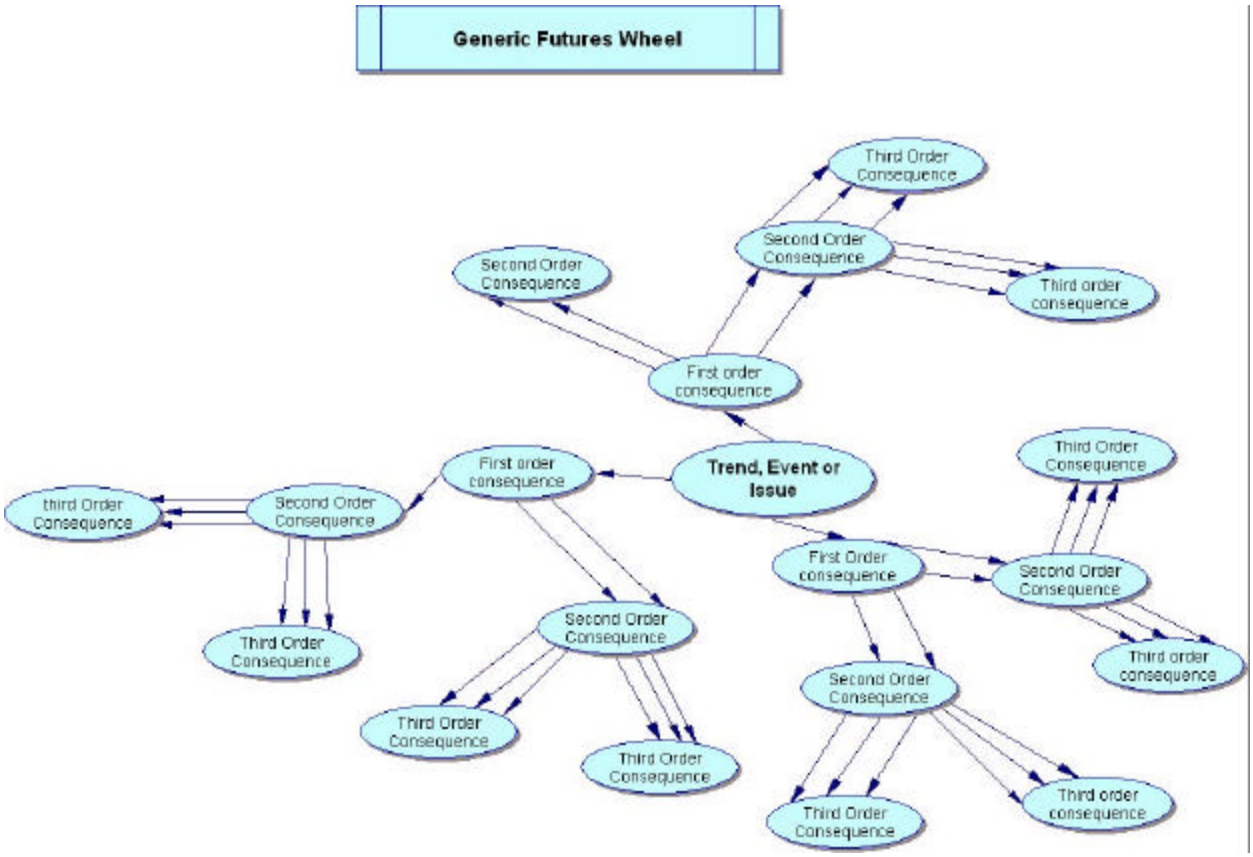
- **Active transport** – *Active transportation is any form of human-powered transportation. It is any trip made for the purposes of getting yourself, or others, to a particular destination - to work, to school, to the store or to visit friends. As long as it is "active", you can choose the mode - walking, cycling, wheeling, in-line skating, skateboarding, ice skating (e.g. on a canal). Walking and cycling are the most popular forms of active transportation (Health Canada)*

- **Sustainable transportation** – "*A sustainable transportation system is one that is safe, efficient and environmentally friendly. Sustainable transportation is about integrating economic, social and environmental considerations into decisions affecting transportation activity. Economically, we need a transportation system that is efficient and competitive. Socially, our transportation system must be safe and accessible. In addition, we need a transportation system that respects the natural environment. It is not always easy to balance these three considerations - sometimes there are trade-offs but there are also win-win-win opportunities". Taken from Transport Canada web site.*
  http://www.tc.gc.ca/programs/environment/most/faq.htm#what_st

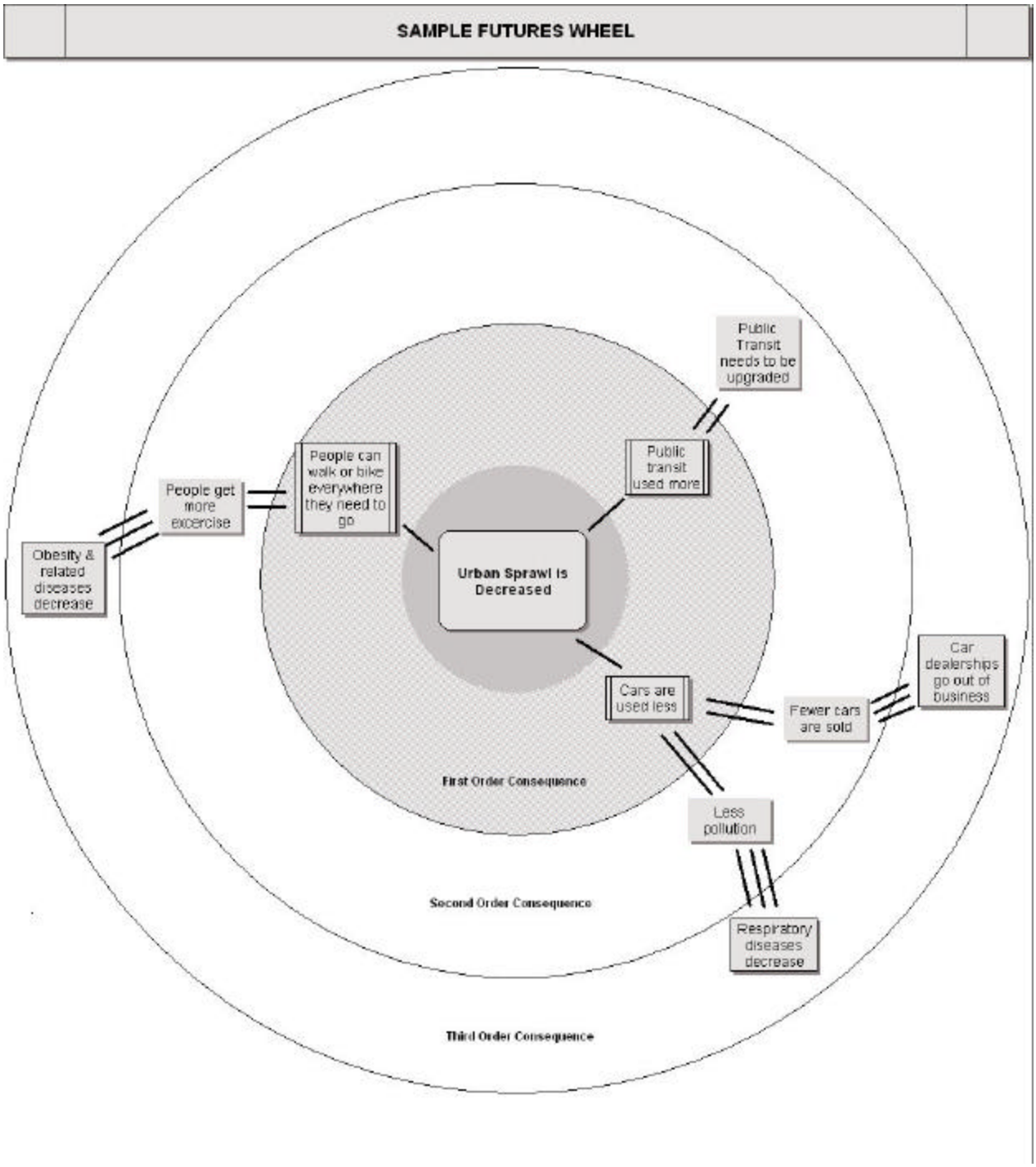
TEACHER BACKGROUND

Futures Wheel

Used to examine the consequences of a particular event or trend, futures wheels are relatively easy to construct. The idea, trend or event is placed in the centre and single lines drawn out from the centre connect to the direct consequences. The process continues as the consequences of the direct effects are considered to produce a ring of second order consequences. The figure below shows a generalized futures wheel and is followed by a specific sample.



Specific Example of a Futures Wheel



Day 1 - Teaching Futures Wheels

1. Introduce students to the concept of futures wheels. Choose a topic (an event, trend or action) and write it on the board in an oval.
2. Ask the question: "What is likely to happen first if this event occurs?"
3. As students offer ideas, record them circle them and connect them to the centre oval.
4. Now move on to second order consequences.
5. Suggest that student disregard the original idea and focus on each of the first order consequences one at a time.
6. Again the question is asked: "What will be some of the immediate consequences of this event?" Follow this process for all the first order consequences.
7. Record and circle, and connect them to the event in the center.
8. Continue the process for a third round of consequences.
9. Each student should record the resulting futures wheel as an example.
10. At the end of the class leave the students with the following question to think about:

"What would happen if cars were banned from our city?"

Day 2: What? No Cars?!!

1. Students create their own futures wheel based on what would happen if cars were banned from their city.
2. Students work in pairs. Give each pair a large piece of paper (28 cm x 43 cm).
3. Start the process by brainstorming 2 or 3 **first order** consequences as a group.
4. Student pairs then work on their own to complete the wheels. One wheel per pair. Students should try for 4 or 5 levels of consequences.
5. Pairs will hand in a good copy of the wheel at the beginning of the class on Day 3.

Day 3: A new way of Getting Around.

1. Take in and display futures wheels keeping them up until the end of the project.
2. Today is also the day to introduce students to the design task.
3. Ask your teacher librarian to help you find several copies of Dr. Seuss books with pictures of crazy vehicles in them.
4. The pairs are now challenged to design a new way of getting around using human powered or active transport methods.
5. Begin by brainstorming a list of the kinds of tasks for which students and families use their cars.
6. The challenge is for students to design an active transport vehicle to do one or more of these tasks; a vehicle to take the place of the personal vehicle.
7. Tell students about the culminating activity format now so they can create companies and incorporate company names in their advertising.
8. Encourage creative ideas but ones that address specific tasks for a specific audience (teens, families or seniors). Try to encourage an even distribution of vehicle audience so you can make up the car companies for the culminating activity. Each company should present one vehicle for each of the three user audiences. See Student Sheet #1.
9. In the process of talking about not using cars, the concept of urban sprawl and active transport-friendly neighbourhoods less dependent on cars could be addressed. This discussion would be a good lead-in to the lesson on Urban Planning Lesson Plan #1).
10. Students will create two products by the end of the project

- An ad for the new vehicle which includes a visual of the design and a description. Some possible formats include:
    i. A poster
    ii. A magazine ad
    iii. A TV commercial
    iv. A brochure like you'd get at a car dealership.
- An oral presentation of their design

Day 4 – Design Work Time

1. Today is a day for students to work on their designs in class.
2. Teacher puts three student pairs together to form a company to present their designs. (See Student Sheet #1).
3. They should hand in a rough draft of their design at the beginning of the class on Day 5.

Day 5 – Final In-Class Design Work

1. Today students finish up good copies of their design and work on the final presentation of the design.
2. Presentations begin next class (Day 6).

Day 6 – Culminating Activity – New "Car" Showcase.

1. Today students present their designs. Structure the class like one of those new car showcases in Detroit where companies present the designs for the new season.

Assessment:

Check off of the hand-ins at each stage of the process. Assign a nominal number of marks to each if desired. See Teacher Sheet #2 for suggestions.

Hand-ins: (amend to suit)

- ❑ Rough draft of design
- ❑ Rough draft of ad & oral presentation
- ❑ Final Presentation
    - ❑ An ad for the vehicle (description and visual)
    - ❑ Oral Presentation
- ❑ _____

Content:

Depending upon the curriculum to which you choose to connect this project there will be different content objectives to assess. It will be important too for students to make the connection between the design of urban neighbourhoods and our reliance on the personal automobile for day-to-day transportation.

Presentation:

Two sample rubrics (one for oral work and one for written work) are attached for adaptation to your assessment needs. It is important to tailor these instruments for your own purposes emphasizing those skills being presented in class. These rubrics provide opportunities to assess more skills than you might look at in one assignment and need to be modified (with input from your students) to suit your current focus.

ORAL PRESENTATION RUBRIC

Criteria	Level 1	Level 2	Level 3	Level 4
Content	◆ Too short or too long. ◆ Many required aspects missing	◆ Adequate length. ◆ Covers some required aspects	◆ Good length. ◆ Covers most required aspects	◆ Appropriate length. ◆ Covers all required aspects.
Comprehension	◆ Unable to accurately answer relevant questions posed by classmates	◆ Able to accurately answer a few relevant questions posed by classmates	◆ Able to accurately answer some relevant questions posed by classmates	◆ Able to accurately answer almost all relevant questions posed by classmates
Preparation	◆ Student does not appear at all prepared to present	◆ Student is somewhat prepared, but it is clear that rehearsal was lacking	◆ Student mostly prepared but could have rehearsed more	◆ Student is completely prepared and obviously well rehearsed
Clarity / Expression	◆ Often mumbles or cannot be understood. ◆ Almost no variation in tone, volume & expression	◆ Speaks clearly & distinctly most (94-85% of the time. ◆ Some variation of tone, volume & expression	◆ Speaks clearly & distinctly most (100-95%) of the time. ◆ Enough variation of tone volume & expression for interest	◆ Speaks clearly & distinctly most (100-95%) of the time. ◆ Considerable variation of tone volume & expression keeps presentation interesting

WRITING RUBRIC

Skill	Needs Improvement	Acceptable	Outstanding
Content	Does not cover information requested Weak elaboration of ideas	Somewhat covers information requested Some elaboration of ideas Some examples	Covers information requested Good elaboration of ideas Use of examples
Organization	Weak connections, choppy, Weak transitions Few examples	Some weaker connections Flow is sometimes broken Transitions are predictable	Well-connected Flows smoothly Good transition between parts
Style	Flat Lots of repetition Poor choice of words Unclear meaning	Predictable Some repetition Average vocabulary	Interesting Little repetition Vivid word choice
Format	Weakly follows requested format	Somewhat follows requested format	Clearly follows requested format
Sentence Structure	Many run-on sentences, fragments, clumsy construction, All simple sentences used	Some run-on sentences, fragments, clumsy construction, Some combined, varied, expanded sentences used	Very well constructed, combined, varied, expanded sentences used
Mechanics	Many noticeable problems which interfere with reading	Some mechanical problems	No mechanical problems evident If spelling errors exist they are difficult words

Visual Component

The following checklist is one suggestion for assessing the visual component of this project. Involve your students in adapting the list to the priorities in your class.

Component	Mark	
Layout logical/self-explanatory		/5
Concise & complete presentation of information		/5
Materials used appropriate /effective		/5
Neatness		/5
Creativity		/5
Total		/25

Extensions:

1. Connect this unit to a study of simple machines and require that each design incorporate a specified number of simple machines in its mechanism.
2. Goldberg Machines are another connection that would tie into a science unit about structure and design.
3. Connect the project to a study of advertising techniques. "Truth and the Dragon" is an old film but it contains good information about some techniques used in advertising.
4. The visual component might be connected to a study of design in Art class.

Internet Resources:

This is a list of Internet resources that speak to the concept of Futures Wheels, Urban Sprawl and Goldberg Machines (an extension to the project).

Futures Wheels:

Saskatchewan Learning:
http://www.sasked.gov.sk.ca/docs/history10/activity/unit1/u1act9tis.html

Prospectiva:
http://www.prospectiva.net/docs/How%20to%20Create%20a%20Futures%20Whee1.pdf

Urban Sprawl:

The Sierra Club
http://www.sierraclub.org/sprawl/population/ http://www.sierraclub.org/sprawl/get_involved/

Natural Resources Defense Council:
http://www.nrdc.org/air/transportation/default.asp
http://www.nrdc.org/globalWarming/default.asp

Smart Communities Initiative – Department of Energy, United States Government
http://www.sustainable.doe.gov/transprt/maxchoic.shtml

Smart Growth Network: http://www.smartgrowth.org/

Goldberg Machines:

http://www.rube-goldberg.com/

STUDENT SHEET #1
A New Way Of Getting Around

The Scenario:
Imagine!! City Council has just banned private vehicles with fewer that 4 people from driving within the city limits. This will present a number of problems for people in your city. The citizens need your help. A competition has been created for students to design an alternate form of transportation. This human-powered vehicle must be one that could take the place of the household car to perform one or more of the many everyday tasks a personal vehicle might perform. The groups that need a vehicle are families, teens and seniors.

The Design Task:
- **With your partner, design a human-powered active transport vehicle.**
- **The vehicle must be designed to perform a specific task or tasks for a particular user group. (families, teens, seniors). Your teacher will randomly assign you one of these groups to design for.**
- **Refer to your brainstormed list from Day 3 of this project for tasks the vehicle might perform.**
- **Be creative with your design. This needs to be a vehicle for the future and can look very different from any other vehicle you are familiar with.**
- **Try looking at Dr. Seuss books for weird and wonderful vehicles**

Hand-ins:
During the Project:

1. Rough draft of ad **Due Date:** _____

2. Rough draft of oral presentation **Due Date:** _____

At the End:

1. **An ad for the vehicle in one of the following formats:**
   a. **A brochure (look for samples at car dealerships)**
   b. **A poster**
   c. **A magazine ad**
   d. **A TV commercial**
   e. **Any other idea approved by your teacher**

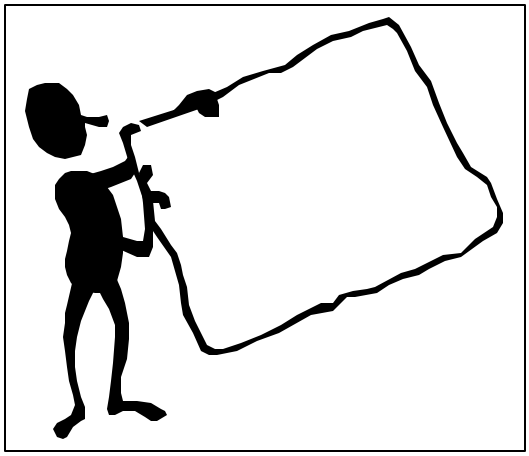
2. **An oral presentation in which all partners participate equally. See Student Sheet #2 for details.**

STUDENT SHEET #2
Presenting Your Design

Remember that you and your two other group pairs are trying to sell your designs to the audience. Your company profits depend upon your persuasive abilities. You will need to be prepared with the following:

- **An advertisement for your design.**

You can use any of the formats suggested in Student Sheet #1. Be sure your ad has a large well labeled diagram of the design.



- **An oral presentation to the class.**

All group members need to be part of the oral presentation. Be sure to include the following topics and answers to the questions in your presentations:

1. **Describe the main parts of your vehicle and how it works mechanically.**
2. **What task is it designed to perform and for which user group?**
3. **Describe the three main features of your vehicle that make it the best buy for the consumer.**
4. **How will your vehicle improve the quality of life of the citizens in your town or city?**