

The Canada Science and Technology Museum  
presents

**Cycle-ology:**  
**A Virtual Exploration  
of the Bicycle**

**Section 4: Cycles in Society**



## Introduction

The following activities will encourage students to think about the effects that the bicycle has on our society. Students will explore the many benefits of the bicycle and identify its main uses and impacts on people's lives.

Teachers may request an answer package for more detailed Activity Sheets by e-mailing [virt\\_prog@technomuses.ca](mailto:virt_prog@technomuses.ca). Please allow at least a week for us to reply.



# Activity 4.1: The Bicycle as a Means of Transportation

Suitable for Grades 4 – 6

Purpose: Students will compare the advantages and disadvantages of the principal modes of transportation.

The bicycle is an important mode of transportation. In fact, it was the first personal mechanical mode of transportation. Prior to the bicycle; humans were dependent of their own feet or other animals. This invention had an important social impact as it allowed for a more efficient and quicker way of travelling.

## Which Mode of Transportation is Best?

Have students name the principal non-mechanical and mechanical means of transportation that exist today: ship, train, car, bus, truck, cable car, subway, snowmobile, canoe, airplane, bicycle and their own two feet.

Ask the students which means of transportation they regularly use?

Using Activity Sheet 4.1, ask students to list the advantages and disadvantages of the principal modes of transportation they use on a regular basis.

Name: \_\_\_\_\_

Activity 4.1  
Which Mode of Transportation is Best?  
Compare the advantages and disadvantages of the following modes of transportation.

 The Bicycle	Advantages	
	Disadvantages	
 The Car	Advantages	
	Disadvantages	
 The Bus	Advantages	
	Disadvantages	
 Walking	Advantages	
	Disadvantages	

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## The Bicycle Commuter Interview

Have students interview a member of their family or community who cycles to work on a regular basis. Have students write down their questions before the interview.

Some examples of questions:

- Describe your daily commute to work on a bicycle.
- How long does it take for you to get to work? How long would it take if you used a car?
- Why do you cycle to work?
- Did your commute by bicycle influence your current job or living location?
- What are the advantages/disadvantages of cycling to work every day?
- What is the most rewarding thing about cycling to work?
- What would you say to someone to encourage them to cycle to work?

Have students complete written reports and allow time for class discussion about the results of the interviews.

Ask the class if the people interviewed have influenced their choice of using their bicycles as a regular means of transportation.



## Activity 4.2: A City with No Cars!

### Story Writing

Suitable for Grades 4 – 6

Have students write a short story about a city that bans cars and replaces them with bicycles. Include the following:

- What are the principal changes that this city could encounter? Would the city be planned differently?
- How would this new law affect the environment? How would this new law affect the citizens of the city? What would be the advantages and disadvantages for the citizens?
- Have students draw a picture of the city and its citizens.



### Alternate Activity: Student Essay

Suitable for Grades 6 – 7

Have students write an essay on the following topic:

It has recently been announced that your city has planned to ban all automobiles and replace them with bicycles. Do you support or oppose this plan? Why? Use specific reasons and details to support your answer.

This activity can also be conducted as a class debate. Separate the class into two groups and assign each group a position (for or against the new law). Offer each group enough time to list their arguments and hold a structured debate including opening and closing statements.



## Activity 4.3: Sustainable Transportation

Purpose: Students will understand the concept of sustainable transportation and identify the countries that frequently use the bicycle as their principal means of transport.

Introduce the concept of sustainable transportation to students. Visit Transport Canada's website for more information on sustainable transportation at:

<http://www.tc.gc.ca/environment/menu.htm#sustainable>.

### Class Discussion

#### Suitable for Grades 5 – 7

Ask the students to list various sustainable means of transportation and non sustainable means of transportation. List their ideas on the board.

Ask students if they think Canadians rely principally on sustainable or non-sustainable means of transportation? Why?

### Identification of Sustainable Transportation Culture

#### Suitable for Grades 5 – 7

Inform students that the bicycle is the principal means of transportation in many parts of the world. Have students identify the countries where this sustainable means of transportation plays an important role in many of its citizen's daily lives. Encourage students to search the web for information including this Canada Science and Technology Museum website: <http://www.sciencetech.technomuses.ca/english/collection/cycles18.cfm>. Have the students identify these countries using the world map provided in Activity Sheet 4.3.

Compare the students' answers and discuss the following questions with the class:

- What do these countries have in common?
- Why are the residents of these countries more likely to use a bicycle for transportation rather than a car?
- Why is the bicycle a more uncommon means of transportation in Canada?
- Do you think this trend will change? Will Canadians trade in their automobiles for bicycle transportation?



### Sustainable Transportation Posters

#### Suitable for Grades 4 – 7

Divide students into groups and have each group create a poster encouraging members of their community to prioritize sustainable means of transportation as a replacement for the use of automobiles in their daily activities.



Obtain the approval of your city or town to display students' posters in various public locations (e.g. City Hall, municipal libraries, community centers, recreation centers, arenas etc.)

## Activity 4.4: Bicycles in Developing Countries

Suitable for Grades 4 – 6

Purpose: Students will discover the many uses of the bicycle in developing countries and recognize the importance of this device to these communities.



### Class Discussion

Start this activity by asking the students why they use their bicycles. Do they use their bicycles to get to school or to ride to a friend's house; do they use them for recreation or for physical fitness? How important is the bicycle in their every day life? Could they live without their bicycles? If someone took away their bicycles what impact would that have on their life?

Ask the students if they think people from developing countries use their bicycles for the same reasons as we do here in Canada. What would a bicycle symbolize for a person living in a developing country?

In developing countries, bicycles represent an important means of transportation. It allows teachers to get to schools which are too far to walk to. It allows patients to travel quickly to medical services to obtain treatment and enables people to carry large quantities of merchandise to sell in markets permitting them to earn money.

### Web Exploration

Invite students to view photographs and video clips on the World Bicycle Relief website to learn more about the impacts of the bicycle on developing countries at:

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

Students can also explore the Massive Change in Action page on the Virtual Museum Canada's website which tells the story of a Canadian who used ingenuity to design a bicycle ambulance in order to transport patients from African villages and farms to clinics and hospitals.

<http://www.massivechangeinaction.virtualmuseum.ca/stories/ambulance/index.html>



### Story Writing

Have students write a story about a person living in a developing country who receives his first bicycle. What purpose does his bicycle serve? How does the bicycle change his life and his family's life?



# Activity 4.5: Bicycles in the Workplace

Suitable for Grades 4 – 6

Purpose: Students will discover that the bicycle is used in different workplaces for its economy and efficiency.

Most of us use our bicycles for exercise, recreation and enjoyment but did you know that the bicycle has other practical uses? Did you know that many people from around the world use their bicycles in their workplaces? Many policemen, messengers and vendors use their bicycles at work as it helps them accomplish the tasks they need to do. They have found that the bicycle is a practical tool that goes beyond recreation.

## Web Exploration

Have students list some occupations that use the bicycle by completing Activity Sheet 4.5. Before students begin the activity, have them explore the Bicycles in the Workplace website at:

<http://www.ibike.org/economics/work-bike.htm> for ideas and suggestions.



Name: \_\_\_\_\_

Activity 4.5  
Bicycles in the Workplace

Occupations That Use a Bicycle	Use of the Bicycle	Advantages of Using a Bicycle in the Workplace
1.		
2.		
3.		
4.		
5.		
6.		
7.		

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# Activity 4.6: Cycling and Physical Activity

Suitable for Grades 4 – 6

Purpose: Students will be challenged to use their bicycle on a daily basis and adopt a healthier lifestyle.

Regular physical activity is essential to good health. Unfortunately, many young Canadians aren't getting enough exercise. In response to this crisis, Health Canada has developed the Canada Physical Activity Guide to encourage youth to increase their levels of physical activity. Have students explore the guide on the web at:

[http://www.phac-aspc.gc.ca/pau-uap/paguide/child\\_youth/youth/index.html](http://www.phac-aspc.gc.ca/pau-uap/paguide/child_youth/youth/index.html)

Ask the students if they meet the levels of physical activity recommended by the Guide.



## Class Discussion

Hold a discussion with the class as to why so many young Canadians do not exercise on a regular basis.

List the reasons on the board.



## Physical Activity Brochure

Divide the class into groups and have each team create an educational brochure that will encourage youth to participate in physical activity. The objective of this brochure is not only to motivate youth but also to inform them of the benefits of a healthy lifestyle. Have students incorporate the following elements in their brochure:



- The importance and benefits of physical activity
- Suggestions on how to motivate young people into getting more exercise
- A listing of suggested physical activities

Have students share their ideas and suggestions by presenting their brochure to the rest of the class

## Cycling Across Canada Challenge

To motivate your students into pursuing regular physical activity, propose the challenge of collectively cycling or walking across the country or part of it by following the Trans Canada trail.



Explain the challenge to your students. Every day, they will individually keep track of the kilometres that they have travelled by bicycle or by foot. Encourage students to use their bicycle not only for recreational use but also as a means of transportation — cycle to school or to a friend's house. Many websites exist to calculate distances, Google Maps or Map Quest allows you to calculate kilometres by entering a departure and arrival address. For instance the student may enter his home address and the school's address to calculate the distance that he/she has cycled. Every day, each student will record his or her progress using

Name: \_\_\_\_\_

Activity 4.6  
Cycling Across Canada Challenge

Week of: \_\_\_\_\_

Day	Kilometres Walked
Monday	_____ km
Tuesday	_____ km
Wednesday	_____ km
Thursday	_____ km
Friday	_____ km
Saturday	_____ km
Sunday	_____ km
Total for the Week	_____ km



#### Activity Sheet 4.6.

Students weekly kilometres will be tallied with the group's results. Once the class' weekly progress has been calculated enter their number of kilometres in the Trans Canada Trail virtual walk across Canada site at:

<http://maps.tctrail.ca/>

This site will record the distances achieved by the class and track their progress along the trail.

Using a large map of Canada, track the class' progress on a weekly basis. This map and tracking system will act as a motivational tool for students. When the students have successfully travelled the full length of the Trans Canada Trail, reward the class with an outing to visit the part of the trail nearest to the school. You may also want to organize a healthy potluck picnic amongst the students to enjoy near the trail.

#### **Extended study: the Virtual Tourist**

As the class tracks their progress on the trail, have the students discover the cities and towns that they cross. Make a virtual visit of the locations on the trail by consulting the various municipalities' website. For each location visited, students can describe the population, the land, principal industries, principal languages spoken and main tourist attractions.

#### **Tips for the teacher**

To achieve the goal faster, you may want to propose this challenge to other classes of similar grades in the school. Classes can combine their kilometres completing the Trans Canada Trail challenge much faster.



# Activity 4.7: Bicycle Safety

Suitable for Grades 4 – 6

Purpose: Students will describe the basic rules and procedures associated with bicycle safety.

## Web Exploration

Have students visit the Young Cyclist’s Guide on the web which describes the rules that one must follow to ensure their personal safety and the safety of others when cycling.

<http://www.mto.gov.on.ca/english/safety/cycling/youngcyclist.htm>

Following their exploration of this website, have students complete the following activities.



## Safety Poster

Divide the class into groups and have the students create a poster promoting bicycle safety. Posters should include: a catchy slogan, illustrations or photographs and bright attractive colours.



Have each team create a poster on one specific theme on bicycle safety, for example: helmet safety, road signs, road rules, hand signals and bicycle maintenance.

Have each team present their poster to the class before putting them up in the classroom or in the school’s hallways.

## Bicycle Behaviour Theatre

Divide the classroom into small groups. Have each team list responsible and irresponsible actions that a cyclist may do as he or she rides their bike. Invite each team to perform skits illustrating a responsible and irresponsible action and have the rest of the class guess to what action they correspond.

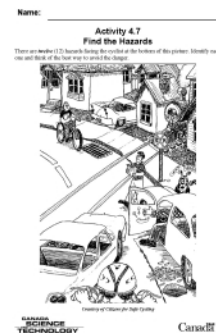


This activity can also be done in an improvisational style. Have students pick good and bad cycling behaviours from a hat and invite them to perform their improvised skit in front of the classroom. For added challenge, inform the students that they must act out the opposite behaviour from what they were handed. For example, if a student were given a “responsible cyclist behaviour”, the student must perform its corresponding irresponsible action.

## Spotting the Hazards

*Activity reproduced with the permission of Citizens for Safe Cycling*

Have students use Activity Sheet 4.7 to list the potential hazards that cyclists can encounter. Once each hazard has been located, have students write down how each hazard can be avoided. Review the answers with the class.



## Activity 4.8: The Lance Armstrong Story

Suitable for Grades 4 – 6

Purpose: Students will be captivated and inspired by Lance Armstrong’s story of perseverance and determination.

### Web Exploration

Competitive cycling has become a very popular sport over the past decades. There is one cyclist in particular that has been a great ambassador for the sport and has popularized competitive cycling with his success and record holdings. His name is Lance Armstrong and he is a wonderful example of someone who never gave up.



Invite students to read the biography of Lance Armstrong on his official website at: <http://www.lancearmstrong.com/>.

- Why was Lance Armstrong forced to stop cycling in 1996?
- How did Lance Armstrong react to this?
- What accomplishments did Lance Armstrong realize following his illness?
- Now that Lance Armstrong has retired from cycling, what new challenges has he taken on?
- Why is Lance Armstrong’s story an example of tenacity?



### Student Essay

Have students write an essay about the importance of achieving their goals through determination and tenacity. Have them include a personal story where they achieved their goals through their persistence and hard work.

### Athletic Inspirations

Research other athletes and their incredible stories of determination by exploring the Olympic Movement’s website at: [http://www.olympic.org/uk/index\\_uk.asp](http://www.olympic.org/uk/index_uk.asp)

Have students write their biographies and present their athletes’ story to the rest of the class in an oral presentation.







Name: \_\_\_\_\_

## Activity 4.1

### Which Mode of Transportation is Best?

Can you list the advantages and disadvantages of the following modes of transportation?

 <p>Bicycle</p>	<b>Advantages</b>
	<b>Disadvantages</b>
 <p>Car</p>	<b>Advantages</b>
	<b>Disadvantages</b>
 <p>Bus</p>	<b>Advantages</b>
	<b>Disadvantages</b>
 <p>Walking</p>	<b>Advantages</b>
	<b>Disadvantages</b>

Name: \_\_\_\_\_

## Activity 4.3 Sustainable Transportation Cultures

Using colouring pencils identify the countries where the bicycle is an important means of transportation.



Name: \_\_\_\_\_

## Activity 4.5 Bicycles in the Workplace

Occupation That Uses a Bicycle	Use of the Bicycle	Advantages of Using the Bicycle in the Workplace
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Name: \_\_\_\_\_



## Activity 4.6 Cycling Across Canada Challenge



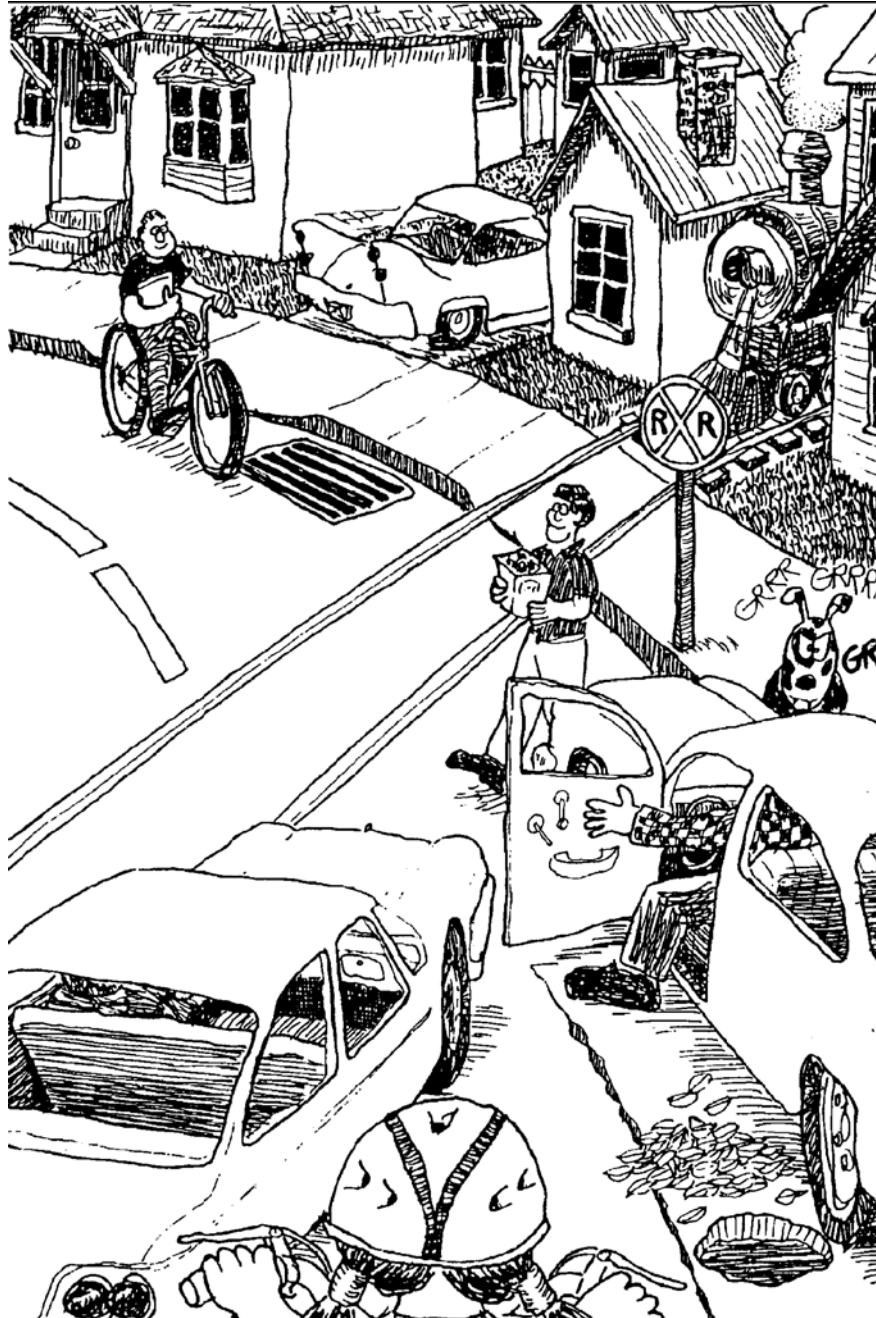
Week of: \_\_\_\_\_

Day	Kilometres Ridden
Monday	_____ km
Tuesday	_____ km
Wednesday	_____ km
Thursday	_____ km
Friday	_____ km
Saturday	_____ km
Sunday	_____ km
<b>Total for the Week</b>	_____ km

Name: \_\_\_\_\_

## Activity 4.7 Find the Hazards

There are *twelve* (12) hazards facing the cyclist at the bottom of this picture. Identify each one and think of the best way to avoid the danger.



*Courtesy of Citizens for Safe Cycling*