

Lesson #14

Once Upon a Bike

Subject Areas

Social Studies, Language Arts,
Science

Student Skills

Evaluating statements for factual information, setting criteria, predicting the needs and interests of others, presenting information, designing a special bike or community design idea, writing questions, comparing variables that affect cycling, setting criteria and ranking their ideas, evaluating to make a selection, peer review, reading for comprehension, reflecting on experience, expressing ideas

Developing Vocabulary

Infrastructure, obstacles, barriers

RELATED BACKGROUNDERS



**Energy
Needs**



**Energy and the
Environment**



**Taking
Action**

Students consider what they like about biking and play a true-or-false game to discover how the use of bikes differs over time and place. Students interview someone who can tell them about cycling in another time or place to help them learn more about the historical, cultural and social role of bikes. Students identify any obstacles to cycling, then come up with a bike design that overcomes some of those obstacles. They also suggest changes to rules, roads, and other infrastructure that might increase the amount people cycle.

Learning Objectives

- ◆ to make connections between culture, history, infrastructure and governance and their relative influence on the role of cycling in communities
- ◆ to set criteria and then make a selection about who to interview on biking
- ◆ to conduct an interview based on a student-generated or student-modified questionnaire
- ◆ to identify what affects choices, to understand obstacles and to suggest solutions to biking challenges

Materials You Need

- ◆ journals or other graphic organizer
- ◆ copies of Cycling: True or False?, a handout provided at the end of this lesson, and the answer key for teams of three or four
- ◆ copies of the handout, Keys to a Good Interview, provided at the end of this lesson
- ◆ a letter to parents with a permission form (see the sample provided at the end of this lesson)

Time Estimate

Lead In

Main Activity

Wrap Up

45 minutes

165 minutes

30 minutes

4
HOURS

"When I see an adult on a bicycle, I do not despair for the future of the human race."—H.G. Wells

What You Do

Lead In

45 minutes

Lead In

1. Ask students to make a journal entry on biking. You may wish to introduce biking with a picture book or short story. For younger students, consider *Let's Go: The Story of Getting from There to Here* by Lizann Flatt. Give students the choice to write about themselves or a character in a book. To help get them started, pose questions:
 - ◆ What do you like about bikes and biking?
 - ◆ What is your favourite cycling memory?
 - ◆ What type of biking do you enjoy?
 - ◆ What are the pros and cons of using a bike for transportation?
2. Have students pair up to share their entries and identify four important points that came up in their discussion.
3. Have the pairs complete the handout, *Cycling: True or False?* Explain that they are to read each statement and make a quick decision and mark whether it is true (T) or false (F).
4. After the students have worked through all of the statements, provide each pair with a copy of the answer key. Ask students to discuss the information on the sheet they did not match correctly.
5. Have the pairs move into groups of four and ask each person to share two pieces of new knowledge and what surprised them the most.
6. Invite the groups to share what surprised them most with the class.

Main Activity

165 minutes

Main Activity

PART A

7. Tell students that to learn more about cycling from another time or place, they will be interviewing someone. Explain that the goal of the interview is to gather information about the everyday role of bicycles in another time or place, to explore how things are different here and now, and to identify any challenges their interviewee might have with riding.
8. Explain that anyone who has ridden a bike may have an interesting story to tell. Ask students what they think would make a story interesting. Gather ideas from the class.
9. As a class, discuss how to set criteria for selecting someone suitable for an interview. You may wish to draw on these examples to support diverse perspectives:
 - ◆ A senior would know about cycling in a different time.
 - ◆ Someone from another place—someone new to Canada or someone

Main Activity (continued)

who has traveled a lot—would know about cycling in a different place. Note that the Cities for Mobility website (www.cities-for-mobility.net) offers perspectives from Europe.

- ◆ Someone who rides a bike for fun every chance they have might have an interesting story to tell.
- ◆ Someone who cycles to and from work might have an interesting story to tell.

Ideally, students will conduct face-to-face interviews, but alternatively, they could choose someone they could interview by phone or video conference (e.g., Skype). If students are finding it difficult to arrange interviews, consider inviting several people from the community to visit, or be visited by, the class.

10. Ask students to list who they could interview and indicate why that person would be a good choice and how they would be able to meet. Have students rank their choices using the criteria they helped develop in the previous step.
11. Hand out a letter to communicate information about the project to parents (a sample is provided at the end of this lesson). Ask students to review, with their parents, the criteria and their list of people before finalizing their selection and setting up the interview.
12. Before the interview, ask students to predict what their interviewee might tell them about cycling and add this to their notes.

PART B

13. Discuss what makes a good interview question. Generate a variety of questions, as a class or in teams. Use the sample questions below to assist you.
 - ◆ What do you like about cycling?
 - ◆ When and where did you start cycling?
 - ◆ What was cycling like there at that time?
 - ◆ When did you do the most cycling? What was it about those times that made cycling a big part of your life?
 - ◆ What is your best cycling memory?
 - ◆ Do you still cycle or when was the last time you went cycling?
 - ◆ A lot of people find cycling is not their first choice when they are choosing a way to get around. What do you think is the problem?
 - ◆ What would need to happen to make cycling possible for more people today?
 - ◆ What would you need to cycle more?
 - ◆ What kind of features would you like on a bike?
 - ◆ How would you like our town to be organized for more cycling?
 - ◆ Why do you care about this issue?
 - ◆ Is there anything else about cycling that you'd like to add?
 - ◆ Do you have any questions for me?
14. Identify which questions would be suitable for most interviews and have each student select a total of ten questions that suit the person they plan to interview.

Main Activity (continued)

Alternatively, you could select ten as a class that all students would use and prepare a handout.

15. Conduct a peer review for the interview questions and provide students time to exchange ideas and make revisions.
16. Hand out and discuss the Keys to a Good Interview and specify when the interview needs to be completed. If students have access to a tape recorder, tell them they may want to take it with them.

PART C

17. When the interviews are complete, have students share their findings in small groups. Ask groups to summarize and share their most interesting observations.
18. As a class, have groups share their findings and explore the obstacles people faced or face around biking. You may want to sequence your discussion: for example, *What did cycling used to be like? What is biking like in other places? What prevents people from biking more?*
19. During the discussion, write a list of obstacles to cycling for everyone to see. This list may include topics such as weather, safety, skills, and bike access.
20. Use the following examples to assist in drawing out students' ideas on how to address obstacles to biking:
 - ◆ Design a license plate with a clever slogan to encourage drivers to keep their distance.
 - ◆ Design some safety equipment that riders can wear or impose new safety rules on motorists.
 - ◆ Establish times when roads are dedicated to cyclists and motorized vehicles are not allowed.
 - ◆ Create special bike lanes on existing roads or suggest special bike designs (e.g., three-wheelers for elderly cyclists).
 - ◆ Use a railway line that is no longer being used for trains as a commuter bike trail.
 - ◆ Add two to three new rules for the road to increase bicycle use.
 - ◆ Redesign transit routes, sidewalks and/or roads.
21. Have students design a special bike, or a place, that would encourage people to get out and bike more. Instruct students to provide a labeled diagram with a paragraph to explain how their design helps achieve this goal.

Wrap Up

22. Ask students to summarize what they have learned and record any changes to their own plans for cycling by adding an information box with a personal note to their design.
23. Invite students to share their designs with the class. They could create an attractive display on a high traffic area bulletin board, for example. Lead a discussion to identify how students could share their interviews and designs with other students and their community.

Wrap Up

30 minutes

Adaptations & Extensions

- **Wheel Day:** Provide each student with a paper wheel to use to describe what it would be like to use a bike instead of an automobile. See *Divorce Your Car*, by Katherine Alvord. Ask students to think about using a bike for the various activities of a regular day, and what would help make it happen. Have them record a different activity in each segment of the wheel and then comment on how they could accomplish the same activity, or something comparable to it, by bike.
- **Create your best cycling memory:** Ask students to plan an ideal day on a bike and explain why. Given them time to live it, and then report on it in class. You might ask them to visit resources like www.momentumplanet.com to see cyclist stories.
- **Take students on a bike ride to a community destination:** Combine this trip with a field trip plan or other event. Provide opportunities for students to reflect on the experience afterwards and share/celebrate experiences (related directly to cycling memories). This can be combined with effort(s) to get bikes to school for trips. Resources like BC Car Free <http://www.car-free.ca/> offer suggestions on places you can travel. *The Geography of Hope* by Chris Turner provides hopeful stories from all over the world; you might choose to share excerpts from it with students along the way.
- **Share what you've learned:** Host a parent or community open house. Create a display with salvaged or simulated bike parts. Make the display interactive with questions and answers that reveal interesting facts and figures. Set up a booth to help visitors track their transportation choices using the online calculator.
- **Find the news angle to your story.** Write an article for the local newspaper that describes how many people were interviewed, what students learned and how they were impacted by what they learned, and what they plan to do next. Include an invitation to any events for the public or calls to action.

Assessment Rubric

These criteria can be expanded or adapted to emphasize different aspects of the lesson. You can use the rubric to help students self-assess their participation and experience, and then pose follow-up questions to the class encouraging them to reflect further on their challenges and insights.

Knowledge and Understanding	1	2	3	4
Demonstrate an understanding of the importance of being physically active, and apply physical fitness concepts and practices that contribute to healthy, active living.	demonstrates limited understanding of content	demonstrates some understanding of content	demonstrates considerable understanding of content	demonstrates thorough understanding of content
Thinking and Investigation	1	2	3	4
Evaluate the effects both beneficial and harmful of various technologies on human body systems.	uses critical/creative thinking processes, skills, and strategies with limited effectiveness	uses critical/creative thinking processes, skills, and strategies with some effectiveness	uses critical/creative thinking processes, skills and strategies with considerable effectiveness	uses critical/creative thinking processes, skills, and strategies with a high degree of effectiveness
Communication	1	2	3	4
Communicate orally in a clear, coherent manner, presenting ideas, opinions, and information in a readily understandable form.	communicates for different audiences and purposes with limited effectiveness	communicates for different audiences and purposes with some effectiveness	communicates for different audiences and purposes with considerable effectiveness	communicates for different audiences and purposes with a high degree of effectiveness

Cycling: True or False?

1. There are about 400 million bicycles in the world.
2. A quindem is a five-seater bicycle.
3. The world speed record on a bicycle is 245 kilometres per hour.
4. On average, people in North America use their bicycles for 5% of all trips they make around town.
5. A football helmet will work just as well as a bicycle helmet.
6. Most bicycles contain enough metal to trigger the vehicle detector wire loops cut into the pavement that help control traffic light signals.
7. It is safer to ride facing traffic.
8. Thirty per cent of vehicle-bicycle collisions occur at intersections.
9. On average, cities in developed countries such as Canada use about 11% of all land for roads and parking lots for motor vehicles.
10. Before 1869, bicycle “tires” were made of iron.
11. There are 100 bikes for each automobile in China.
12. In a school in the United States, students are allowed to ride unicycles in the halls between classes.
13. The longest cycling trail in the world will connect Portland, Oregon, and Key West, Florida, when construction is complete.
14. Every Sunday, on average, 2.5 million people in South America ride or walk the trails and paths on streets in their city.
15. The most efficient machine on earth for the weight it can move for the amount of energy used is a bicycle.
16. Since 1985, the average distance that children cycle has increased by 58%.
17. Solar-powered fans provide tailwinds along a cycle path in Qatar.
18. One hundred bicycles can be produced for the same energy and resources it takes to build one medium-sized car.

Answer Key—Cycling: True or False?

1. There are about 400 million bicycles in the world.

FALSE: There are about 400 million bicycles in China, and there are about a billion bicycles in the world. That means there are about twice as many bicycles in the world than automobiles. Every year, about 50 million new bicycles—and 20 million new cars—are produced.¹

2. A quindem is a five-seater bicycle.

TRUE: The first quindem was built in 1940.² The longest tandem or “bicycle built for two” ever made was for thirty-five people. It is almost 20 metres long and weighs about as much as a small car.³

3. The world speed record on a bicycle is 245 kilometres per hour.

TRUE: The world speed record on a bicycle is held by John Howard, an Olympic Cyclist and Ironman triathlon winner from the United States. In 1985, he pedaled 245 km/hour while cycling in the slipstream of a specially designed car.⁴

4. On average, people in North America use their bicycles for 5% of all trips they make around town.

FALSE: People in North America use their bicycles for **less than 1%** of all their trips around town. In Italy, 5% of all trips around town are on bicycle. In Japan, it is 15%, and in the Netherlands it's 30%.⁵

5. A football helmet will work just as well as a bicycle helmet.

FALSE: Only a bicycle helmet is made to protect the head from the kinds of falls that can occur while biking. Other helmets and hard hats are made to protect the head from other kinds of injury.⁶

6. Most bicycles contain enough metal to trigger the vehicle detector wire loops cut into the pavement that help control traffic light signals.

TRUE: You can increase the likelihood of detection by stopping your bike inside and near the edge of diamond and circle shaped sensor lines and by leaning the bike closer to the ground (holding it with one hand).⁷

7. It is safer to ride facing traffic.

FALSE: It is only safe to ride on the right, **with** traffic. Riding against traffic can confuse and surprise drivers. It can also make you hard to see by drivers turning at intersections and coming out of driveways. Almost one quarter of all bicycle-car collisions result from bicyclists riding against traffic or riding on the sidewalk.⁸

8. Thirty per cent of vehicle-bicycle collisions occur at intersections.

FALSE: It's actually double that. Sixty per cent of vehicle-bicycle collisions occur at intersections and most of these occur when the cyclist is moving straight ahead. Because intersections are places where people travelling in different directions cross paths and often change directions, the potential for collisions is high. Pedestrians and cyclists are most vulnerable. Travel safety information can be sourced from local transportation groups (e.g., in BC, see www.bikesense.bc.ca).⁹

1. <http://www.didyouknow.org/bicycles.htm>

2. <http://www.didyouknow.org/bicycles.htm>

3. <http://www.bikewebsite.com/trivia.htm>

4. <http://www.didyouknow.org/bicycles.htm>

5. http://www.nationalgeographic.com/magazines/index.html?source=sem_G1550&kwid=kids%20national%20geographic|3311083967&gclid=CP_e_19SauZ0CFSENDQoddDFsiQ

6. <http://www.aap.org/family/tbikmyth.htm>

7. British Columbia Bicycle Operator's Manual, “Bike Sense,” p. 21, www.bikesense.bc.ca

8. <http://www.aap.org/family/tbikmyth.htm> <http://www.californiabikecommute.com/FACTS.pdf>

9. British Columbia Bicycle Operator's Manual, “Bike Sense,” p. 14, www.bikesense.bc.ca

- 9. On average, cities in developed countries such as Canada use about 11% of all land for roads and parking lots for motor vehicles.**
FALSE: Cities of developed countries typically use at least three times that (or 1/3 of their land) for roads and parking lots for motor vehicles.¹⁰
- 10. Before 1869, bicycle “tires” were made of iron.**
TRUE: They were made of iron.¹¹
- 11. There are 100 bikes for each automobile in China.**
FALSE: There are 250 bikes for each automobile in China. Bicycles are an important means of transportation in China, and most Chinese still ride an all-purpose, one-speed bike. In the 1980s, it was common in China for an entire family of three to travel on a single bike. Usually dad would pedal, the child would sit on a kind of make-shift seat behind the handlebars, and mom would sit side-saddle on the rear rack.¹²
- 12. In a school in the United States, students are allowed to ride unicycles in the halls between classes.**
TRUE: At St. Helen’s School in Newbury, Ohio, unicycling is a mandatory subject. Surprisingly, there are not many collisions!¹³
- 13. The longest cycling trail in the world will connect Portland, Oregon, and Key West, Florida, when construction is complete.**
FALSE: The longest cycling trail in the world will connect St. John’s, Newfoundland, and Vancouver, British Columbia. The Trans-Canada trail will be 21,500 km long and link 1,000 communities when it is finished.¹⁴
- 14. Every Sunday, on average, 2.5 million people in South America ride or walk the trails and paths on streets in their city.**
TRUE: There are streets in many countries of South America that are closed to automobiles on Sundays and holidays.¹⁵
- 15. The most efficient machine on earth for the weight it can move for the amount of energy used is a bicycle.**
TRUE: The most efficient machine on earth for the weight it can move for the amount of energy used is a human on a bicycle.¹⁶
- 16. Since 1985, the average distance that children cycle has increased by 58%.**
FALSE: Since 1985, the average distance that children cycle has *declined* by 58%. Since that time, walking has also decreased among children, by 19%. Over the same time period, the average distance traveled in an automobile has increased by 70%.¹⁷
- 17. Solar-powered fans provide tailwinds along a cycle path in Qatar.**
FALSE: The 35-kilometre cycle path along the coast of Doha, Qatar, is air conditioned.
- 18. One hundred bicycles can be produced for the same energy and resources it takes to build one medium-sized car.**
TRUE¹⁸

10. <http://www.californiabikecommute.com/FACTS.pdf>

11. Mark Riedy, *The Cycling Trivia Book: 1001 Questions From the Velocipede to Lance*, Breakaway Books, 2008.

12. <http://www.chinatravel.com/facts/general-china/china-transport/China-Bicycle.htm>

13. <http://www.bikewebsite.com/trivia.htm>

14. <http://www.tctrail.ca/home.php>

15. <http://www.cicloviasunidas.org/recursos/doc/Declaracion%20Bogota%20EN.pdf>

16. <http://www.bikewebsite.com/trivia.htm>

17. Richard Reading, *The Authors: Journal Compilation*, Blackwell Publishing Ltd., 2006.

18. <http://www.californiabikecommute.com/FACTS.pdf>

Keys to a Good Interview

- Arrange a time and a quiet location for the interview that is convenient for the person you are interviewing.
- Practice your questions before the interview. Know what questions you want to ask and why you want to ask them.
- Bring the questions with you as well as a pen and paper to take notes. Write down only the most important points. If you bring a buddy to the interview with you, he or she can help you take notes.
- Start by thanking the person for their time, and by introducing yourself and your buddy. Take a minute to explain why you are doing the interview.
- Take time to listen as each question is answered. Before you go on to the next question, you may find it is important to ask something to make sure you understand their answer completely.
- Don't miss an opportunity to ask a good follow-up question. You may be curious about something that is said and want more information. Go ahead and ask about it, and then return to your prepared questions to make sure you cover what you planned.
- Thank the person at the end of the interview. Ask them if they have anything else they would like to tell you. Also ask if they have any questions for you. Thank them again.

[school letterhead]

[date]

Dear Parent,

As we explore sustainable transportation in our [subject area] unit this month, students will be interviewing someone who can tell them about cycling in another time and/or place to help them learn more about the historical, cultural and social role of bikes. We are encouraging students to find unique stories. The class will review what makes a good interview and how to be a good interviewer, and prepare a set of questions.

As a class, we will work together to set criteria that will help each student select an appropriate person to interview. **That person may have cycled many years ago or cycled in another part of the world or cycle regularly today. If possible, the person your child interviews will be available to meet face-to-face.** If that is not possible, students can also conduct their interviews by phone or video conference (e.g., Skype).

With our criteria in mind, students have made a list of people they could interview. They may have identified a grandparent, another relative, a neighbour, or someone else in the community. Here are suggested steps for you and your child:

1. Ask your child to review their list with you and explain how they came up with their ideas. Discuss any other people that you think your child could consider.
2. Talk about which person your child thinks would be most appropriate to interview. Evaluate the list and decide together.
3. Complete the bottom portion of this form and return it to school with your child.
4. When students have prepared their interview questions, they will bring them home and be ready to conduct the interview.
5. It would be helpful if you would assist your child with arranging the interview time and location and provide transportation, if needed. You are invited to watch while your child conducts the interview.

Please contact me if you have questions or require additional information. We look forward to sharing the results of our project with you as we learn more about how people use the bicycle. Thank you for your support!

Sincerely,

[your name]

Select one:

I, _____ (print parent/guardian name),
 hereby give permission for my son/daughter, _____ (print name),
 to interview _____ (print name of person selected).

or

I, _____ (print parent/guardian name),
 prefer that my child is provided with someone to interview at the school.

Parent/Guardian signature: _____ Date: _____