HeadSmart: Bike Helmet Safety

Overview

Task Context
Students need to be able to utilize problem solving and decision making skills as they relate to personal safety and injury prevention

Prior Knowledge
In order to complete Subtask One, Part Two, students in Grades 7 and 8 will need to be able to create a graph.

Subtask One: Who Needs a Helmet?

Description
Students discuss risks associated with cycling and related sports (e.g., in-line skating, scootering and skateboarding) and the importance of protecting the brain by wearing a helmet. Demonstrations highlight the importance of wearing a bicycle helmet and its ability to protect the brain from trauma.

Expectations

Grade 7	Grade 8
7e64 • listen and respond constructively to alternative ideas or viewpoints	8e62 • contribute collaboratively in group situations by asking questions and building on the ideas of others;
7e65 • express ideas and opinions confidently but without trying to dominate discussion;	8p14 • analyse situations (e.g., hitchhiking, gang violence, violence in relationships) that are potentially dangerous to personal safety;
7m81 • systematically collect, organize, and analyse data;	8m91 • systematically collect, organize, and analyse primary data;
7m102 • display data on bar graphs, pictographs, and circle graphs, with and without the help of technology;	

Groupings
Students Working As Whole Class
Students Working in Small Groups
Students Working Individually

Teaching / Learning Strategies
Discussion
Graphing
Surveys

Notes to Teacher
Biking is one of the most popular activities among young Canadians. Every year in Canada however, over 60 children will die in bike related crashes. Over 5,000 children will be seriously injured (Ontario Brain Injury Association). It is estimated that if all cyclists in Canada wore helmets, one death would be prevented each week. Wearing a properly fitted bike helmet can reduce your risk of serious head or brain injury by 88% (Safe Kids Canada Partner Guide, 2002).

Teaching / Learning
Part One

1. Teachers brainstorm with students some of the risks associated with activities such as bicycling, in-line skating, scootering, and skateboarding. Highlight head injury as one associated risk.
2. Teachers discuss bicycle helmet use.

Sample Discussion Questions

Why is it important to wear a bike helmet every time you ride?
(Discussion should include to protect their brain from injury. Basic information about the brain is provided below)

Why do you think some people do not wear a helmet?
(Discussion should include peer pressure, need to be cool, expense, comfort)

What are some common excuses for not wearing a helmet?
(Excuses might include: “I’m a safe biker”, “I never do stunts”, “I don’t ride on busy roads”, “I’ll look stupid”, “They’re not cool”, “They look ugly”, “It will mess up my hair”, “No one else wears one”, “They’re hot, uncomfortable and heavy”).

3. Teachers review the law on helmet use.

As of October 1995, all people under the age of 18 years must wear a helmet when biking (Young Cyclist Guide, Ministry of Transportation (Ontario).

4. Teachers elicit student opinions and reactions to this legislation and ask them to state their opinions about why such legislation exists.
5. Teachers discuss the implications of following or disobeying this law.
    - What happens if someone does not follow a law?
    - Do the choices choice you make only affect you?
    - How might you feel if you made a choice to break a law and someone else suffered a negative consequence because of that choice?
    - How might you feel if someone else made a choice and you suffered a negative consequence?

Part Two

1. Teachers and students discuss surveys.
    Sample discussion questions:
    What are surveys?
    Who conducts surveys?
    Why do people conduct surveys?
    How do people make use of the resulting information?

2. Teachers explain to students that they are going to conduct a survey to elicit people's opinions on the legislation related to bike helmet use.
3. Teachers and students formulate appropriate survey questions.
    Examples:
    What is the legislation regarding bike helmet use?
    Do you agree or disagree with the legislation?

4. Teachers assign a specific number of people to be surveyed. (e.g., Each student surveys 5 adults, 10 younger students and 15 peers.)
5. Teachers discuss reliability and validity of results (e.g., using a random sample, selecting a target age group, selecting a target gender, etc.)
6. Teachers allow time for students to collect their survey responses.
7. Teachers discuss how students could share this information with others.
8. Teachers divide the class into groups of five.
9. Students in each group use their combined data to create a graph displaying their results.
10. Teachers and students discuss the results of their surveys.
11. Student graphs are displayed around the school.

Resources

Teacher Information: "The Brain"

Teacher Information

The Brain

- The brain is a highly advanced organ in our body that allows us to see, think, hear, feel emotions, communicate and move our body.

- Our brain is covered by our skull which is a hard bone that varies in thickness from about 4-7 mm (Bicycle Helmet Safety Institute), approximately equivalent to the thickness of three pennies stacked up (Young Cyclist Guide, Ontario Ministry of Transportation).

- Our brain floats in a sac of fluid within our skull. When we hit our head, our brain "bumps" against the sides of our skull, like a boat crashing against a dock in storm. Like a blow to other parts of our body, swelling occurs and puts pressure on the brain causing a temporary malfunction and/or destruction of cells. If a blow to the head is severe enough, blood vessels in the brain will tear causing bleeding which also puts pressure against the brain squeezing out vital oxygen supply (Young Cyclist Guide, Ontario Ministry of Transportation).

- Once our brain is injured a bandage or cast cannot make it heal. It can take years for a brain to even partially heal and most of the time it never completely heals. People can even die from seriously injuring their brain.

- Wearing a helmet properly, can reduce how much force the skull must take during a crash and therefore reduce how much the brain crashes around inside the skull (Young Cyclist Guide, Ontario Ministry of Transportation).

Subtask Two: Does it Fit?

Description
Students demonstrate how to properly fit a bicycle helmet.

Expectations

Grade 7	Grade 8
7e48 • ask questions and discuss different aspects of ideas in order to clarify their thinking;	8e62 • contribute collaboratively in group situations by asking questions and building on the ideas of others;

Groupings
Students Working As Whole Class
Students Working in Pairs

Teaching / Learning Strategies
Demonstration
Buddy System

Assessment Strategies
Exhibition/Demonstration
Peer Assessment (formative assessment)

Assessment Recording Devices
Checklist

Notes to Teacher
For hygienic reasons, students should bring in their own helmets for this lesson so that they are not trying on a helmet that belongs to another student.

Teaching / Learning
1. Using the information provided (Head Smart: Bike Helmet Safety), teachers review what to look for when purchasing a helmet.
2. Teachers and students discuss how a helmet protects the brain.
    - A helmet works by absorbing the force of the impact and spreading it out over the whole helmet therefore the impact on the head and brain is reduced.

3.Using the teacher notes provided, teachers demonstrate the proper technique of wearing a helmet or invite a police officer to come to the class and do the demonstration.
4. Students practice putting their helmets on properly.
5. Students have a buddy check to see if the helmet is properly fitted. Students use the "Does it Fit?" checklist below to provide each other with feedback.
6. Teachers could use the same checklist to assess student knowledge.

Home Connection
The "Quick Helmet Check" or "Head Smart: Bike Helmet Safety" information could be sent home to parents/caregivers.

Resources
Teacher Information: Head Smart: Bike Helmet Safety
Does it Fit? Checklist
Teacher Information: Quick Helmet Check: "Eyes, Ears and Mouth"

Head Smart: Bike Helmet Safety

WEARING A CERTIFIED BIKE HELMET CAN SAVE YOUR LIFE

Research shows that wearing a certified bike helmet can reduce the risk of serious head injury by up to 85 per cent. But all helmets are not created equal. Cyclists need to buy helmets specifically designed to reduce the risk of head injury.

Many jurisdictions have legislation requiring children, and sometimes adults, to wear a certified bicycle helmet. For instance, in Ontario, all bicycle riders under the age of 18 must wear a certified helmet. Provinces may also require bicycles to be equipped with either a horn, bell or gong, and all provinces require bikes to be equipped with front lights and rear reflectors if they are ridden between dusk and dawn.

What to look for in a bike helmet

Bicycle helmets come in a wide range of colours, styles and sizes to fit every head and budget. Most are well ventilated, comfortable and stylish. Here's what you should look for when shopping for a bicycle helmet.

Certification

Look for a certification mark. A helmet should bear the certification mark of a standards organization such as CSA.

Helmets should bear the manufacturer's identification, model number, size, and warning on limits of protection the helmet offers. As well, helmets must be labeled with instructions on how to ensure proper fit.

WRONG

Fit
Proper fit is essential for safety. Try helmets on before purchasing to make sure you pick one that fits snugly and is comfortable. Check for stability - when the straps and comfort pads are adjusted, the helmet should not move forward, backward or come off. It should sit level on the head and extend down to about two fingers (3 cm) above the eyebrows.

WRONG

Ventilation
Look for air vents that allow heat to escape, providing coolness and perspiration control.

RIGHT

Attachment System
Front and rear straps should meet just below each ear when tightly adjusted. The chin straps should be snug without pinching. Visors provide cyclists with additional protection from the sun and rain, etc.

Visibility
Brightly coloured helmets make the rider more visible in traffic. Reflective strips enhance visibility. Avoid dark-coloured or black helmets since they may be difficult for motorists to see, especially at night.

Replacement
Bicycle helmets are designed to crush on impact. They act as shock absorbers, protecting our heads by cushioning impact. So, replace a helmet after it has been involved in a crash. Normal wear and tear may also put dents in a helmet that are not visible but may decrease its safety.

Quick Helmet Check: "Eyes, Ears and Mouth"

Use this easy 3-point check as a quick way to test for a proper helmet fit.

1. Eyes

Helmet sits level on your child's head and rests low on the forehead, 1 to 2 finger widths above the eyebrow. Your child should be able to see the very edge of her helmet looking up past her eyebrows. A helmet pushed up too high will not protect the face or head well in a fall or crash.

2. Ears

The straps are even and form a "Y" under the earlobe (where the earlobe meets the head) and are snug against the head.

3. Mouth

The buckled chin strap is loose enough so that your child can breathe. There should be enough room so you can insert a finger between the buckle and chin, but tight enough that if your child opens his mouth, you can feel the helmet pull down on top.

Make sure your helmet is approved by a standards organization such as CSA.

Bicycle Helmets

Does it Fit?

Name of student wearing helmet: _____

Name of student assessor: _____

Instructions

Put a check in the "Y" (yes) or "N" (no) column.
Add comments to explain "N" check marks.

Criteria	Y	N	Comments
Helmet is approved by a standards organization such as CSA			
No cracks or visible damage			
Helmet level on head			
Edge of helmet 2 fingers above eyebrows			
Side straps lie flat			
Side straps meet in a "V" under each ear			
Only one finger fits between chin and chin strap			

Subtask Three: Problem Solving

Description

Students work in small groups to apply problem solving and decision making skills as they relate to personal safety and the wearing of bicycle helmets.

Expectations

Grade 7	Grade 8
7e51 • contribute and work constructively in groups; 7e64 • listen and respond constructively to alternative ideas or viewpoints; 7e65 • express ideas and opinions confidently but without trying to dominate discussion;	8e50 • contribute and work constructively in groups; 8e62 • contribute collaboratively in group situations by asking questions and building on the ideas of others;

Groupings

Students Working As Whole Class
Students Working in Pairs

Teaching / Learning Strategies

Collaboration
Problem Solving

Notes to Teacher

The following will need to be photocopied:

Group problem solving scenarios (one copy to be cut up for use by 6 groups)

Teaching / Learning

1. Teachers divide the class into groups of five. Each group is instructed to select a recorder and a reporter.
2. Teachers provide each group with chart paper and a marker.
3. Teachers give each group a scenario and ask them to identify the problem and suggest possible solutions. (Scenarios are provided in this unit or teachers may write their own).
4. Recorders use chart paper to record suggested solutions.
3. Reporters from each group share the group scenario and the suggested solutions.

Resources

Group Problem Solving Scenarios

Group Problem Solving Scenarios

Scenario 1
It is a hot, sunny day. You put on your bike helmet but the chin strap makes you feel sweaty and uncomfortable. You undo the strap and cycle to your friend's house.

Scenario 2

You are about to go for a bike ride with your friends and you are the only one wearing a helmet. Your friends begin to tease you for wearing one. What do you do?.

Scenario 3

You are out for a ride and lose control of your bike and have a fall. You hit your head. Fortunately you were wearing your helmet. What should you do?

Scenario 4

Your friend has walked to your house. You decide to go to the store to rent a video. Your friend asks if she can borrow your dad's bike.

Scenario 5

You go biking with your parents. They always make you wear your helmet when you ride your bike but they do not own helmets of their own.

Scenario 6

Liam meets his friends while biking to school. They have taken off their helmets and are teasing Liam because he is still wearing his. Liam's parents have told him he is not allowed to ride his bicycle without wearing his helmet.