

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 Three, students in Grades 4, 5 and 6 will need to be able to apply decision making and problem-solving skills.

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 4	Grade 5	Grade 6
4p3 • use living skills to address personal safety and injury prevention;	5p3 • apply strategies to deal with threats to personal safety (e.g., in response to harassment) and to prevent injury (e.g., from physical assault);	5p3 • use basic prevention and treatment skills (e.g., basic first aid) to help themselves and others;

Groupings

Students Working As Whole Class

Teaching / Learning Strategies

Discussion

Demonstration

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).

The following materials will be needed:

- plastic tablecloth or drop sheet
- an egg
- a bowl
- two ripe honeydew melons
- an approved bicycle helmet (all helmets must be approved by an approved standards organizations such as CSA)

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)

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. Using the information provided (Head Smart: Bike Helmet Safety), teachers review what to look for when purchasing a helmet.
5. Using the teacher information provided, teachers discuss the purpose and function of the brain.

Part Two

1. Teachers demonstrate the importance of wearing a helmet utilizing the following egg drop activity

Egg Drop Activity

- Teachers ask students to compare an egg and a person's head (hold up an egg). Teachers explain how the hard shell of the egg is similar to the skull, and the softer part on the inside of the egg is similar to the brain.
- Teachers explain that when someone is cycling without a bicycle helmet, and falls, they can injure their head in two ways:

a) Skull fracture:

Teachers discuss how the outer skull of the head can fracture, or crack under sudden pressure. The human skull is only 3/8ths of an inch thick, which is about 3 pennies thick.

b) Brain Trauma:

Teachers take the egg and drop it into a bowl so that it will break.

Teachers discuss how not wearing a helmet can cause brain damage.

Part Three

1. Teachers demonstrate how an approved helmet will protect the brain from trauma using the following melon drop activity.

Melon Drop Activity

- Teachers spread a plastic tablecloth or similar drop sheet on the classroom or gym floor.
 - Teachers hold melon up high and drop melon (head without a helmet) onto the drop sheet. (Melon should smash)
 - Teachers repeat the above action but this time, put a bike helmet on the melon.
2. Teachers and students discuss how the helmet protected 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. Teachers and students discuss why it is important to wear an "approved" helmet (e.g., CSA approved).

Resources**Teacher Information**

- The Brain
- Head Smart: Bike Helmet Safety (This would also be appropriate information to send home to parents)

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).

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.

Subtask Two: Does it Fit?

Description

Students demonstrate how to properly fit a bicycle helmet.

Expectations

Grade 4	Grade 5	Grade 6
4p3 • use living skills to address personal safety and injury prevention;	5p3 • apply strategies to deal with threats to personal safety (e.g., in response to harassment) and to prevent injury (e.g., from physical assault);	5p3 • use basic prevention and treatment skills (e.g., basic first aid) to help themselves and 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 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.
2. Students practice putting their helmets on properly.
3. 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.
4. 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: Quick Helmet Check: “Eyes, Ears and Mouth”
Does It Fit? checklist

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 4	Grade 5	Grade 6
<p>4p3 • use living skills to address personal safety and injury prevention;</p> <p>4p10 • apply decision-making and problem-solving skills in addressing threats to personal safety (e.g., from abuse or physical fighting) and injury prevention (e.g., bicycle safety, road safety);</p> <p>4e66 • listen to others and stay on topic in group discussion;</p>	<p>5p3 • apply strategies to deal with threats to personal safety (e.g., in response to harassment) and to prevent injury (e.g., from physical assault);</p> <p>5e61 • contribute ideas to help solve problems, and listen and respond constructively to the ideas of others when working in a group;</p>	<p>5p3 • use basic prevention and treatment skills (e.g., basic first aid) to help themselves and others;</p> <p>6e61 • use constructive strategies in small-group discussions (e.g., invite other group members to contribute; ask questions to clarify a point; negotiate to find a basis for agreement);</p>

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.